

The Influence of Dominance and Sociolinguistic Context on Bilingual Preschoolers' Language Choice

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Two-year-old bilingual children can show sensitivity to the language choice of their interlocutor, but do not necessarily achieve perfect separation by discourse context, e.g. speaking only French with a French interlocutor; dominance in one language is often cited as a reason for this. In this study we asked whether older bilingual preschoolers would show more absolute discourse separation than had been established with younger children because their more advanced linguistic development may diminish the constraining role of dominance in language choice. These children resided in an English majority–French minority region of Canada where virtually all francophone adults are bilingual, but not necessarily anglophone adults. Therefore, we also considered the potential interacting effects of the minority French context on children's dominance and language choice. Four French-dominant and four English-dominant bilingual children participated in two free-play situations, in French and in English. The French-dominant children showed discourse separation of the two languages in both English and French contexts, while most of the English-dominant children spoke a lot of English in the French context. These results suggest that discourse separation of two languages by bilingual preschool children is possible, but not always practised due to the interaction of language dominance and children's sensitivity to the sociolinguistic context.

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Simultaneous bilingual children can use their languages differentially and with sensitivity to their interlocutor's language choice by the age of 2 years (Comeau *et al.*, 2003; Deuchar & Quay, 2000; Genesee *et al.*, 1995a, 1997; Lanza, 1997; Nicoladis & Genesee, 1996). Interlocutor sensitivity is often defined as children using more of their language A with an interlocutor who speaks language A, and more of their language B with an interlocutor who speaks language B (e.g. Genesee *et al.*, 1995a). This definition means that a child could use less than the majority of utterances in the appropriate language and still be counted as sensitive to the interlocutor. For example, in one session, the bilingual child studied in Nicoladis (1998) produced just 42% of his utterances in Portuguese to his father, but this was significantly more Portuguese than would have been expected given that he was strongly English-dominant, and so, the child displayed sensitivity to his father's language choice. Thus, even when their interlocutor sensitivity can be detected statistically, bilingual

children do not necessarily use the majority of their utterances in their interlocutor's language. Interlocutor sensitivity, then, is not the same as perfect separation of language by discourse context (discourse separation). In Nicoladis (1998) and the present study, discourse context is construed as the adult interlocutor's language choice.

Different cultures have different norms about the strictness with which monolingual discourse is considered ideal (Romaine, 2004; see also Myers-Scotton, 1993; Poplack, 1980, 1987; Poplack & Sankoff, 1988), and taking such norms into account is important for setting expectations for bilingual children's discourse separation of their languages. In a comparative study of French-English bilingual adults in the Ottawa-Hull region of Canada and the Puerto Rican community in New York, Poplack (1987) found the following characteristics relevant to the present study. First, the French-Canadians had more negative attitudes towards codeswitching¹ than the Puerto Rican New Yorkers, possibly because it might be seen as an indication of not being proficient in French. It is important to note, however, that the interviews conducted with bilingual francophones in the Ottawa-Hull area were ostensibly in French, and yet some English use occurred in the discourse (Poplack, 1989). This suggests that even though there may be a general dispreference for codeswitching among French Canadians, in francophone minority contexts in Canada where extensive knowledge of English is the norm, a French discourse context is to some extent a bilingual context whenever speakers prefer to use an expression in English. Second, there were differences in the types of codeswitches used in the Puerto Rican and French-Canadian communities, which also suggest different attitudes toward codeswitching. Codeswitches in the French-Canadian community often occurred when the speaker was searching for the apt expression or *mot juste*, was providing metalinguistic commentary, translating, and at times, speakers would flag that a switch was going to occur with a hesitation or overt comment (Poplack, 1987: 60–61). Poplack (1987: 65, 67) contrasts this type of codeswitching with what she found in her corpus of Puerto Rican New Yorkers in the following way:

(T)he kind of behaviour we had designated as 'true' code-switching (i.e. in which individual switches cannot be attributed to stylistic or discourse functions) in the study of the Puerto-Rican community ... is a minor phenomenon in the Ottawa-Hull French study (p. 65) ... (T)he sum of sentential, intrasentential and spontaneous switches at a turn boundary does not reach 4% of all the Ottawa-Hull data, while the proportion of flagged or special-purpose switching in Puerto-Rican Spanish does not exceed 5%. (p. 67)

Third, Poplack (1987) found that one important feature of the French-Canadian codeswitching was the phenomenon of 'nonce-borrowing', where an English word was used, morphologically integrated, in a French sentence, without full phonological integration into French. Thus, this English word could be characterised as being borrowed momentarily into French, rather than being a true loanword, which conventionally would not only have full

phonological integration but also be widely used in the community (Poplack, 1987: 69–70; see also Poplack & Meechan, 1998).

It is likely that the codeswitching patterns of French-Canadian communities vary somewhat across the country. For example, Poplack found that codeswitching was more prevalent among French-Canadians in Ottawa neighbourhoods, in the English-majority province of Ontario, than in Hull neighbourhoods in the French majority province of Québec, even though these cities are largely contiguous within the same region. The present study was carried out with Canadian French–English bilinguals in Edmonton, Alberta, which, like Ottawa, is a majority English-speaking city in a majority English-speaking province, with a francophone minority population. According to the authors' anecdotal and personal experience as participants in the Franco-Albertan community, what Poplack describes for Ottawa is a reasonable model to assume for the minority francophone community in Edmonton. For example, discourse separation of languages is the predominant pattern in this city, with some codeswitching in French discourse contexts. However, we are aware that sociolinguistic research on adults in the Franco-Albertan community would be necessary to know for certain where this community may differ from that of Franco-Ontarians in Ottawa.

The acquisition of appropriate use of two languages occurs through the process of socialisation with adults and older children (see Lanza, 1997; Tabouret-Keller, 1963). So, in the long run, Canadian French–English bilingual children will learn the particular patterns of language use in their community. That is, they must learn to use both their languages separately when speaking with a person who speaks the relevant language, and avoid excessive codemixing. If they live in a sociolinguistic context in which English is the majority language, like the children in this study, they might also learn that most French speakers are bilingual, while English speakers may not be. Consequently, some different language choice patterns can occur with French-speaking interlocutors, for example, use of inter- and intrasentential code-mixing will not disrupt the ability to be understood, and if used somewhat sparingly, may be perfectly appropriate. Suyal (2002) found that 4-year-old French–English and Nepali–English bilingual children's experiences with bi- and monolingualism in adults appeared to affect their language choices in different discourse contexts.

As most of the prior research on interlocutor sensitivity was conducted with bilingual children younger than 3 years of age, it is reasonable to ask when early relative interlocutor sensitivity shifts to the kind of language use that is appropriate for the children's larger bilingual community. It is possible that children in the late preschool to early school years might show a greater ability to control their language choice than younger children (Pan, 1995). For example, Sprott and Kemper (1987) found that 3- and 6-year old Spanish–English bilingual children were significantly less likely to codemix with an adult during an interview and more likely to mix when playing with other children. The primary goal of this study was to investigate language choice in different discourse contexts by French–English bilingual preschool children between 3;6 and 4;11 years of age. Before turning to the specific research questions for this study, it is important to discuss how one important

variable, language dominance, plays a role in bilingual children's language choice.

Dominance and Language Choice

Most bilingual preschool children display greater proficiency, or more advanced development, in one of their two languages, and this is commonly referred to as their dominant language (see Deuchar & Muntz, 2003; Genesee & Nicoladis, 2007; Genesee *et al.*, 2004, for review). Children's dominant language is typically the language they receive more exposure to (Pearson *et al.*, 1997). Researchers have shown that dominance in young bilingual children plays a role in constraining language choice and determining codemixing patterns (Bernardini & Schlyter, 2004; Deuchar & Quay, 2000; Gawlitzek-Maiwald & Tracy, 1996; Genesee *et al.*, 1995a, 1995b; Lanza, 1997; Nicoladis, 1998; Nicoladis & Genesee, 1997; Nicoladis & Secco, 2000; Petersen, 1988; except see Deuchar & Muntz, 2003). For example, young bilingual children tend to codemix more when they use their less proficient than their more proficient language (Genesee *et al.*, 1995a; Lanvers, 2001). One possible explanation for the differential rates of codemixing between their languages is that bilingual children may use a word that is inappropriate for the context as a lexical gap-filling strategy. Thus, in a conversation with an English-speaking interlocutor, a French-dominant child may not know the English word to describe an object, and thus switch to French or insert a French word into her utterance (intrautterance codemixing). Nicoladis and Secco (2000) examined the growth of productive vocabulary and language choice of a Portuguese-English bilingual toddler and found that 90% of the child's mixing of the inappropriate language for the context could be attributed to gaps in his lexicon. Similar arguments have been made for codemixing as a grammatical gap-filling strategy (Bernardini & Schlyter, 2004; Gawlitzek-Maiwald & Tracy, 1996; Petersen, 1988). For example, Bernardini and Schlyter (2004) found that bilingual children's codemixing often took the form of more complex syntactic structures from their stronger language combined with content morphemes and phrases from the weaker language, thus augmenting their communicative capacity in the weaker language.

Both lexical and grammatical gap filling driven by dominance are key reasons why most younger bilingual children may not show discourse separation of their languages (see Nicoladis & Genesee, 1997). However, as mentioned above, they can show interlocutor sensitivity in language choice within the limits of their linguistic resources. It is possible that dominance may continue to interact with a bilingual child's ability to achieve discourse separation as they grow older. Alternatively, it could be hypothesised that once a certain threshold of proficiency is reached in each language, dominance will pose fewer constraints on children's ability to manipulate language choice in context (see Gollan & Acenas, 2004, for a similar argument about bilingual adults). In other words, bilingual children may still have a dominant language, but after 4 years acquisition time for both, they have accumulated the minimum lexical and grammatical resources in even their weaker language

to accomplish discourse separation when it is appropriate (but see Bernardini & Schlyter, 2004 in the case of extremely non-balanced bilingual children).

Research Questions

Two research questions motivated this study. The first question was: (1) do older bilingual preschoolers go beyond relative interlocutor sensitivity and achieve discourse separation in their language choice consistent with the patterns in their bilingual community? If these Franco-Albertan children were following Canadian French minority context patterns as described by Poplack (1987), we would expect virtually all of their utterances to be in English in an English discourse context, and would expect the vast majority of their utterances to be in French in a French discourse context, with possibly some use of English. With respect to the type of codemixed utterances, we would expect more nonce borrowing than syntactic switches (see Methods for precise definitions), and possibly some hesitations before codemixing. In sum, we expected these children to be more uniform than their younger bilingual peers in adhering to the language choice of their interlocutor, but that they might also display some across-context differences and use certain types of codemixed structures, both due to their sociolinguistic milieu.

Our second research question concerns dominance as an intervening factor in discourse separation: (2) does dominance play a role in language choice or codemixing patterns in older bilingual preschoolers as it does for younger bilingual children? If dominance influences children's ability to achieve discourse separation, they should choose the appropriate language less often and codemix more when trying to speak their non-dominant language (as has been shown with younger children; see Genesee *et al.*, 1995a; Nicoladis & Genesee, 1996). We expected dominance might constrain children's ability to meet the predictions stated above regarding question (1), but that the effect of dominance on language choice might be smaller with these older bilingual children compared with the findings for their younger peers. In addition, we anticipated some interaction between dominance and sociolinguistic context in that the English-dominant children might use more English in a French context than the French-dominant children, but we did not anticipate differences between dominance groups in the English context. This is because mixing is more appropriate in this community in a French than in an English context.

Method

Sociolinguistic context

A French-speaking community has existed in Alberta since Europeans first settled in this part of Western Canada, and so the Franco-Albertan community has existed for at least four generations, and consists mainly of migrants from Québec. In the last census conducted by Statistics Canada in 2001 (www.statcan.ca), approximately 3% (23,300 out of 937,845) of the people in the Edmonton area reported that French was either their first language or one of

their first languages. In Edmonton, there is a separate francophone school board that manages five elementary schools and a high school, and there is a separate French-language campus at the University of Alberta. French elementary schools offer core English classes starting in Grade 3 (when children are approximately 8 years old), but many children are bilingual before they enter Grade 3. There are also francophone media (e.g. radio, television, a weekly newspaper) and cultural organisations for francophones of all ages in Edmonton.

Edmonton is the capital of Alberta and many provincial and federal government positions must be filled by French–English bilinguals. In part for this reason, the francophone community in Edmonton is supplemented by regular immigration. Between 1996 and 2001, the francophone population of Edmonton grew by about 12% while the entire population of Edmonton grew by about 9% (www.statcan.ca). Virtually all francophone Edmontonians past the middle childhood years are fluent in English, and so rates of bilingualism in the francophone community are very high. For native English speakers, French is often required as a core course in elementary school. However, few people in the English-speaking majority community achieve high degrees of fluency in French.

Participants

Eight French–English bilingual children participated in the study, aged 3;6–4;11. Three of these children were girls (HEL, JUL and NIC). All but one child had received regular exposure to both languages from birth; the exception (DAV) had started hearing French regularly at the age of 18 months. As is common in the Franco-Albertan community, the children heard the two languages from a variety of sources. Two children (JUL and NIC) heard French from both parents and learned English from exposure to people in the community, and from bilingual children at their daycare centres. Five children (HEL, JAS, ANT, STE, AID) heard primarily French from one parent and primarily English from another. In those five families, both parents spoke both languages. DAV heard primarily English from both his parents although his mother occasionally spoke French to him. His primary sources of French were the French daycare centre he attended and his older brother. All the families had some childcare outside the home. Five of the children attended French daycare (JAS, JUL, NIC, DAV and STE). Two attended English daycare (ANT and AID) and one had an English-speaking babysitter (HEL). The children's ages and summary information about their exposure patterns to French and English are presented in Table 1.

Procedures

Children's spontaneous language production was video-taped in their homes for one hour each in two separate French- and English-discourse context sessions less than two weeks apart. At each session, adult interlocutor(s) who spoke the language of that session interacted fluently with the child in a free-play format, and an observer who operated the camcorder was also present. For this study, discourse context was interpreted as being the

Table 1 Children's Ages, Language Exposure Patterns for French and English, and Adult Interlocutors for the English and French Sessions

<i>Child</i>	<i>Age</i>	<i>Language exposure</i>	<i>English session interlocutors</i>	<i>French session interlocutors</i>
HEL	3;6	English from father; French from mother; English babysitter	Father	Mother
JAS	3;7	English from father; French from mother; French daycare	Father	Mother
ANT	4;8	English from father (father = very bilingual); French from mother; English daycare	Cousin	Mother and father
DAV	4;8	Primarily English from both parents, some French from mother and brother; French daycare (from 18 months)	Mother	Unfamiliar adult guest
JUL	3;10	French from both parents; French daycare; English in the community ^a	Grandmother	Mother and father
NIC	4;0	French from both parents; French daycare; English in the community	Unfamiliar adult guest	Mother
STE	4;7	French from both parents; French daycare; English in the community	Unfamiliar adult guest	Mother
AID	4;11	French from both parents; English daycare	Mother	Mother

^aThe community is a source of English for all the children; it is specified in this table for JUL, NIC and STE, because it is their main source of exposure to English.

adult interlocutor's language choice, which is in line with the assumptions of much prior work (e.g. Comeau *et al.*, 2003; Genesee *et al.*, 1995a; Lanza, 1997; Nicoladis & Secco, 2000). Because the children varied in terms of the typical contexts and interlocutors where and with whom they would use each language, it was deemed appropriate to choose the interlocutor for each language session based on each child's background, resulting in different arrangements across children. For example, NIC spoke only French at home with her parents, but was exposed to English at the shopping mall, or when English-speaking guests came over, etc. Her mother was considered an appropriate interlocutor for the French session, but for the English session an unfamiliar adult paid a visit to the house and played with her. AID's mother explained that the family would switch to English when English-speaking guests come over, so when the English-speaking experimenter with the camcorder arrived, AID's mother spoke English with her, and for the remainder of the English session with AID. In tailoring the interlocutor to each

child's background our goal was to duplicate a typical context and interlocutor for that language from the child's experience, and in so doing, document their language choice abilities as naturally as possible (see also Nicoladis, 2002). The interlocutors chosen for each session for each child are given in Table 1. Furthermore, the interlocutors were instructed to maintain the language of the session as much as possible, to avoid cross-session differences in how much encouragement children might have been given to codemix. Comeau *et al.* (2003) found that young bilingual children can adjust their rates of codemixing following the lead of an adult interlocutor, and we wished to eliminate possible on-line modelling effects in this study in order to investigate our variables of interest, namely, dominance and the interaction between dominance and the French minority context.

The videotapes were transcribed according to the conventions of the CHAT system from CHILDES (MacWhinney, 2000; childes.psy.cmu.edu) by the second author. Disfluencies such as retracings, repetitions, unintelligible words and pauses were transcribed. The children's and adult participants' utterances were coded for whether they were English-only, French-only or mixed, following the guidelines in Genesee *et al.* (1995a). Phonologically integrated loan words from English to French that are widely used by Canadian French speakers with a single phonological rendition (cf. Poplack, 1987: 69) while speaking French such as *check-up* or *milkshake* were treated as French words. The children's mixed utterances were further coded for whether they were examples of nonce borrowing or syntactic switches. (Note that Poplack and Meechan (1998) distinguish between loan words, nonce borrowings and true codeswitches.) For our study, nonce borrowing was defined as single lexeme insertion into a phrase in a clause where all other elements come from the other language, for example, *where the vêtements?* 'where the clothes' (HEL). Syntactic switches were defined as the insertion of an entire phrase into a clause in the other language, for example, *are you have un autre?* 'are you have another one?' (JAS), or as the switch at a phrase boundary within a clause from one language to the other.² More examples of each type are given in (1) and (2) below.

(1) Nonce-borrowing examples

- a. j'ai une *tent* 'I have a tent' (HEL)
- b. I *plie* it 'I am folding it' (HEL)
- c. where's the *mitaine* go? 'where's the mitten go?' (HEL)
- d. it's a scary *voiture*. 'it's a scary car' (JAS)
- e. you can look on the *panneau*. 'you can look on the sign' (JAS)
- f. Tintin's *caché*. 'Tintin's hidden' (JAS)
- g. and his not see the *mur*. 'and his not see the wall' (JAS)
- h. I want to *range* the lego. 'I want to put away the lego' (JAS)
- i. look at all these *brilliants* on her. 'look at all these sparkles on her' (JUL)
- j. ça a *poppé*. 'that popped!' (JUL)
- k. où goes that? 'where goes that?' (NIC)
- l. it's for *rouler* that. 'it's for rolling' (NIC)
- m. sens *your nez*. 'smell your nose' (NIC)

- n. comme *dark bleu*. 'like dark blue' (ANT)
 - o. c'est *crazy*. 'that's crazy' (ANT)
 - p. j'ai *almost* *brisé*, 'I almost broke' (DAV)
 - q. ça vient avec un *submarine*. 'that comes with a submarine' (DAV)
 - r. and after can we play *volant*? 'and after can we play steering wheel' (AID)
- (2) Syntactic codeswitching examples
- a. I'm talking *en anglais*. 'I'm talking in English' (HEL)
 - b. and the police was sitting à *côté de moi*. 'and the police was sitting beside me' (JAS)
 - c. we bring *saucisses à la garderie* yesterday. 'we bring sausages to the daycare yesterday' (JAS)
 - d. that is *l'escalier*. 'that is the stairs' (JUL)
 - e. but we eat *les animaux*. 'but we eat the animals' (ANT)
 - f. it's just hide and seek *dans le square*. 'it's just hide and seek in the square' (ANT)
 - g. regarde le bonhomme *is taking a xx*. 'look the action-figure is taking a xx' (DAV)

Using the *mlu*, *freq* and *maxwd* programs of CLAN from CHILDES, the children's French and English session transcripts were first analysed for the measures used to determine dominance. Researchers who construe dominance as relative proficiency in each language often take several measures of lexical and morphosyntactic development in each language of a bilingual child, and then determine dominance by comparing across the two languages for each of these measures, the higher score typically meaning more advanced development in that language for that measure (Comeau *et al.*, 2003; Deuchar & Muntz, 2003; Genesee *et al.*, 1995a; Nicoladis & Genesee, 1996; Paradis *et al.*, 2003, *inter alia*). For this study, we chose measures closely based on those used by Paradis *et al.* (2003). We calculated five measures of proficiency in order to have an uneven number to break a tie. Mean length of utterance in words (MLUw) and upper bound or longest utterance (UB) were used as indicators of global morphosyntactic development. Number of unique word and verb types out of 100 utterances were used as indicators of vocabulary size. We included verbs as well as word types because children's general vocabularies may be more advanced than their verb vocabularies, thus making the latter a more sensitive indicator of developmental level (e.g. Gleitman *et al.*, 2005). Number of verb tokens out of 100 utterances was used as an approximate indicator of how many full clauses versus phrasal fragments were produced as utterances, to complement MLUw and UB as measures of morphosyntactic abilities. Measures in English and French were calculated from the total child utterances across the French and English sessions, but see Deuchar and Muntz (2003) for arguments in favour of calculating measures for each session separately.

Next, using the *kwal* and *mlu* programs from CLAN, the transcripts were analysed for the number of English-only, French-only and mixed utterances in each discourse context for both the children and the adult participants. In addition, the number of nonce borrowing and syntactic codeswitches among

the mixed utterances were calculated, but across contexts. Thus, an utterance mainly in English containing a single French word, e.g. *where the vêtements?*, was considered a nonce borrowing, regardless of whether it occurred in a French or English session.

Results

Dominant language

The five dominance measures for each language were compared for each child to determine which scores were higher. If 3, 4 or 5 scores were higher in one language, then that child was considered dominant in that language. The children's dominance scores are given in Table 2. The eight children are evenly divided between French and English dominance. Of the four English-dominant children, HEL, JAS and ANT can be considered very dominant because 5/5 scores were higher in English; DAV had 4/5 higher in English. Of the four French-dominant children, just STE is very dominant (5/5), while JUL and NIC had 4/5 French scores higher, and AID is only slightly dominant in French, with 3/5 higher in French. Dominance in this sample does not appear to be a function of the spread in ages, as there are both French- and English-dominant three- and four-year-olds. However, the most balanced child, AID, is the oldest.

Table 2 Children's MLUw, upper bound, word types, verb types, verb tokens in English and French, and dominant language

Child	MLUw		UB		WT		VTy		VTo		Dom
	Eng	Fr	Eng	Fr	Eng	Fr	Eng	Fr	Eng	Fr	
HEL	3.36	1.70	19	5	124	58	37	5	73	16	Eng
JAS	3.91	2.12	28	6	64 ^a	49 ^a	15 ^a	1 ^a	30 ^a	1 ^a	Eng
ANT	3.84	2.88	22	8	181	153	49	22	132	40	Eng
DAV	4.14	3.50	26	19	169	125	40	23	90	102	Eng
JUL	3.12	4.03	15	12	111	140	24	32	87	92	Fr
NIC	2.19	4.01	15	17	56	120	27	8	20	58	Fr
STE	1.38	3.32	5	15	62	170	7	24	8	55	Fr
AID	4.01	4.69	17	28	152	163	45	45	106	94	Fr

^aJAS had a maximum of 43 utterances in French-only, so his word and verb type and token frequencies are taken from 43 consecutive utterances in both English and French.

MLUw, mean length of utterance in words; UB, longest utterance in words; WT, number of unique word types out of 100 consecutive utterances; VTy, number of unique verb types out of 100 consecutive utterances; VTo, number of verb tokens out of 100 consecutive utterances; Dom, dominant language, determined by 3, 4 or 5 scores higher in one language, shown in shaded cells.

Single and mixed language utterances by context and dominance

The percentage use of the language of the session by all participants other than the target child was calculated and is presented in Table 3. Because parents often stayed for the session, and an observer was present, there was some conversation recorded other than that between the child and the interlocutor; however, the designated adult interlocutor(s) contributed the vast majority of non-child utterances in each session. It is evident from this analysis that there is little variation across language sessions and children in the language choice of the adults: they maintained the language of the session well over 90% of the time on average. Notable exceptions are NIC's English session and JUL's French session. The use of French in the English session for NIC was due to her mother watching the session and addressing comments in French to NIC's younger sibling. In the case of JUL's French session, her mother had a short conversation with an English-speaking neighbour during the session. In sum, the discourse contexts set by the interlocutors in their speech to the child were clearly French or English.

Using the results of the dominance analyses to divide the children into two groups, we examined the children's use of English-only and French-only utterances according to context in each dominance group. Each child's percentage of single-language utterances in French and English out of the total of single-language utterances in both languages used in that context was calculated separately for the English and French contexts. The results are presented in Figure 1 for the English-dominant children in both contexts, and in Figure 2 for the French-dominant children in both contexts. For these analyses, we defined discourse separation as approximately 90% or greater use of the language of the interlocutor during the session. The data in Figure 1 show that in the English context, all the English-dominant children achieved discourse separation, as they used English over 90% of the time. In contrast, only a minority of the utterances used in the French context for JAS and ANT

Table 3 Frequencies and percentages of utterances in the language of the context from all participants other than the target child

<i>Child</i>	<i>English context</i>		<i>French context</i>	
	<i>Percent</i>	<i>Total utts</i>	<i>Percent</i>	<i>Total utts</i>
HEL	99.9	1196	99.5	804
JAS	96.2	1046	97.9	423
ANT	99.5	739	89.4	791
DAV	100	733	91.4	852
JUL	99.6	898	94	451
NIC	84.3	1253	98.4	563
STE	99.6	854	95.9	534
AID	99.7	879	99.5	643

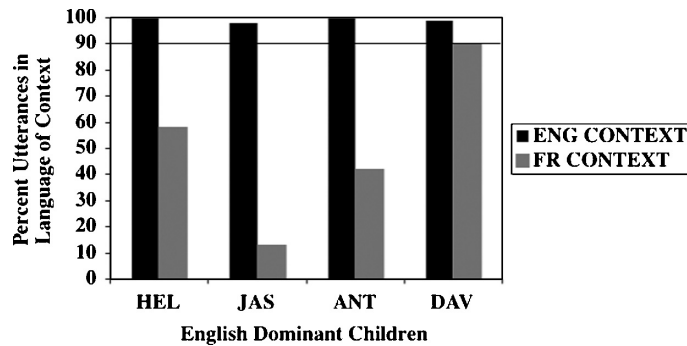


Figure 1 Percent use of utterances in the language of the context by English-dominant children in English and French contexts

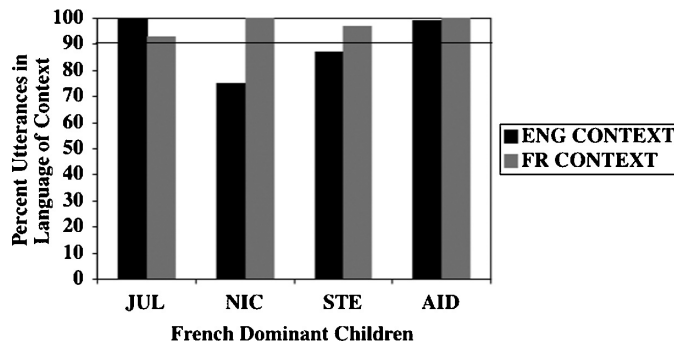


Figure 2 Percent use of utterances in the language of the context by French-dominant children in English and French contexts

were French. A majority of HEL's utterances in the French context were in French; however, 60% falls short of our discourse separation criterion of 90%. Thus, DAV is the only English-dominant child who displayed discourse separation in both language contexts, as at least 90% of his utterances in both contexts were in the appropriate language for that context. The data in Figure 2 show that all the French-dominant children displayed discourse separation in the session of their dominant language, as over 90% of their utterances in the French session were in French. In this respect the French- and English-dominant children performed similarly. But, the French-dominant children's use of their dominant language in the non-dominant language context was distinct from the English-dominant children. JUL, STE and AID displayed discourse separation in the English context as close to 90% or more of their utterances in this context were in English (STE = 87%). Furthermore, even though NIC produced just 75% of her utterances in the English context in English, this is considerably more than the French use of HEL, JAS and ANT in the French context. In sum, the French-dominant children displayed higher levels of adhering to the language choice of their interlocutor than the English-dominant children when the session took place in their non-dominant language. Put differently, all children adhered to English in English contexts,

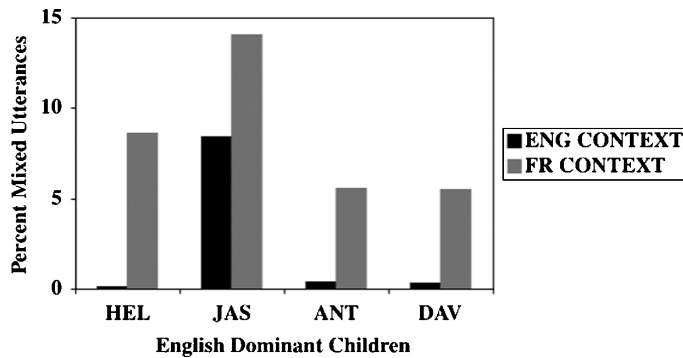


Figure 3 Percent use of mixed utterances by English-dominant children in English and French contexts

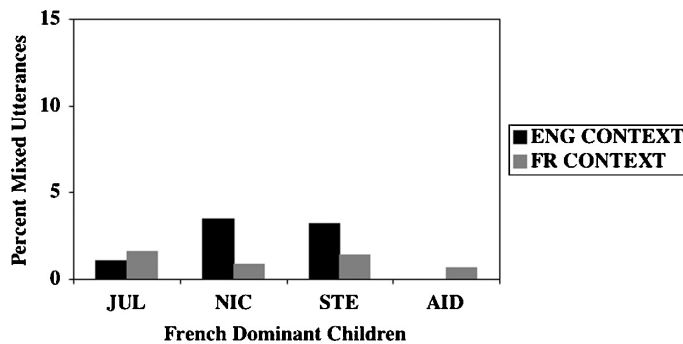


Figure 4 Percent use of mixed utterances by French-dominant children in English and French contexts

regardless of dominance, but only the French-dominant children adhered to French in French contexts.

We next examined the children’s use of codemixed utterances, i.e. utterances containing elements from both languages, also divided into dominance groups. Each child’s percentage of mixed-language utterances for each context was calculated out of the total child utterances in both languages for that session. Results are presented in Figure 3 for the English-dominant children, and Figure 4 for the French-dominant children. Overall, the children did not produce many intrautterance codemixes, as individual percentages of these utterances ranged from 0.1% to 14.1% of all utterances produced in one session. But, similar to the single-language utterance use above, there are differences between the English- and French-dominant children. As shown in Figure 3, all four English-dominant children produced codemixed utterances more often when using their non-dominant language, French. With the exception of JAS, the English-dominant children produced negligible proportions of mixed utterances in the English context. With respect to JAS’s anomalously high use of French in the form of mixed utterances in the English context, this seems to be mainly the result of lexical gap-filling and/or French-priming due to topic choice. More specifically, during the English

session, this child was recounting a story from a Tintin book that had been read to him in French, and many of the French vocabulary items used in English utterances referred to objects and people in that book. Turning to the French-dominant children, NIC and STE used mixed utterances more often when they were using their non-dominant language, English, and for JUL and AID codemixed utterances were nearly equal between sessions. However, the difference between the proportion of mixed utterances used in the French and English contexts was smaller than for the English-dominant children, and no French-dominant child used more than 5% codemixed utterances in either session. Thus, we found a parallel with the single-language utterance analysis above in that the French-dominant children codemixed less when using their non-dominant language than the English-dominant children. Another way of viewing this is that none of the children except JAS mixed more than 3% in the English context, but the English-dominant children all mixed over 5% in the French context.

Although the adult participants produced very few utterances that were in the inappropriate language for the session, there is still some variation in the percent adherence rates given in Table 3, and it would be important to understand if these had any effect on the children's language choice. Accordingly, Spearman rank correlations were performed between the percent language use scores of the children and adult participants for the French and English sessions. Results were non-significant for both French ($Rho = 0.259$, $z = 0.634$, $p = 0.5259$) and English ($Rho = 0.476$, $z = 1.260$, $p = 0.2077$).

Structure of codemixed utterances

In Table 4, the number of codemixed utterances, total utterances and percentages are given for each child, along with the number of codemixed utterances classified as nonce borrowings and/or syntactic codeswitches. Recall that nonce borrowings were defined as utterances with a single lexeme

Table 4 Children's frequencies and percentages of codemixed (CM) utterances, overall and divided into nonce borrowing (NB) and syntactic codeswitches (SCS)

<i>Child</i>	<i>CM utts</i>	<i>Total utts</i>	<i>%CM</i>	<i>NB utts</i>	<i>SCS utts</i>
HEL	26	966	2.7	16	10
JAS	97	986	9.8	90	7
ANT	14	507	2.8	11	3
DAV	21	648	3.2	18	3
JUL	10	654	1.5	10	0
NIC	21	778	2.7	19	2
STE	12	553	2.2	10	2
AID	4	889	0.45	2	2
	TOT: 205	TOT: 5981	Mean: 3.2	TOT: 176	TOT: 29

inserted from the other language into a phrase, while syntactic codeswitches were defined as the insertion of a contiguous phrase from the other language, and/or a switch from one language to the other at a phrase boundary in the utterance. Codemixed utterances totalled 205 out of the 5981 utterances in the corpus, 3.4%, and even for the child who had the most codemixed utterances, JAS, these only comprised 9.8% of all the utterances he produced. Overall then, these Franco-Albertan children did not frequently produce intrautterance codemixes. Regarding the type of codemixed utterance, all of the children except AID had substantially more nonce borrowings than syntactic codeswitches. As AID had only four codemixed utterances in total, this small number may make the distribution between nonce borrowing and syntactic codeswitches unreliable.

Examples of codemixed utterances categorised as nonce borrowing and syntactic codeswitches were given in (1) and (2), respectively. We also found instances of disfluencies, meaning retracings, repetitions, unintelligible words or pauses, immediately before a switch point, and some examples are given in (3). But in general, disfluency at a switch point was not characteristic of this corpus of codemixed utterances. JAS had the largest number of codemixed utterances, and 42 of these codemixed utterances had disfluencies in them, but in only 16 utterances were the disfluencies located at switch points. Most of these disfluency examples appear to be the child searching for a word or phrase that they may not know or know as well in the other language. Poplack (1987) mentions searching for the *mot juste* 'the right word' as one type of flagged switching in Ottawa-Hull francophones; however, from the examples she provides, it does not appear that the adult informant does not know how to express the concept in French; they simply prefer the succinctness of the English expression.

(3) Disfluencies before a switch point

- a. I just *tré*, I'm I'm I'm I just *trébuché*. 'I just tri, I'm I'm I'm I just tripped' (JAS)
- b. it it it's *en chinois*. 'it it it's in Chinese' (JAS)
- c. regarde, ... *big one*. 'look, ... big one' (JUL)
- d. je veux que tu xxx *book*. 'I want you [unintelligible] book' (NIC)
- e. sais-tu ... *and then cars cassette*. 'you know ... and then cars cassette' (STE)
- f. comme comme comme *short*. 'like like like short' (ANT)
- g. you can sit on my choir book or you can sit on xxx *te mettre à genoux*. 'you can sit on my choir book or you can sit on [unintelligible] kneel' (AID)

Discussion

This study was conducted to examine 3–5-year-old French–English bilingual children's ability to show discourse separation of their languages. We sought answers to two main research questions, and structure our discussion around these questions.

(1) Do older bilingual preschoolers go beyond relative interlocutor sensitivity and achieve discourse separation in their language choice consistent with the patterns in their bilingual community?

Recall that prior research with 2-year-old children indicates that they display sensitivity to the interlocutor in their choice of language, but do not necessarily speak only one language per context (e.g. Genesee *et al.*, 1995a, 1995b; Nicoladis & Genesee, 1996). Our results show that discourse separation is possible, and perhaps is more common in older preschool children than in younger preschool children studied in the prior research: four of the eight children in this study produced more than 90% of their single-language utterances in the appropriate language of the context in both languages. With respect to structural patterns of codemixing, we found that nonce borrowing was much more frequent than codeswitches. The children's level of morphosyntactic development suggests that they are linguistically capable of making syntactic codeswitches as they regularly produce utterances of three morphemes or more in one of their languages (see MLUw in Table 2), so the absence of syntactic codeswitches cannot be attributed to developmental limitations. In contrast, there was minimal evidence of flagging – operationalised as disfluencies in our analyses – in this corpus. This difference with the Ottawa-Hull adult corpus could be due to the fact that young children are not yet mature enough to engage in flagging, which may require other social-cognitive skills that they have not yet developed. Finally, recall that we predicted some asymmetry in children's adherence to the interlocutor's language choice between the French and English contexts due to Edmonton being a French minority–English-majority context. We found support for this prediction in that more English, in both single-language and codemixed utterances, was used in French contexts than vice versa.

In sum, these data show that bilingual children can display discourse separation and minimal use of intrautterance codemixing during the preschool years, and thus, can display language choice patterns consistent with those of their bilingual community. However, it is difficult to say if these children have truly converged on these patterns unless direct comparisons could be made with data from children in a community with very different patterns, for example, Puerto Ricans in New York. It is possible that all bilingual children, regardless of community patterns, pass through a stage of limited use of codemixing. Köppe and Meisel (1995) found that preschool children in family bilingualism contexts, meaning one of the children's two languages was not spoken in the community outside the home, shifted from relatively frequent codemixing with a variety of codemixed structures to infrequent codemixing consisting mainly of nonce borrowing around the age of 3 years.

While half the children in this study displayed discourse separation in both languages, the majority of those were French-dominant (JUL, STE, AID vs. DAV), and unlike the other English-dominant children, DAV was learning his two languages in largely separate contexts to begin with. We next turn to the role of language dominance, and its interaction with sociolinguistic context, in influencing the children's abilities to separate their languages according to discourse context.

(2) Does dominance play a role in language choice or codemixing patterns in older bilingual preschoolers as it does for younger bilingual children?

We found that children were better at adhering to the language of the interlocutor when it was their dominant language. While all eight children produced over 90% of their single-language utterances in the language of the interlocutor when it was their dominant language, just 4 of the children (JUL, STE, AID, DAV) achieved this when using their non-dominant language. Six of the eight children also produced codemixed utterances more often when using their non-dominant language and for the remaining two children, codemixed utterances were extremely infrequent and equal across sessions. Thus, even for older preschool bilingual children, dominance can play a role in their ability to achieve separation of their languages by discourse context. On the other hand, for 6 of the 8 children in this study, 60–100% of their single-language utterances were in the interlocutor's language in both contexts, indicating that dominance was not constraining their language choice to the same extent as has been found for 2-year-old French–English bilingual children (e.g. Genesee *et al.*, 1995a, 1995b; Nicoladis & Genesee, 1996).

We predicted that language dominance would not be the sole factor preventing some children from displaying discourse separation (see also Vihman, 1998), but instead expected an interaction between dominance and the influence of the French minority context. Regardless of dominance, children used more English in French contexts than vice versa. A comparison between very dominant children illustrates this point. NIC and STE (French-dominant) have MLUws around 2.00 in English, and HEL and JAS (English-dominant) have MLUws around 2.00 in French. And yet, NIC and STE used French less than 25% in the English context, but HEL and JAS used English 40% and 87% respectively in the French context. Dominance, conceived of as children having more limited linguistic resources in one language, is not sufficient to explain this asymmetry. If we assume that French discourse contexts in the Franco-Albertan community are potentially bilingual contexts when necessary, but English contexts are not, and understand that children's experience with adults in Edmonton is such that francophone adults are always bilingual, we arrive at a fuller explanation of this asymmetry in discourse contexts than by examining the children's dominance alone (see also Allard, 2004). We believe these results suggest the following interpretation. The English-dominant children seem to implicitly understand that they can use English if needed in a French context; the French-dominant children do not use English very much in French contexts because they do not need to.

Besides dominance and sociolinguistic context, it is important to ask whether any additional factors appeared to influence children's language choice in this study. Our analyses ruled out the possibility that the children's inter- and intrautterance codemixing rates were modelled on those of the interlocutor (cf. Comeau *et al.*, 2003); however, it is possible that children's familiarity with the interlocutor could have influenced their language use. For example, children might be more likely to adhere to the language of an unfamiliar adult interlocutor than a family member who they know to be bilingual. A clear counter-example to this conjecture would be AID, who had

the closest to perfect discourse separation, and in both contexts, the adult interlocutor was his mother. In addition, both NIC and STE were more likely to use the wrong language of the session with the unfamiliar than the familiar interlocutor.

Conclusion

Preschool bilingual children over 3;6 years of age are both young enough to still have some constraints on their linguistic competence in one or both languages, and old enough to potentially have some understanding of language choice patterns and levels of bilingualism in their community. Thus, this age group of bilingual children is useful for examining how developmentally constrained language choice patterns that may be universal to all bilingual children will gradually yield to sociolinguistically constrained language choice patterns that differ depending on the community they are growing up in. In the Franco-Albertan context of the children in this study, French discourse contexts are potentially bilingual contexts, but English discourse contexts are not, because virtually all francophones are bilingual, but few anglophones are. The English-dominant children in this study appeared to take advantage of the bilingual potential of French discourse contexts to stretch the range of their communicative expression by including English as single-language and codemixed utterances in a French discourse. The French-dominant children seemed to be sensitive to the fact that they cannot do the same thing in an English discourse context, and so even though their linguistic competence was limited in English, they adhered to English as much as possible in these contexts, and produced fewer French introductions or intrautterance codemixing (see also Pan, 1995). Indeed, the behaviour of the French-dominant children suggests that dominance, construed as relative linguistic limitations, may not be the most explanatory factor underlying the substantial use of English in a French context by the English-dominant children. The English-dominant children may not have been resorting to English in every instance because they had no choice in terms of linguistic resources, but instead, merely felt freer to introduce English in a French discourse context either because they have witnessed this behaviour to some extent among the francophone adults in their community, or because they know francophone adults understand English, or both.

In conclusion, this study reveals that preschool-aged bilingual children can achieve discourse separation in language choice, but whether they do so depends on an interaction of their dominance and their sensitivity to the bilingual speech patterns of the greater community.

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Notes

1. We use 'codeswitching' to refer to the systematic language mixing, inter- and intrasententially, produced by proficient, bilingual adults, which is a mark of their communicative competence. We use codemixing as a more general term to denote the mixing of two languages in a stretch of discourse. Because the bilingual children we are studying are still developing their bilingual communicative competence, we use codemixing to describe their mixed language use.
2. We did not find any two-morpheme utterances in our mixed corpus, but if we had, classification as either nonce borrowing or syntactic switch would have been difficult, given our criteria. We would have most likely classified them as nonce borrowings rather than syntactic switches due to the overall lack of syntactic complexity of the utterance; however, it would not have been possible to identify which of the two morphemes was the 'borrowing' on the basis of the utterance alone.

References

- Allard, S. (2004) Étude comparative du développement de la capacité narrative orale d'enfants francophones de milieux minoritaire et majoritaire [Comparative study of the development of oral narrative ability of Francophone children from minority and majority contexts]. *Canadian Journal of Applied Linguistics* 7, 7–22.
- Bernardini, P. and Schlyter, S. (2004) Growing syntactic structure and code-mixing in the weaker language: the Ivy Hypothesis. *Bilingualism: Language and Cognition* 7 (1), 49–70.
- Comeau, L., Genesee, F. and Lapaquette, L. (2003) The modeling hypothesis and child bilingual codemixing. *International Journal of Bilingualism* 7 (2), 113–126.
- Deuchar, M. and Muntz, R. (2003) Factors accounting for code-mixing in an early developing bilingual. In N. Müller (ed.) *(In)vulnerable Domains in Multilingualism* (pp. 161–190). Amsterdam: John Benjamins.
- Deuchar, M. and Quay, S. (2000) *Bilingual Acquisition: Theoretical Implications of a Case Study*. Oxford, UK: Oxford University Press.
- Gawlitzeck-Maiwald, I. and Tracy, R. (1996) Bilingual bootstrapping. *Linguistics* 34, 901–926.
- Genesee, F. and Nicoladis, E. (2007) Bilingual first language acquisition. In E. Hoff and M. Shatz (eds) *Handbook on Language Acquisition* (pp. 324–343). Oxford: Blackwell.
- Genesee, F., Nicoladis, E. and Paradis, J. (1995a) Language differentiation in early bilingual development. *Journal of Child Language* 22, 611–631.
- Genesee, F., Paradis, J. and Wolf, L. (1995b) The nature of the bilingual child's lexicon. Unpublished research report, Psychology Department, McGill University, Montreal, Canada.
- Genesee, F., Boivin, I. and Nicoladis, E. (1996) Bilingual children talking with monolingual adults: A study of bilingual communicative competence. *Applied Psycholinguistics* 17, 427–442.
- Genesee, F., Paradis, J. and Crago, M. (2004) *Dual Language Development and Disorders: A Handbook on Bilingualism and Second Language Learning*. Baltimore: Brookes.

- Gleitman, L., Cassidy, K.W., Nappa, R., Papafragou, A. and Trueswell, J.C. (2005) Hard words. *Language Learning and Development* 1 (1), 23–64.
- Gollan, T.H. and Acenas, L-A.R. (2004) What is a TOT? Cognate and translation effects on tip-of-the-tongue states in Spanish–English and Tagalog–English bilinguals. *Journal of Experimental Psychology: Learning, Memory and Cognition* 30, 246–269.
- Köppe, R. and Meisel, J. (1995) Code-switching in bilingual first language acquisition. In L. Milroy and P. Muysken (eds) *One Speaker, Two Languages: Cross-disciplinary Perspectives on Code-switching* (pp. 276–301). Cambridge: Cambridge University Press.
- Lanvers, U. (2001) Language alternation in infant bilinguals: A developmental approach to codeswitching. *International Journal of Bilingualism* 5, 437–464.
- Lanza, E. (1997) *Language Mixing in Infant Bilingualism*. Oxford: Oxford University Press.
- MacWhinney, B. (2000) *The CHILDES Project: Tools for Analyzing Talk*. Mahwah, NJ: Erlbaum.
- Myers-Scotton, C. (1993) *Duelling Languages: Grammatical Structure in Codeswitching*. Oxford, UK: Clarendon.
- Nicoladis, E. (1998) First clues to the existence of two input languages: Pragmatic and lexical differentiation in a bilingual child. *Bilingualism: Language and Cognition* 1, 105–116.
- Nicoladis, E. (2002) Some gestures develop in conjunction with spoken language development and others don't: Evidence from bilingual preschoolers. *Journal of Nonverbal Behavior* 26, 241–266.
- Nicoladis, E. and Genesee, F. (1996) A longitudinal study of pragmatic differentiation in young bilingual children. *Language Learning* 46, 439–464.
- Nicoladis, E. and Genesee, F. (1997) Language development in preschool bilingual children. *Journal of Speech-Language Pathology and Audiology* 21, 258–270.
- Nicoladis, E. and Secco, G. (2000) The role of a child's productive vocabulary in the language choice of a bilingual family. *First Language* 58, 3–28.
- Pan, B.A. (1995) Code negotiation in bilingual families: 'My body starts speaking English'. *Journal of Multilingual and Multicultural Development* 16, 315–327.
- Paradis, J., Crago, M., Genesee, F. and Rice, M. (2003) French–English bilingual children with SLI: How do they compare with their monolingual peers? *Journal of Speech, Language and Hearing Research* 46, 113–127.
- Pearson, B.Z., Fernández, S.C., Lewedag, V. and Oller, D.K. (1997) The relation of input factors to lexical learning by bilingual infants (ages 10 to 30 months). *Applied Psycholinguistics* 18, 41–58.
- Petersen, J. (1988) Word-internal code-switching constraints in a bilingual child's grammar. *Linguistics* 26, 479–493.
- Poplack, S. (1987) Contrasting patterns of code-switching in two communities. In E. Wande, J. Anward, B. Nordberg, L. Steensland and M. Thelander (eds) *Aspects of Multilingualism* (pp. 51–77). Uppsala: Borgströms, Motala.
- Poplack, S. (1989) The care and handling of a mega-corpus: The Ottawa-Hull French project. In R.W. Fasold and D. Schiffrin (eds) *Language Change and Variation* (pp. 412–444). Amsterdam: John Benjamins.
- Poplack, S. and Meechan, M. (1998) Introduction: How languages fit together in codemixing. *International Journal of Bilingualism* 2, 127–138.
- Poplack, S. and Sankoff, D. (1988) Code-switching. In H. von Ulrich Ammon, N. Dittmar and K. Mattheier (eds) *Sociolinguistics: An International Handbook of the Science of Language and Society* (pp. 1174–1179). Berlin: Walter de Gruyter.
- Romaine, S. (2004) The bilingual and multilingual community. In T.K. Bhatia and W.C. Ritchie (eds) *The Handbook of Bilingualism* (pp. 385–405). Malden, MA: Blackwell Publishing.

- Suyal, C. (2002) Bilingual first language acquisition: Code-mixing in children who speak a minority language. Unpublished Master's thesis, Department of Linguistics, University of Alberta, Edmonton, Canada.
- Tabouret-Keller, A. (1963) L'acquisition du langage parlé chez un petit enfant en milieu bilingue [The acquisition of a young child's spoken language in a bilingual context]. In J. De Ajuriaguerra, F. Bresson, P. Fraise, B. Inhelder, P. Oléron and J. Piaget (eds) *Problèmes de Psycho-linguistique* [*Problems in Psycholinguistics*]. Paris: Presses Universitaires de France.
- Vihman, M. (1998) A developmental perspective on codeswitching: Conversations between a pair of bilingual siblings. *International Journal of Bilingualism* 2, 45–84.