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Once a French speaker, always a French speaker? Bilingual children's thinking about the stability of language

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Abstract

Despite early emerging and impressive linguistic abilities, young children demonstrate ostensibly puzzling beliefs about the nature of language. In some circumstances monolingual children even express the belief that an individual's language is more stable than her race (Kinzler & Dautel, 2012). The present research investigated bilingual children's thinking about the relative stability of language and race. Five-six-year-old bilingual children were asked to judge whether a target child who varied in race (White or Black) and language (English or French) would grow up to be an adult who maintained the target child's race or her language. Similar to many monolingual children, a heterogeneous group of bilingual children on average chose the language-match. Yet, French-English bilingual children were relatively more likely to choose the race-match, especially when tested in their non-dominant language. Specific experience with relevant languages, and communicating in a non-dominant language, may contribute to children's developing metalinguistic success and their thinking about social categorization.

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1. Introduction

Despite their impressive linguistic abilities, children's ability to think abstractly about language is notoriously slow to develop (Gombert, 1992; Hakes, 1980). Young children often demonstrate difficulties on tasks that require metalinguistic awareness. For instance, they have difficulty referring to a known object by an unconventional or novel label, or substituting one semantically meaningful word for another (Osherman & Markman 1975; Piaget, 1929). Monolingual children also display a misunderstanding of the *process* by which language is acquired. For adults, it is evident that the particular language that an individual speaks varies as a function of the linguistic environments to which she was exposed. Nonetheless, research suggests that monolingual children think the ability to speak one language over another is inherited at birth and intransigent across the lifespan (Hirschfeld & Gelman, 1997; Kinzler & Dautel, 2012).

Two studies in particular illustrate young monolingual children's puzzling intuitions about language. In one, preschool-aged children were presented with vignettes about an infant who was born to parents who speak one language, but who was adopted at birth by parents who speak a different language. Children reported that when that infant grows up, she will speak the language of her biological parents rather than her adoptive parents (Hirschfeld & Gelman, 1997). From a child's perspective, characteristics of language may mirror the characteristics of a biologically determined and inherited trait. A second study, which provides the motivation for the current research, further investigated children's reasoning about language as a stable trait across an individual's lifespan. Kinzler and Dautel (2012) presented children with a lifespan

task in which children first viewed a target child who was White or Black, and who spoke in English or French. Children were then asked which of two adults the target would grow up to be – one who matched the target in language but not race, and another who matched the target in race but not language. Children were asked to indicate which adult the target child would grow up to be. Adult intuition would suggest that skin color is relatively stable, whereas languages can be learned: indeed, European American 9-10-year-old monolingual English-speaking children chose the race-match. Somewhat surprisingly, though, European American, monolingual English-speaking 5-6-year-old children in both urban, racially diverse; and rural, racially homogeneous contexts chose the adult speaking the same language as the target child, even though this individual then transformed racial categories. Taken together, these studies provide evidence that counter to adult intuitions, young children endorsed the belief that language is endowed via inheritance and impermeable to environmental influences.

Young children's surprising intuitions about the nature of language suggest interesting possibilities for understanding early social categorization. Children's thinking about language as stable across the lifespan may reflect their emphasis on language as an important marker of an individual's identity – a marker that is so important it can overshadow children's thinking about skin color as a stable trait. Nevertheless, such a prioritization of language over race is not observed among children in all social environments. When presented with the same lifespan paradigm as described above, the responses of 5-6-year-old African American children mirrored those of older, rather than younger, European American children. Five- to 6-year-old African American children living in the same urban, racially diverse neighborhood as European American 5-6-year-old children, reported that race was more stable than language (Kinzler & Dautel, 2012). Since 5-6-year-old children from both racial groups were monolingual English-

speakers, the differences observed across populations were likely due to differences in exposure to race-related social experiences, rather than differences in children's reasoning about language per se. Nevertheless, these data provide evidence that children's social reasoning about the stability of race and language can be informed by early social experiences.

Children's early social environments differ not only in racial diversity, but also in linguistic diversity. An important open question concerns how exposure to multilingual environments influences children's thinking about language as a stable marker of an individual's identity. One possibility is that bilingual experience may contribute to an earlier understanding of the malleability of language due to children's experience with at least two systems of language. Vygotsky (1962) proposed that bilingual children, by way of speaking two languages, have a unique insight into each of their languages as one system among many. In support of this idea, some research finds that bilingual children outperform monolingual children on tasks requiring metalinguistic awareness, such as referring to a known object by an unconventional label or judging grammatical accuracy (see Adesope, Lavin, Thompson, & Ungerleider, 2010 for a review of this literature). A recent study of bilingual children who learned their two languages simultaneously (e.g., crib bilinguals) and sequentially (e.g., one in school), found that both groups of bilingual children responded at chance when tested on a switched-at-birth task studying their beliefs about the origins of language (Byers-Heinlein & Garcia, 2015). Thus, potentially in contrast monolingual children who express beliefs that language is transmitted at birth (Hirschfeld & Gelman, 1997), bilingual children may be unsure of the origins of language, or they may have a more flexible theory of the development of language.

Furthermore, bilingual children's sociolinguistic experiences differ from the experiences of monolingual children; bilinguals have extended practice in speaking different languages in

different contexts, and with different people (Genesee, Boivin, & Nicoladis,1996; Nicoladis & Genesee, 1996; Pearson, Fernandez, & Oller, 1995; Tare & Gelman, 2010; Vihman, 1985). By preschool-age, bilingual children not only use their languages differentially with familiar interlocutors, but they also track the languages of novel interlocuters and code switch when necessary (Genesee, Boivin, & Nicoladis, 1996). Bilingual infants and children attend to the perspective and language of an interlocutor to interpret her communicative intent (Fan, Liberman, Keysar, & Kinzler, 2015; Kovacs, 2009; Liberman, Woodward, Keysar, & Kinzler, 2017; Tare & Gelman, 2010). Recent evidence suggests that bilingual infants are more likely than monolingual infants to generalize information across two people who speak different languages (Liberman, Sullivan, Woodward, & Kinzler, 2016). Thus, it is possible that bilingual children may be able to translate their own sociolinguistic experiences into insight regarding other people's ability to speak multiple languages.

Alternatively, young monolingual and bilingual children may possess a similar inclination to think about language as stable across the lifespan. Interestingly, evidence from case studies provides the suggestion that bilingual children initially tag individuals as speakers of just one language, and that bilinguals can even find encounters with individuals who speak multiple languages to be unexpected (Volterra & Taeschner, 1977). Thus, while bilingual children are able to speak more than one language themselves, this ability may not necessarily translate to an explicit understanding of other individuals' bilingualism. Language functions as a critical marker of human social groups for both children and adults (e.g., Giles & Billings, 2004; Gluszek & Dovidio, 2010; Kinzler, Shutts, & Correll, 2010). A tendency to categorize others' identities based on their language may therefore be observed in both monolingual and bilingual children.

Lastly, we suggest a third possibility: some, but not all, bilingual exposure may facilitate children's reasoning about the malleability of language. Specifically, experience with the languages presented (English and French, in this case), might impact children's reasoning about other people's ability to speak those particular languages, yet it may or may not generalize to children's metalinguistic awareness about people's abilities to speak *other* languages. Furthermore, the local test context could impact children's ability to think about language across the lifespan – as illustration, research with adults suggests that more favorable social attitudes are expressed for social groups associated with the particular language of test (Danziger & Ward, 2010; Ogunnaike, Dunham, & Banaji, 2010).

To investigate bilingual children's reasoning about language across the lifespan, the current research presented 5-6-year-old European American bilingual children with the same lifespan task that was presented to monolingual children in previous research (Kinzler & Dautel, 2012). As in past research, all children were presented with a series of trials in which a child was White or Black and spoke in English or French. Children were asked which of two adults – one who was a race-match and the other a language-match – the child would grow up to be. We tested two groups of bilingual children. Participants in Experiment 1 spoke English and a second language (but not French). Participants in Experiment 2 spoke English and French, the languages presented in the stimuli. By testing two bilingual populations with the same task that was previously presented to monolingual children, we aimed to investigate the nature of bilingual children's reasoning about language across the lifespan.

2. Experiment 1

Experiment 1 presented 5-6-year-old European American bilingual children with the language versus race lifespan task previously presented to monolingual children (Kinzler &

Dautel, 2012).

2.1. Method

2.1.1. Participants

Participants in Experiment 1 included 20 5-6-six-year-old children from the greater Chicago area (8 female; M_{age} = 5 years, 11 months; age range = 5;1- 6;11; 100% European American). Parents reported that children were speakers of English and at least one additional language, including Spanish, German, Russian, Italian, Hebrew, Polish, Turkish, Czech, Romanian, and Portuguese and that children were exposed to each language at least 25% of total time. Children ranged in their proficiency of their languages; 10 were native speakers of both English and a second language, 8 were native speakers of English and also proficient in a second language, and 2 were native speakers of another language and also proficient in English. Ten children had parents who were both native speakers of a language other than English, 7 children had one parent who was a native speaker of another language and one parent who was a native speaker of English, and 3 children had parents who both listed English as their native language, yet the child spoke the second language at school or with another primary caregiver.

2.1.2. Materials

Materials were identical to those presented in Kinzler & Dautel (2012). Faces on the test trials included 8 children's faces and 16 adult faces (half male/female; half White/Black). Each face was paired with a 3-second neutral phrase (e.g., "There are three meals: breakfast, lunch, and dinner") spoken in either French or English. Child voice clips were recorded by native English or native French speaking children. Adult voice clips were recorded by French-English bilingual adults.

On each of eight trials, children were presented with one child and two adult faces of the same gender on a computer screen (See Fig. 1). Each face was paired with a voice clip. Voice/face pairings were created such that one adult had language, but not race, in common with the child, and the other adult had race, but not language in common with the child (e.g. a White child speaking English paired with a White adult speaking French and a Black adult speaking English, see Fig. 1). All possible combinations of language and race were presented. A screen masked each of the three faces initially and at test in order to equate the perceptual availability of language and race during test trials.

----------Insert Figure 1 about here ----------

2.1.3. Design and procedure

Following the method of Kinzler & Dautel (2012), children were first presented with two practice trials depicting baby and adult animals to familiarize children with the task. On each of eight following test trials, the experimenter first pointed to the screen masking the child's face, while saying "Here is a child. He/she sounds like this." The screen raised and revealed a face as the accompanying voice clip played, and then the screen lowered, again hiding the face. The experimenter repeated this procedure for each of the two adult faces, then asked the child, "Which adult does this child grow up to be?" Children's responses were recorded. Pairings of voices to faces were counterbalanced across participants. The language and race of the child on each trial, and the adults' lateral location on screen, were counterbalanced within and across participants.

2.2. Results and Discussion

Across eight trials, children chose the adult who matched the target child in language, but not race, more often than would be predicted by chance (see Fig. 2, left; chance = 4, $M_{language}$=

5.60, *SE* = 0.69, $t(19) = 2.32$, $p = .03$, $d = 1.06$). A non-parametric Wilcoxon signed-ranks test indicated a similar result ($Z = 2.73$, $p = 0.006$, $r = .61$). No effects of participant gender or trial type were observed. Responses did not differ based on the gender of faces presented, the race of the target child, or the language of target child.

----------Insert Figure 2 about here ----------

When presented with the same lifespan task as monolingual European-American children in past research (Kinzler & Dautel, 2012), bilingual European-American children similarly reported that language was more stable than race. This was the case even though maintaining the same language required an individual to transform racial group membership. From one perspective, these results are highly surprising. Bilingual children have significant experience speaking two languages themselves, and in many cases they demonstrate an advantage on metalinguistic awareness (e.g. Ben-Zeev, 1977; Bialystok, 1988; Cummins, 1978). Thus, bilingual children might be expected to understand that an individual can speak two languages at two different time points. From another perspective, these results provide evidence that bilingual experience, in and of itself, may not necessarily influence children's reasoning about other individuals' linguistic ability. Although children have experience switching between two languages themselves, not all bilingual children have experience viewing others code switch between two native languages. As illustration, in our current sample, none of the children's parents reported being native speakers of two languages themselves. Past research provides evidence that bilingual children are very good at monitoring which individual in their environment speaks which language (Genesee, Boivin, & Nicoladis,1996; Nicoladis & Genesee, 1996; Tare & Gelman, 2010; Vihman, 1985). It is possible that bilingual children, similar to monolingual children, see language as an important marker of an individual's identity.

We can conclude from these findings that it is *not* the case that any and all bilingual experience ensures children's adult-like performance on our lifespan task. Here, we observed that bilingual children with heterogeneous, yet significant, exposure to multiple languages nevertheless responded that language is more stable than race. Yet, the population we tested in this study is by no means representative of all bilingual children with all types of bilingual exposure. It is possible that the bilingual children here may not have had particular language experiences that easily translate to thinking about others' ability to speak two languages. Perhaps children's experiences speaking two languages or seeing other people speak two languages do not generalize to their reasoning about someone who speaks an unfamiliar language. Children's responses might therefore reflect more adult-like reasoning about the malleability of language if they were presented with people speaking two languages that children themselves spoke. To explore this possibility, a second experiment presented French-English bilingual children with the same task presented in Experiment 1.

3. Experiment 2

Experiment 2 tested 5-6-year-old European American children attending a French immersion school in the same lifespan task presented in Experiment 1. Children were tested in either English or French by a bilingual experimenter.

3.1. Method

3.1.1. Participants

Participants in Experiment 2 included 58 5-6-year-old children (29 female; M_{age} = 6 years, 2 months; Range = 5;3- 6;11; 90% European American and 10% European American/other). Participants were recruited from a French immersion school, where instruction is primarily in French. All children had exposure to both English and French. All children were tested in the

last month of the school year and thus had at least one full academic year of language immersion in French. Twenty-seven children had parents who were both native English speakers, 5 children had parents who were both native French speakers, 13 children had one parent who was a native English speaker and one parent who was a native French speaker, 6 children had both parents who were native speakers of languages other than French or English, and 2 children had one parent who was a native English speaker and one parent who was a native speaker of a language other than English or French (5 children had parents who failed to report their native languages). See Table 1 for more extensive demographic information about children's language exposure.

----------Insert Table 1 about here ----------

3.1.2.Materials and procedure

The materials and procedure were identical to Experiment 1 except that children were randomly assigned to be tested in either English (N= 27) or French (N= 31) by a French-English bilingual experimenter. As can be seen in Table 1, the demographic characteristics of children in each language test group were highly similar.

3.2. Results

Overall, French-English bilingual children's choices revealed a marginally significant preference for the race-match, as compared to chance (Chance = 4, $M_{language}$= 3.34, SE = 0.38, $t(57) = -1.73$, $p = .09$, $d = 0.46$). A non-parametric Wilcoxon signed-ranks test revealed a similar result ($Z = -1.70$, $p = 0.09$, $r = .22$). Comparing children's performance across experiments, bilingual children in Experiment 2 were far more likely to choose the race-match than the bilingual sample in Experiment 1, $F(1, 76) = 8.79$, $p = .004$, $\eta_p^2 = 0.10$. To investigate effects of test language on children's responses, a one-way ANOVA revealed a marginally significant effect of test language on children's choices, $F(1, 56) = 3.75$, $p = .058$, $\eta_p^2 = 0.06$.

When tested in English, children's choices did not differ from chance (see Fig. 2, center; chance = 4, $M_{language}$= 4.11, *SE* = 0.54, *t*(26) = 0.21, *p* = .84, *d* = 0.08). A non-parametric Wilcoxon signed-ranks test revealed a similar pattern of results (*Z* = -0.20, *p*= 0.84, *r* = .04). However, when tested in French, children chose the adult who matched the target child in race, but not language, more often than would be predicted by chance (see Fig. 2, right; chance = 4, $M_{language}$= 2.68, *SE* = 0.51, *t*(30) = -2.60, *p* =.01, *d* = 0.98). A non-parametric Wilcoxon signed-ranks test revealed a similar pattern (*Z* = -2.35, *p* = 0.02 , *r* = .42).

There were no effects of participant gender, gender of faces presented, or the language the target child spoke for either group of children tested in English or in French. Collapsing across all participants, there was a significant effect of race of target child, such that children were more likely to choose the race-match on White target trials (*F*(1, 56) = 5.64, *p* = .02, η_p^2 = 0.09). Yet, since race-to-language pairings were counterbalanced throughout the design, this could not account for our primary findings.

3.3. Discussion

Experiment 2 presented French-English bilingual children with the same lifespan task from the first experiment. As a group, children's responses revealed a marginally significant trend toward choosing the race-match over the language-match. These findings provide further evidence that reasoning about the malleability of language is an apparently difficult task for young children, even those who speak more than one language themselves. Nevertheless, children's responses in Experiment 2 differed significantly from those of children tested in Experiment 1 who were also bilingual, yet in different bilingual contexts and unfamiliar with French.

We also observed an interesting effect of test language. Bilingual children tested in French

were less likely to choose the language-match than bilingual children tested in English. Children tested in French, as a group, saw language as being relatively less stable than race. This result provides evidence that in some test environments, bilingual children are in fact able to succeed on this task. As a group, children's overall language proficiency was skewed toward English dominance. Thus, differences in children's performance when tested in English versus French are not likely due to any inherent properties of the test language, but rather may be guided by children's dominance in each language. In particular, these results provide preliminary support for the possibility that children's metalinguistic understanding may be greater when tested in their non-dominant language. Although too small a sample size to analyze systematically, as anecdotal evidence, four out of the five French-dominant bilingual children who tested in English (for them, English was their non-dominant language), likewise chose the race match on the majority of trials. Though speculative, we hypothesize that testing bilingual children in their non-dominant language may highlight children's own experience speaking a second language, thus facilitating their thinking that other individuals could speak both languages, too. Future research is needed to test this possibility.

Because we find that some, but not all, bilingual experiences and testing environments facilitate children's reasoning about the malleability of language, we carefully considered other ways in which bilingual children in Experiments 1 and 2 might have differed. First, because they were attending a language immersion school, children in Experiment 2 may have been more likely to be sequential learners of their second language(s) than children in Experiment 1. Although this was not our prediction prior to conducting this research, as a post hoc consideration we observed that approximately half of children had sequential exposure to their two languages, and approximately half were exposed to two languages in a home setting. Fifty-

three percent had two English-speaking only parents, and thus were likely to be considered sequential bilinguals. The other 47% of children had at least one parent who is a native speaker of a language other than English, thus more likely to be simultaneous bilinguals learning both languages at home (see Table 1 for further detail). The performance of the two groups did not differ reliably from one another, however descriptively if anything the simultaneous bilinguals were slightly more likely overall to see language as malleable (mean 3.11 language matches), than the sequential bilinguals (mean 3.55 language matches). This pattern of findings at least offers suggestive evidence that the major difference across populations in Experiments 1 and 2 did not result from sequential bilinguals generally understanding the task better.

Second, children in Experiment 2 were sampled from a private, immersion-language school where they were educated in French, which may be considered a relatively higher-status language compared to many other languages spoken in the United States. Children's language-based social preferences can be influenced by both their familiarity with the language, but also the status of the language (Day, 1980; DeJesus & Kinzler, 2013; Kinzler, Shutts, & Spelke, 2012). Thus, it is possible that children in Experiment 2 believed the ability to speak a second language was a more desirable trait, compared to children in Experiment 1 who may have observed more negative consequences of speaking a foreign language in their local communities. Thinking about linguistic status could potentially influence children's consideration of linguistic malleability, and children attending a higher-status immersion school may be more likely to view a second language as something they can choose to use, or not. However, it seems unlikely that differences in the perceptions of linguistic status experienced by French language learners and learners of other languages could fully account for the differences between children's responses in Experiment 1 and Experiment 2. Children tested in Experiment 1 spoke English and a wide

variety of other languages. Yet, like children in Experiment 2, they were asked to reason about targets speaking English and French. There did not appear to be a relationship between the status of children's own languages in Experiment 1 and their patterns of responses, although our sample size was too small to test this question systematically. Moreover, as discussed above, children's responses in Experiment 2 varied as a function of their language of test. Nevertheless, this potential difference in sociolinguistic backgrounds between bilingual children in Experiments 1 and 2 is a limitation of the current study, and presents an impetus for future research involving children from a greater diversity of sociolinguistic environments, including those in which speaking multiple languages might be the norm, rather than the exception.

From the current studies, we conclude that young children often express a strong belief that language is stable across the lifespan, yet that specific language experiences can inform and modify this belief. In particular, experience with the languages presented in the task (English and French, in this case), and being tested in children's non-dominant language, facilitated children's reasoning about other people's ability to speak those specific languages. Our results here speak both to the robustness of children's thinking about language as a marker of an individual's identity, and also to the role of sociolinguistic environment in shaping thinking across development.

4. General Discussion

The present research investigated bilingual children's reasoning about the stability of language across the lifespan. Two populations of predominantly European-American bilingual 5-6-year-old children were shown a series of trials in which the target child varied in language (English or French) and race (White or Black). Children were asked to report which of two adults the target child grew up to be: one who matched the target child in language, but not race,

or one who matched the target child in race, but not language. In Experiment 1, a heterogeneous group of bilingual speakers of English and a second language (other than French) chose the language-match. Despite their own ability to speak at least two different languages, bilingual children reported that a child would grow up to speak the same language, even if this meant transforming racial identity. In Experiment 2, bilingual speakers of English and French (the languages presented in the task) were less likely to choose the language-match than bilingual children tested in Experiment 1. This difference across populations suggests that children may gain metalinguistic understanding specifically about those languages with which they are familiar. Interestingly, children tested in their non-dominant language were most likely to choose the race-match, providing further evidence that linguistic context influences children's abstract thinking about language.

Vygotsky proposed that a bilingual child would "see his language as one particular system among many, to view its phenomena under more general categories, and this leads to awareness of his linguistic operations" (1962, p. 110). It may at first seem intuitive that bilingual children would be less likely than monolingual children to reason about language as fixed across the lifespan. Bilingual children have experience speaking multiple languages to a variety of interlocutors, and in some cases they show an advantage on metalinguistic awareness (Ben-Zeev, 1977; Bialystok, 1988; Cummins, 1978). Yet, contrary to Vygotsky's suggestion, evidence from Experiment 1 suggests that speaking two languages in and of itself may not be sufficient to make the linguistic system transparent.

Like monolingual children, bilingual children may also be exposed to evidence suggesting that language is a robust and stable marker of an individual's identity over time. Parents of children in our studies frequently reported that their children speak one language with

one caregiver (or set of caregivers) and a second language with another caregiver or in school, which is a common experience of American bilinguals. Situations where the children in our samples witness other individuals fluently code switching between two native languages may therefore be relatively infrequent. It is possible that children who live in communities or countries in which the expectation is that everyone speaks multiple languages may perform differently on this task.

A comparison of Experiments 1 and 2 reveals that depending on their own linguistic experiences, children responded differently on this task. French-English bilingual children tested in Experiment 2 were more likely to choose the race-match compared to children tested in Experiment 1 who were also bilingual, yet who did not speak French. Furthermore, bilingual children in Experiment 2 who were tested in French (for most, their non-dominant language) were more likely to choose the race-match than children tested in English. One possibility is that bilingual children may monitor their non-dominant language more closely, thus providing more opportunities for metalinguistic awareness. For instance, bilingual children have been found to perform better on metalinguistic tasks such as symbol substitution and grammatical judgments when tested in their non-dominant language compared to their dominant language (Cromdal, 1999). A second possibility is that speaking in a non-dominant language makes one's own bilingual identity more salient, which then highlights others abilities to speak more than one language. Although there is no evidence for this in children to date, research with bilingual adults finds that the language of test influences implicit social attitudes, likely due to language priming aspects of the culturally relevant identity (Danziger & Ward, 2010; Ogunnaike, Dunham, & Banaji, 2010). Further research is necessary to understand the process by which the immediate linguistic context influences children's reasoning about the malleability of language.

Critical open questions concern exactly how the diversity of children's bilingual experiences impacts children's thinking about language. First, the process by which a second language is learned could influence reasoning about the malleability of language. As described above, Byers-Heinlein & Garcia (2015) reported that both sequential bilinguals and simultaneous bilinguals responded at chance when thinking about languages as learned versus inherited. They nonetheless found evidence that in other domains (e.g., thinking about animal traits) sequential bilinguals focused more than simultaneous bilinguals on the environmental origins of traits. Thus, it is possible that children's recent history learning a language may dampen their tendency to see the world in essentialist terms. When we compared children in Experiment 2 who had English-speaking only parents (sequential bilinguals) versus at least one non-English speaking parent in the home (simultaneous bilinguals), we observed no evidence that sequential bilinguals had a greater understanding of the malleability of language. Nonetheless, given the difference we observed in children's choices when tested in their dominant versus non-dominant language, it remains an interesting possibility that children's local linguistic environment (either during the time of test, or more generally in considering their current status as being someone who is bilingual versus being someone who is in the process of learning a new language), may impact children's metalinguistic awareness. Future research is necessary to explore the processes that underlie differences in bilingual children's thinking about language when tested in different local linguistic contexts, as sequential or simultaneous bilinguals.

Second, the way in which children's languages are used (e.g. spoken at home only versus spoken with peers and at school) and how these languages are perceived by the greater community could influence reasoning about the malleability of language. In particular, bilingual children's thinking about the malleability of language might be influenced by the status of the

particular languages they speak, and/or the languages presented in the task. For instance, it seems plausible that children's thinking about linguistic change could be asymmetric when considering a move from a lower to a higher-status language, or vice versa. Here we did not find a difference in responses based on whether the target was speaking English (the dominant language in this society), and potentially growing up to speak French, or vice versa. However, all children heard individuals speaking English or French, two languages that in this context might both be generally perceived to be higher status languages. Additionally, if children conflate language and status, bilingual children who speak historically lower-status languages might hold different beliefs in some circumstances about the malleability of language compared to children who speak higher status languages. Future research should systematically explore whether familiarity with certain languages and accents interacts with the status of those languages when reasoning about malleability in diverse bilingual environments.

Third, our study provides evidence that there is variability in reasoning about the malleability of language amongst two samples of bilingual children in the United States based on their sociolinguistic environments. However, there also may also be some degree of commonality in the sociolinguistic experiences of bilingual children in the United States, and open questions concern the ways in which bilingual children's social thinking may differ or converges across a variety of tasks. For instance, a recent paper compared the language-based social preferences of children from the same French-immersion environment and from a Korean-English bilingual environment (DeJesus, Hwang, Dautel, & Kinzler, in press). Despite many differences in their language exposure and other demographic variables, both groups of children expressed an equal preference for English or either other language (French or Korean), and both groups disfavored a non-native, yet familiar, accent in English (i.e., French- or Korean-accented

English). The current findings contribute to a broader understanding of the social experiences that may impact children's early social categorization, and underscore the impetus for future research to discover the places where bilingual children in different environments have common social attitudes and experiences, and those where their experiences and attitudes may diverge.

Fourth, children's thinking about people's ability to speak more than one language across the lifespan may have important consequences for language acquisition, especially in the setting of an immersion school or second language classroom. A field of research has investigated the socio-affective factors that impact second language learning (Clément, 1980; Gardner, 1985; Gardner & Lambert, 1972). Importantly, integrative motivation, or the motivation to identify and integrate with the second language culture and community, predicts long-term success learning a second language, especially to the level of native fluency (Ellis, 1997; Finegan, 1999; Taylor, Meynard & Rehault, 1977), and potentially more so than other instrumental motivators (e.g., financial gains or prestige; Ellis, 1997). If young children reason about language as a stable and representative part of a person, it seems plausible that this could have a reciprocal impact on their integrative motivations to learn a second language. Further research might investigate whether children's early intuitions about the ability to speak more than one language interacts with second-language learning.

To conclude, the present research provides evidence that in some circumstances, even children who speak more than one language themselves view language as a fixed property across an individual's lifespan. This finding lends further support to hypotheses proposing that young children think about language as a marker of identity that remains stable across development (Hirschfeld & Gelman, 1997; Kinzler & Dautel, 2012). Yet, the current research also demonstrates that children's reasoning about others' linguistic abilities is influenced by

children's specific language exposure and their current linguistic context. Future research should continue to investigate the linguistic experiences and contexts that facilitate children's reasoning about language variation within individuals and across social groups.

References

Adesope, O., Lavin, T., Thompson, T., & Ungerleider, C. (2010). A systematic review and meta-analysis of the cognitive correlates of bilingualism. *Review of Educational Research, 80,* 207-245. https://doi.org/10.3102/0034654310368803

Ben-Zeev, S. (1977). The influence of bilingualism on cognitive strategy and development. *Child Development, 48,* 1009-1018. http://www.jstor.org/stable/1128353

Bialystok, E. (1988). Levels of Bilingualism and Levels of Linguistic Awareness. *Developmental Psychology, 24*(4), 560-567. http://dx.doi.org/10.1037/0012-1649.24.4.560

Byers-Heinlein, K. and Garcia, B. (2015). Bilingualism changes children's beliefs about what is innate. *Developmental Science, 18,* 344–350. http://dx.doi.org/10.1111/desc.12248

Clément, R. (1980). Ethnicity, contact and communicative competence in a second language. In H. Giles, W. P. Robinson & P. M. Smith (Eds.), *Language: Social psychological perspectives* (147-154). Oxford: Pergamon Press. https://doi.org/10.1177/0261927X03022002003

Cromdal, J. (1999). Childhood bilingualism and metalinguistic skills: Analysis and control in young Swedish-English bilinguals. *Applied Psycholinguistics, 20,* 1-20. DOI: 10.1017/S0142716499001010

Cummins, J. (1978). Bilingualism and the development of metalinguistic awareness. *Journal of Cross-Cultural Psychology, 9,* 131-149. https://doi.org/10.1177/002202217892001

Danziger, S., & Ward, R. (2010). Language Changes Implicit Associations Between Ethnic Groups and Evaluation in Bilinguals. *Psychological Science, 21*(6), 799 - 800. https://doi.org/10.1177/0956797610371344

Day, R. (1980). The development of linguistic attitudes and preferences. *TESOL Quarterly, 14,*

27–37. DOI: 10.2307/3586806

DeJesus, J.M., Hwang, H.G., Dautel, J.B., & Kinzler, K.D. (in press). Bilingual children's social preferences hinge on accent. *Journal of Experimental Child Psychology*.

Ellis, R. (1997). *Second language acquisition*. Oxford: Oxford University Press.

Fan, S. P., Liberman, Z., Keysar, B., & Kinzler, K. D. (2015). The Exposure Advantage Early Exposure to a Multilingual Environment Promotes Effective Communication. *Psychological science*, 1-8. https://doi.org/10.1177/0956797615574699

Finegan, E. (1999). Language: Its structure and use (3rd ed.). Fortworth Texas: Harcourt Brace.

Gardner, R. C. (1985*). Social psychology and second language learning: The role of attitudes and motivation*. London: Edward Arnold Publishers. https://doi.org/10.1017/S0272263100009529

Gardner, R. C., & Lambert, W. E. (1972). *Attitudes and motivation in second-language learning*. Massachusetts: Newbury House. DOI: 10.12691/education-4-16-2

Genesee, F., Boivin, I., & Nicoladis, E. (1996). Talking with Strangers: A Study of Bilingual Children's Communicative Competence. *Applied Psycholinguistics*, *17*(04), 427-442. https://doi.org/10.1017/S0142716400008183

Giles, H., & Billings, A. C. (2004). Assessing language attitudes: Speaker evaluation studies. In A. Davies & C. Elder (Eds.), *The handbook of applied linguistics* (pp. 187-209). Malden, MA: Blackwell.Gombert, J.E. (1992). *Metalinguistic Development*. London: Harvester-Wheatsheaf. DOI: 10.1002/9780470757000.ch7

Gluszek, A. & Dovidio, J. F. (2010). The way they speak: A social psychological perspective on the stigma of nonnative accents in communication. *Personality and Social Psychology Review*, *14*(2), 214-237. https://doi.org/10.1177/1088868309359288

Hakes, D.T. (1980). *The Development of Metalinguistic Abilities in Children.* New York: Springer-Verlag. https://doi.org/10.1017/S0305000900004980

Hirschfeld, L. A., & Gelman, S. A. (1997). What young children think about the relationship between language variation and social difference. *Cognitive Development*, *12*(2), 213-238. https://doi.org/10.1016/S0885-2014(97)90014-9

Kinzler, K. D. & Dautel, J.B. (2012). Children's essentialist reasoning about language and race. *Developmental Science, 15*, 131-138. DOI: 10.1111/j.1467-7687.2011.01101.x

Kinzler, K.D., & DeJesus, J.M. (2013). Northern=smart and Southern=nice: The development of accent attitudes in the U.S. *Quarterly Journal of Experimental Psychology*, 66, 1146-1158. http://dx.doi.org/10.1080/17470218.2012.731695

Kinzler, K. D., Shutts, K., & Correll, J. (2010). Priorities in social categories.*European Journal of Social Psychology*, *40*(4), 581-592. DOI: 10.1002/ejsp.739

Kinzler, K.D., Shutts, K., & Spelke, E.S. (2012). Language-based social preferences among multilingual children in South Africa. *Language Learning and Development*, *8*, 215-232. http://dx.doi.org/10.1080/15475441.2011.583611

Kovács, Á. M. (2009). Early bilingualism enhances mechanisms of false-belief reasoning. *Developmental Science, 12*, 48–54. http://dx.doi.org/10.1111/j.1467-7687.2008.00742.x

Liberman Z, Woodward AL, Keysar B, Kinzler KD. (2017). Exposure to multiple languages enhances communication skills in infancy. *Developmental Science*, 20(1). http://dx.doi.org/10.1111/desc.12420

Liberman, Z., Sullivan, K., Woodward, A., & Kinzler, K.D. (2016). Early emerging system for reasoning about the social nature of food. *The Proceedings of the National Academy of Sciences of the United States of America*, 113, 9480-9485. DOI: 10.1073/pnas.1605456113

Nicoladis, E., & Genesee, F. (1996). A Longitudinal Study of Pragmatic Differentiation in Young Bilingual Children. *Language Learning*, *46*(3), 439-464. http://dx.doi.org/10.1111/j.1467-1770.1996.tb01243.x

Ogunnaike, O., Dunham, Y., & Banaji, M. R. (2010). The language of implicit preferences. *Journal of Experimental Social Psychology*, *46*(6), 999-1003. https://doi.org/10.1016/j.jesp.2010.07.006

Osherson, D. & Markman, E. (1975). Language and the ability to evaluate contradictions and tautologies, *Cognition, 3*, 213-226. https://doi.org/10.1016/0010-0277(74)90009-2

Pearson, B. Z., Fernandez, S., & Oller, D. K. (1995). Cross-Language Synonyms in the Lexicons of Bilingual Infants: One Language or Two? *Journal of Child Language*, *22*(02), 345- https://doi.org/10.1017/S030500090000982X

Piaget, J. (1929). *The child's conception of the world*. Totowa, New Jersey: Littlefield, Adams.

Tare, M., & Gelman, S. A. (2010). Determining That a Label Is Kind-Referring: Factors That Influence Children's and Adults' Novel Word Extensions. *Journal of Child Language*, *37*(05), 1007-1026. https://doi.org/10.1017/S0305000909990134

Taylor, D. M., Meynard, R., & Rheault, E. (1977). Threat to ethnic identity and second-language learning. In H. Giles (Ed.) *Language, ethnicity, and intergroup relations* (99-118). London: Academic Press.

Vihman, M. M. (1985). Language Differentiation by the Bilingual Infant. *Journal of Child Language*, *12*(02), 297-324. https://doi.org/10.1017/S0305000900006450

Volterra, V., & Taeschner, R. (1977). The acquisition and development of language by bilingual children. *Journal of Child Language*, *5*, 311-326. https://doi.org/10.1017/S0305000900007492

Vygotsky, (1962). *Thought and Language*. Cambridge, M.I.T. Press. DOI:10.1037/11193-000

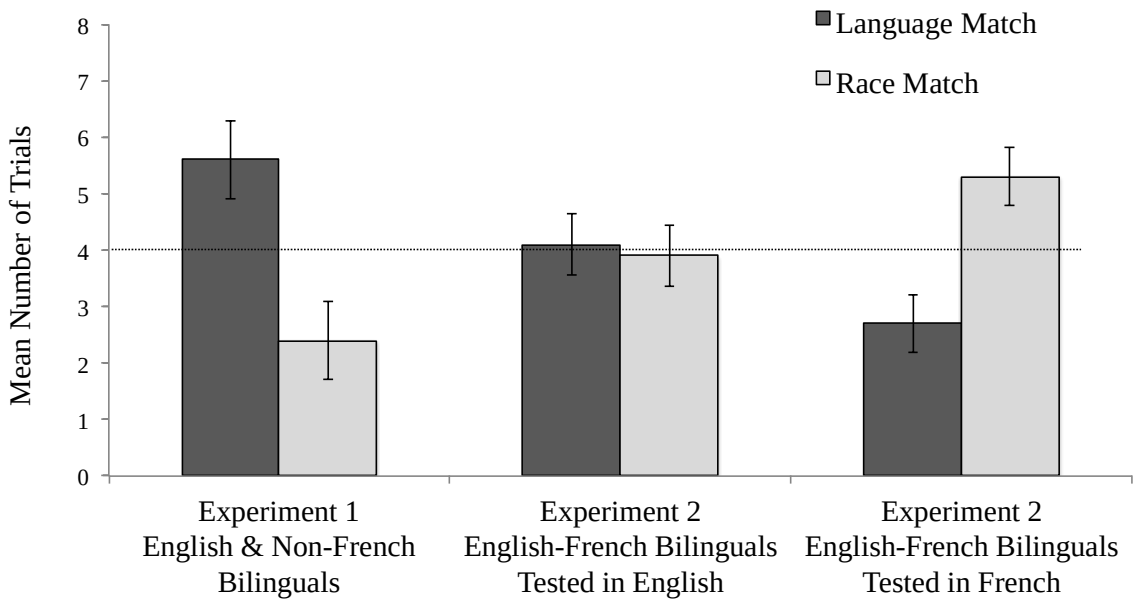
Table 1. Demographic Information for Children Attending French Immersion School in Experiment 2.[1]

Demographic category	Children Tested in English	Demographic category	Children Tested in French
Parent native languages		Parent native languages	
Both English	44%	Both English	48%
Both French	11%	Both French	7%
1 English, 1 French	22%	1 English, 1 French	23%
Other	7%	Other	19%
English proficiency		English proficiency	
Basic	0%	Basic	3%
Proficient	15%	Proficient	0%
Highly fluent	4%	Highly fluent	7%
Native	74%	Native	90%
French proficiency		French proficiency	
Basic	7%	Basic	10%
Proficient	26%	Proficient	32%
Highly fluent	19%	Highly fluent	10%
Native	33%	Native	39%
Hear/speak English		Hear/speak English	
Home & school	74%	Home & school	84%
Home only	7%	Home only	10%
School only	15%	School only	7%
Hear/speak French		Hear/speak French	
Home & school	63%	Home & school	68%
Home only	0%	Home only	0%
School only	37%	School only	32%
Peer language		Peer language	
English & French	85%	English & French	61%
English only	15%	English only	32%
French only	0%	French only	3%

[1] Unreported data account for cases where the percentages do not add up to 100.

Figure 1. Example Stimuli- Which adult does this child grow up to be?

Figure 2. Bilingual Children's Choices of Language- and Race-Matches



Note. Trials were forced-choice; repetitive bars were added for readability rather than statistical comparison.