Language Contact in Bilingual Two-year-olds and Code-switching:

Language Encounters of a Different Kind?*

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Abstract

Language contact in the speech of children acquiring two languages simultaneously has been claimed to be qualitatively different from that of older more mature bilingual speakers, that is, of their code-switching. This article argues for the position that these patterns of language contact are in fact language encounters of the same kind. The grammatical properties of the young bilingual child's mixed utterances must be analyzed in light of the pragmatic dimensions of language use. Moreover, the type of mixing that occurs may be the result of a general imbalance in language input. Such an imbalance may affect language processing resulting in language dominance. Finally, current work in code-switching, which delineates constraints on language contact, also lends support to the stand that there is *no* qualitative difference between the mixing patterns of young bilingual two-year-olds and that of more mature bilingual speakers.

Key Words

bilingual children

language dominance

mixed utterance

1. Introduction

Language contact in the speech of children acquiring two languages simultaneously provides an important albeit little used source of data for testing the posited constraints on code-switching, the use of two or more languages within discourse. Is the young bilingual children's language mixing, or language mixing patterns, qualitatively different from that of older more mature bilingual speakers, that is, of their code-switching? In the following, I use the term "language mixing" as a generic for all types of language contact, in the same vein as in Pfaff (1979) and Köppe and Meisel (1995).

Language mixing in the speech of children acquiring two languages simultaneously has figured prominently in a central debate within bilingual first language acquisition research. Those espousing what Genesee (1989) has labeled the "unitary language system hypothesis" (e.g., Swain & Wesche, 1975; Volterra & Taeschner, 1978; Redlinger & Park, 1980; Taeschner, 1983; Vihman, 1985; Arnberg, 1987) have invoked language mixing to claim that the child initially forms a single system out of both languages, and hence faces the task of language

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separation en route to bilingualism. More recent studies, however, have illustrated the young bilingual child's ability to differentiate between his or her two languages both structurally and contextually already from a very early age, hence that the two language systems develop separately (Meisel, 1989; DeHouwer, 1990; Lanza, 1992; Paradis & Genesee, 1996; Quay, 1996; cf. the reviews in DeHouwer, 1995; Lanza, 1997). Few scholars engaged in this debate, however, have drawn a comparison with the code-switching of older bilingual children and adults.

Vihman (1985), a proponent of the one-system hypothesis, claimed that there is a qualitative difference between the two types of language mixing, that is, language contact in bilingual two-year-olds and code-switching. Citing work on Spanish-English intra-sentential code-switching among adults (Pfaff, 1979; Poplack, 1980, 1981) and older children (Lindholm & Padilla, 1978), she makes an important observation that in the speech of young bilinguals, the category of function words is the one most often mixed while this category is rarely switched (as single items) by older bilinguals. More mature bilingual speakers tend to switch nouns most often as a single category. This purported qualitative difference in mixing patterns is interpreted as support for the view of the young bilingual child's lack of language differentiation or bilingual awareness.

Meisel (1994a) and Köppe and Meisel (1995), proponents of the two-system hypothesis, also argue for a qualitative difference in the mixing patterns of the two bilingual populations, similar to Vihman (1985). However, these scholars do not interpret this difference as evidence for an undifferentiated language system, as did Vihman. Rather they invoke it as support for the claim that the bilingual child does not initially have access to functional categories. Accordingly, it is once this access is acquired that the young child will observe grammatical constraints on code-switching, similar to those of older, more mature bilingual speakers. The mixing of function words in the earlier period is, once again, central for the argumentation.

Are the patterns of language contact in the speech of young children acquiring two languages simultaneously really qualitatively different from those of more mature bilingual speakers? In this article, I will maintain as in Lanza (1992) that these patterns are in fact language encounters of the same kind. I will argue that the mixing of function words is not indicative of the bilingual child's lack of access to grammatical categories or of a lack of bilingual awareness, but rather can be an indicator of a language contact phenomenon that is also evident in more mature bilingualism, namely language dominance. However, through the data analysis presented in this article, I will support the claim made by Meisel (1994a, p.436) that constraints on code-switching cannot be exclusively defined by the grammatical properties of the involved languages, but rather must also be conceived of as principles of language processing. In other words, mixing patterns are constrained by grammatical properties such as category membership of the element mixed; however, imbalance in language input may affect language processing resulting in language dominance which can be evidenced in the type of mixing that actually occurs.

I will proceed as follows. First I present in more detail the claims by Vihman (1985), and Meisel (1994a) and Köppe and Meisel (1995) that early and more mature mixing are of a different order. Next, I will introduce my own data on a Norwegian-English bilingual two-year-old, and highlight previous analyses of these data which argue for similarities in language contact patterns across the two bilingual age groups, that is, the early language mixers and the more mature language mixers (cf. Lanza, 1992). Finally, I will employ a current model of code-

switching, the Matrix Language Frame Model (Myers-Scotton, 1993a), developed on the basis of mature adult switching, to further determine whether the child switching is constrained by similar principles and processes. I will also discuss an issue particularly relevant for this model, the determination of a base or matrix language in code-switched utterances; I hold this issue is also important in analyses of early child bilingualism, although usually not discussed, in determining which linguistic item is the mix. The bilingual child's mixing patterns must be analyzed with reference to both structural and pragmatic dimensions of the child's language use within the process of language socialization.

2. Early mixing and code-switching: Language encounters of a different kind

The studies that have argued for a conceptual distinction to be made between early language mixing and more mature code-switching are those by Vihman (1985) on Estonian-English bilingualism and by Meisel and his colleagues (Meisel, 1994a; Köppe & Meisel, 1995) on German-French bilingualism.

2.1 Vihman (1985)

Vihman's (1985) comprehensive article is the first that seriously attempted to bridge the gap between studies of early bilingualism and of code-switching among older bilinguals. In this study she claimed that the language mixing patterns in the two bilingual groups are qualitatively different, that the two phenomena are of a different order, with "metalinguistic and pragmatic sophistication" being a correlate of the latter (p. 317). She proposed these variable cognitive predispositions are, furthermore, marked linguistically in the type of mixing, that is, the word classes mixed. This claim of a qualitative difference between the two types of mixing was based on the comparison of syntactic categories/word classes that tended to be more often mixed as single categories in mixed utterances.

Vihman's work is an in-depth diary study with periodic audio recordings of her son Raivo's language differentiation covering the ages 1;1 to 2;0.[1] Raivo was exposed mainly to Estonian in the home with input from both parents and his older sister. English was the language of the greater community, a language which also entered the home through visitors. From the age of six months Raivo spent mornings with an English-speaking sitter while from the age of 14 months, he attended a day-care center where English was the medium of communication. As Vihman states (p. 298), Raivo's "language input was largely, but not entirely, differentiated by place as well as by person."

As for Raivo's production, a tabulation was made of the English word-category distribution in Raivo's mixed utterances with the English that was produced in an Estonian context; this use was interpreted as representing a lack of language differentiation by the child. Vihman examines the distribution of three major categories: *nouns*, *verbs*, and *functors*, with functors corresponding to the category of function words, or free grammatical morphemes. The category of function words is defined in negative terms: "it excludes nouns…, verbs…, and adjectives, with the exception of deictics and quantifiers" (Vihman, 1985, p. 304). Estonian function words are said to include, among other language-specific constructions, "postpositions, proforms,

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[1] References to data from an older stage are also made, but the focus in Vihman (1985) is on the early stage. Given the data presented for the early age, Raivo appears to have been a precocious language learner.

deictic, and quantifier adjectives, all adverbs, conjunctions, question, or *wh-* words..."
(Vihman, 1985,p.305).[2] Vihman's analysis indicates that functors accounted for a larger
percentage of both types and tokens in the mixed utterances under examination. It was, in fact,
primarily Raivo's use of English function words with Estonian nouns that accounted for the
high proportion of mixed utterances. As will be discussed below, it is precisely this direction-
ality of mixing that opens up for another interpretation of these data.

As Vihman points out, what makes the distribution of mixed items very interesting is that
the category of nouns only accounts for 16% of the items mixed in Raivo's data whereas that
category is precisely the one reported to be most often mixed in the code-switched speech of
adult bilinguals (cf. Pfaff, 1979; Poplack, 1980, 1981; Berk-Seligson, 1986 also reports a
similar distribution) and older bilingual children (Lindholm & Padilla, 1978). Vihman
concludes that there is a qualitative difference between the two groups of bilingual speakers.

Vihman's careful analysis also comprises an investigation of both English and Estonian
function words in Raivo's multi-word utterances in an Estonian context. As a greater part of his
English functors (61%) had Estonian equivalents, the use of English functors could not be
explained by the lack of corresponding Estonian vocabulary. Vihman derives support for her
findings from the work of Redlinger and Park (1980), a study of four two-year-old children
growing up bilingually in a German-speaking country, who present a similar distribution of
mixed items in mixed utterances. However, as noted in Genesee (1989), what Vihman (1985)
terms an Estonian context may indeed have been more bilingual in nature. The same holds for
the interactional settings for the four children in Redlinger and Park's (1980) study (cf. Lanza,
1997). In such a case we may ask, the linguistic item of which language is considered the mix?
Short utterances such as two-morpheme utterances are typical for children at this early age. In
. *4.2* below we will return to this important issue which has both methodological and theoretical
.implications.

2.2 Meisel (1994a) and Köppe and Meisel (1995)

Köppe and Meisel (1995) draw upon Vihman's observation of the predominance of function
words in the mixed utterances of infant bilinguals, and hypothesize that mixing of function
words should decrease as soon as grammatical constraints on code-switching are acquired.
They differentiate between "code-switching" and what they term "code-mixing," or the use of
both languages in an utterance or conversation which violates the syntactic or pragmatic
constraints on code-switching operant in the bilingual community of the speaker.[3] They
therefore argue for a distinction to be made between mixing in early bilingualism and that in
more mature code-switching since as they state (p. 292), "... there are good reasons to assume
that early mixing can be differentiated formally and functionally from code-switching." Meisel
(1994a, p.417) proposes a "grammatical deficiency hypothesis" and states clearly "that

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[2] Köppe (1996, p.952) criticizes Vihman's definition of function words stating that a different classification of corresponding
items would evolve. For example, German verb particles would be classified as function words (e.g., *auf*"open") while the
corresponding meaning would be included in the French verb form (*ouvrir* "open"). Cross-linguistic work, however, has
precisely shown that different languages have different lexicalization patterns and furthermore that these different patterns
pose the language learner with different acquisition problems to be solved (cf. Talmy, 1985; Berman & Slobin, 1994).

[3] Note that the term "code-mixing" is otherwise used in the code-switching literature as a synonym for intra-sentential code-
switching. Meisel also differentiates what he terms "code-mixing" from what is commonly reported on in the literature
among those embracing the unitary language system hypothesis, namely "fusion" of the two grammatical systems.

switching, defined as rule-governed linguistic behavior, requires elaborate grammatical knowledge about both languages; and since young children apparently still lack this kind of grammatical competence, their mixes cannot be classified as instances of code-switching."

In discussing whether language contact in bilingual two-year-olds and code-switching are language encounters of the same kind, the issue is not whether child language and adult language are the same, for surely there is a difference. The child is after all in the *process* of acquiring adult grammatical competence. We may ask rather whether it can be shown that there are underlying similarities between the two types of language mixing which can support the issue that the language mixing of bilingual two-year-olds and code-switching are language encounters of the same kind. Can it be demonstrated that young bilingual children utilize the grammatical resources they have to code-switch? The point that I will argue in this article is that there is no qualitative difference in the mixing patterns despite the fact that the child is in the *process* of acquiring two languages.

Meisel (1994a) also points out that his deficiency hypothesis would predict mixing to be related to whether or not the two languages were well balanced or not; however, this point is unfortunately not developed. The issue of language dominance has, in fact, not been seriously addressed in studies of adult code-switching and only recently addressed in the bilingualism of two-year-olds (e.g., Lanza, 1993; Schlyter, 1993; Genesee, Nicoladis, & Paradis, 1996; Nicoladis & Genesee, 1996).

It is important to point out that in his other work, Meisel has argued forcefully and convincingly for the separate development of two grammatical systems in bilingual first language acquisition (cf. Meisel, 1989, 1990, 1994b). In other words, his agreement with Vihman on this issue of code-switching does not assume his espousal of the unitary language system hypothesis. Rather Meisel (1994a) and Köppe and Meisel (1995) argue on the basis of the language mixing of young Ivar who is acquiring French and German simultaneously that it is the development of syntax, namely the acquisition of the functional category INFL, that triggers a shift in the type of mixing the child engages in. Meisel's work is hence a demonstration of his stand within an ongoing debate in language acquisition theory concerning the ontology of functional categories.[4]

Returning to Meisel (1994a), we see that he delineates two stages in Ivar's language development and language mixing. During the first stage, the child's speech indicated an absence of the functional category INFL and at the same time he mixed function words at a high rate, apparently both within and across utterances while speaking to French or German interlocutors. Meisel argues that lexical gap cannot be invoked as an explanation for this mixing since the child knew and used the equivalents in both languages for most of the function words, as was the case for Vihman's (1985) informant. At around the age of 2;5, Ivar's mixing rates decreased; furthermore, he rarely violated syntactic constraints on code-switching, and his mixing essentially consisted of the insertion of single nouns, a category most often switched among older bilinguals. It is at the same age of 2;5 that the category INFL

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[4] The views on this range from maturationists who hold that functional categories are initially absent in early child language (e.g., Platzack, 1992; Meisel, 1994a, Radford, 1990) to those who argue for weak continuity (e.g., Clahsen, Penke, & Parodi, 1993/94, Paradis & Genesee, 1996) to those standing for strong continuity such that the lack of any grammatical elements can be explained by other factors such as the child's phonological constraints or the lack of specification for functional features (e.g., Poeppel & Wexler, 1993; Hyams, 1994; Toribio & Brown, 1995).

emerges in Ivar's grammar in both languages, and Meisel assumes that it is this development which accounts for the purported transition from the first to the second stage in Ivar's language mixing patterns.

As for another child in the study, Annika, Köppe and Meisel note that almost no qualitative developments could be observed, except that she began for the first time to switch single nouns in a Det/N frame, similar to Ivar, at the age of 2;6. This move co-occurred with the emergence of INFL in Annika's grammatical development, as noted in Stenzel (1994). However, Meisel points out that Annika's switching does not appear to take heed of grammatical constraints as clearly as the switching done by Ivar.[5] Köppe (1990) and Veh (1990) argued that this child's switching could be explained by "specific communication strategies" and that one could furthermore regard these violations as "simple performance errors" due to their infrequency of occurrence (Köppe & Meisel, 1995, p.292).

It is interesting to note that the first example of Ivar's situational code-switching is said to have occurred when he was 2;5 in the form of a code-switch upon request. However, the contextual parameters for the child's language use are not fully explored. Both the French and the German interlocutors were present during the recordings of the children in the study, one interacting with the child and the other behind the video camera. Each adult was expected to define the situation as monolingual; however, as noted in Pujol Berché (1993), the interlocutors did indeed at times indicate comprehension of the other language, although each only spoke the one language. Comprehension of the other language can serve as a contextualization cue (Gumperz, 1982) to the child to signal a somewhat bilingual context (Lanza, 1992). Such a situation would in principle be conducive to mixing. Hence it is difficult to rule out the possibility that some of the child's earlier mixing may indeed have been in response to situational factors.

Although particularly Meisel (1994a) focuses on grammatical constraints on code-switching, he states clearly (p. 436) in his conclusion that "code-switching cannot only be defined in terms of grammatical properties of the languages involved; rather they should be regarded as principles of language processing. Code-switching thus requires grammatical knowledge as well as a certain amount of experience in using the two languages." There are hence other factors that influence language mixing patterns besides grammatical knowledge, and thus other possible interpretations of the attested mixing patterns found in bilingual two-year-olds' language output. In the following, I will discuss an alternative interpretation, invoking language dominance, in light of data from the simultaneous acquisition of Norwegian and English in Norway.

3. A different perspective: Data from a bilingual Norwegian-English two-year-old

The main data that I will now focus on come from a longitudinal study of the simultaneous acquisition of English and Norwegian in Norway by a first-born two-year-old girl (Siri) in a

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[5] Meisel (1994a) discusses in particular the free morpheme constraint and equivalence constraint of Poplack (1980) and the government constraint of Di Sciullo, Muysken, and Singh (1986). The former constrains switching between a free and a bound morpheme, while the equivalence constraint predicts code-switching at points where the surface structures of the two languages are equivalent, that is, where they map onto each other. The government constraint states that if X governs Y, then X and Y should be from the same language, that is, that switches should not occur between X and Y (cf. Muysken, 1995).

Table 1

Some examples of language mixing by a child acquiring Norwegian and English simultaneously

Siri:

MÅ	*leav* E	(2;1:M)	WASH *er*	*ansiktet* (2;4:F)
"MUST	leave + INF"		wash + PRES	face + DEF:NEUT
			"washes the/her face"	

KLAPPE *hand* (2;2:M)	*that one* IKKE (2;5: MF)
"CLAP hand"	"that one NOT"

JEG *careful* (2;2:M)	socks JEG *buy* (2;5:MF)
"I careful"	"socks I buy"

MER *cookie* (2;2:M)	CLIMB*e* *oppå deg* (2;6:MF)
"MORE cookie"	"CLIMB + INF up on you"

MANNEN *blow horn* (2;2:MF)	"JEG *give it to Daddy* JEG (2;6: MF)
man + DEF:MASC blow horn	"I give it to Daddy I"
"THE MAN blow horn"	

og ny DIAPER (2;3:F)	JEG *write my name* (2;7:M)
"and new DIAPER"	"I write my name"

food ER *good!* (2;3:MF)	GI*ve* *Bestemor det* (2;7:F)
"food is good"	"give+INF Bestemor (Grandmother) that"

NB! Age given in years; months. M = interaction with mother only; F = interaction with Father only; MF = with both parents

family in which the mother is American and the father Norwegian. In Siri's family the parents claimed to practice a one-person, one-language strategy of interaction with their daughter. Both parents are bilingual with English as their main medium of communication in the home. Siri's data consist of parental made audio-tape recordings of the child's spontaneous speech in separate father-child and mother-child interactions as well as in family interactions. The recordings were essentially monthly, commencing just prior to Siri's second birthday and ending when she reached the age of 2;7. The mother also kept a diary of the child's general language development (cf. Lanza, 1992, 1997).

3.1 Siri's language choice with each parent

In order to assess the relationship between more mature code-switching and the language mixing of young bilingual children, the focus has been on mixed utterances, that is, utterances containing elements from both languages. The utterance itself is identified on the basis of intonational contour. The issue at stake concerns intra-sentential code-switching although equally important is the question of whether or not the child can engage in inter-sentential code-switching, thus displaying bilingual awareness. In the discussion of Siri's language data, I will first present an overall picture of her language choice patterns with each parent talking his or her respective language, and Siri's general pattern of mixing. Her mixed utterances must be seen in light of this general pattern. I will present my initial analysis of these data as discussed in Lanza (1992, 1993) before applying more recent approaches to code-switching to the same data set to further determine the extent to which Siri's mixed utterances are constrained by the same principles which constrain more mature code-switching. Table 1 provides a sample of Siri's mixed utterances across the corpus.
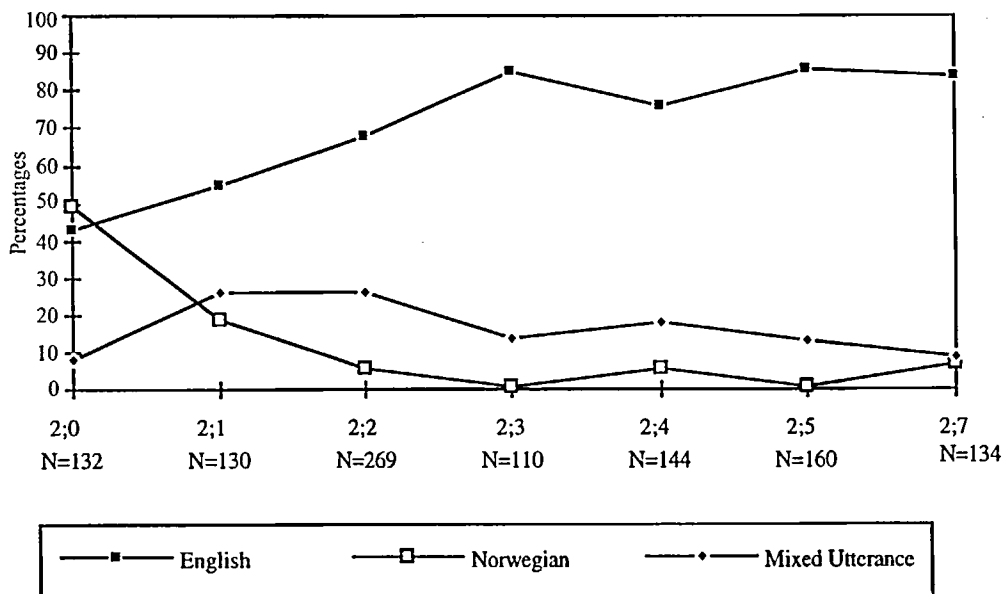
Figure 1

Siri in interactions with her Mother. Percentages of turns with English, Norwegian, and Mixed Utterances.

In Siri's corpus there are 284 mixed utterances. My analysis will ultimately focus on the distribution of lexical and grammatical morphemes in the corpus of Siri's mixed utterances. However, from a language choice perspective we will first situate Siri's use of mixed utterances in relation to other utterances in English and Norwegian in dyadic interactions with her parents. Figures 1 and 2 illustrate the proportion of conversational turns with mixed utterances to turns in exclusively Norwegian and English in Siri's interactions with her English-speaking mother and her Norwegian-speaking father respectively.[6] As we see in these figures, Siri already from an early age differentiates her languages functionally quite consistently, speaking mostly English with her mother and Norwegian with her father.

In triadic interactions in which both languages were in use, there are many examples already from the early ages of 2;2 and 2;3 in which Siri switches languages in order to indicate her interlocutor (cf. Lanza, 1996). Hence this points to Siri's contextual sensitivity in her language choice, that she is able to code-switch interactionally.

Returning to the figures, we see that Figure 1 indicates a gradual increase over time in the use of turns exclusively in English and a decrease over time in the use of turns exclusively in Norwegian in Siri's interactions with her mother. As for Siri's use of mixed utterances, the overall pattern is an increase followed by a decrease. Siri was in the United States just after her second birthday and thus received more input in English then. When she was 2;4 and 2;7 she experienced increased input in Norwegian and less English, as noted in her mother's diary. The

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[6] Note that there is no data for Siri at age 2;6 in mother-child interactions and at 2;1 in father-child interactions (cf. Lanza, 1997).
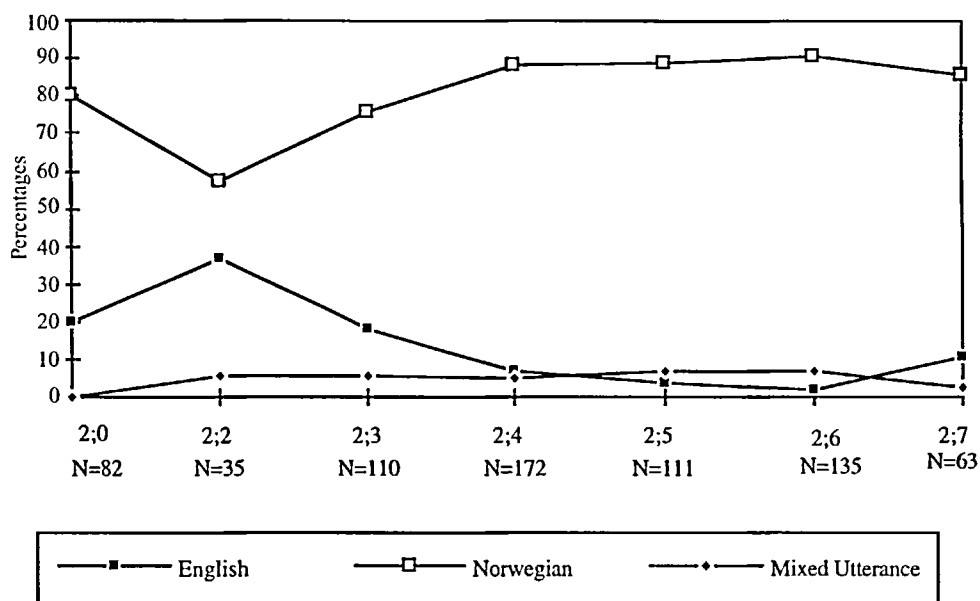
Figure 2

Siri in interactions with her Father. Percentages of turns with English, Norwegian, and Mixed Utterances.

effect on her language use was that she used more Norwegian with her mother, particularly in the form of Norwegian utterances, but also in mixed utterances at 2;4. The mother also noted that at 2;7 Siri revealed increased difficulty in accessing English when her mother would signal repair cues for Siri to switch to English.

In interactions with her father, Siri's language choice pattern is first an increase in mixed utterances and English, followed by a gradual decrease in both. However, there are slightly more mixed utterances than English utterances at ages 2;5 and 2;6. There is a slight increase again in the use of English utterances at the age of 2;7. Interestingly, this was the period during which Siri experienced increased dominance in Norwegian. We will return to this interactional aspect below.

3.2 Siri's lexical and grammatical mixing

What are the type of word categories involved in Siri's mixing? In the initial analysis, a useful distinction in the discussion of content and function words, or lexical and grammatical morphemes, is that of *open class* and *closed class* items. This distinction is critical and forms the basis for the initial analysis of the various categories in the mixed utterances. The distinction between open and closed class items has psychological and neurolinguistic validity, and is hence fundamental in language production models. Findings supporting the assumption that there is a basic distinction between open and closed class morphemes (cf. Fromkin, 1980; Caplan, 1987; Garrett, 1988) come from monolingual language production. Joshi's (1985) work on code-switching, however, built on these ideas noting that the direction of switching is asymmetrical as a result of the category membership of the switched items in a code-switched utterance: open

Table 2

Siri's mixing in conversations with each one of her parents: turns containing lexical/grammatical morphemes

	mixed		not mixed		total	
With Mother	313	(29%)	764	(71%)	1077	(100%)
With Father	111	(16%)	597	(84%)	708	(100%)

class items are switched more freely while switching of closed class items are restricted. These ideas will be relevant for the analysis of the Siri data. A similar proposal concerning the category membership of the items involved in code-switched utterances is made by the code-switching model to be discussed below, the Matrix Language Frame Model (Myers-Scotton, 1993a).

In the following, "lexical morpheme" refers to content words (nouns, verbs, adjectives)/ open class items whereas "grammatical morpheme" refers to both bound grammatical morphemes and function words/closed class items.[7] Table 2 illustrates Siri's language choice in conversation with her mother and father respectively. As stated above, this analysis gives an overall picture of Siri's language choice patterns, and as such contributes to forming a framework for examining her mixed utterances. In Table 2 all turns with lexical and grammatical morphemes are counted. Mixing occurs within an utterance as well as across utterances. Recall that Siri's mother spoke English with her daughter while her father spoke Norwegian. Siri spoke mostly English with her mother and Norwegian with her father.

As we see in Table 2, Siri mixed languages when speaking to her mother and her father: in the form of mixed utterances with each parent, and by using Norwegian in talk with her mother and English in talk with her father. Examples of single-word utterances mixed in discourse are illustrated in Examples 1 and 2:

(1)   Siri (2;7) and her mother are looking at a book.

      Siri   **Mother**

                                   The cow! What's the cow doing right there?

→ SPIS.
   "Eat."

                                     Hm?
   Eat.

(2)   Siri (2;3) and her father are looking at a book.

      Siri   **Father**

                                    Hvem er det som bor inni i huset?
                                   "Who is it that lives inside the house?"

→ WOMAN!

                                  En dame! Og hvem er det som bor sammen med damen?
                                   "A woman! And who is it that lives with the woman?"

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[7] Köppe (1996:945) mistakenly claims that "adverbials" are classified as lexical items in my analysis of Siri's formal mixes. However, adverbs, the closed class of non-adjective derived items, are in fact classified as grammatical items along with other function words.

Table 3

Siri's mixing in conversations with each one of her parents: proportion of lexical/grammatical morphemes

	lexical		grammatical		total mixes	
With Mother	89	(28%)	224	(72%)	313	(100%)
With Father	111	(100%)			111	(100%)

> *Vov-vov.*
> "Doggy."
>
> *Vov-vov.*
>
> → KITTY.
>
> *Ja, pusekatt. Mhm. Akkurat nå ligger de og sover.*
> *Skal akkurat til å stå opp.*
> "Yes, pussycat. Mhm. Right now they are sleeping.
> Just about to get up."

Despite the fact that Siri engaged in mixing with each parent, the type of mixing was different: with the mother, the mixing was predominantly grammatical, while with the father, the mixing was lexical, as illustrated in Table 3.[8]

My focus in this article is on mixed utterances; however, these utterances must be analyzed in relation to the child's general language use pattern. The next analysis examines mixed utterances specifically, particularly in the *distribution* of lexical and grammatical morphemes in the corpus of Siri's mixed utterances. As noted above, category membership of the mixed items has been an issue in code-switching work. Moreover, Redlinger and Park (1980) argued for the need to examine the distribution of the child's mixed utterances in a corpus of data. Table 4 illustrates the general patterns which emerge in Siri's mixed utterances in all of the interactions, that is, regardless of Siri's interlocutor.

These co-occurrence constraints indicate the prevalence of a Norwegian grammatical framework in Siri's mixed utterances. In other words, this directionality of mixing suggests that Siri is *dominant* in Norwegian.

Prior work on early language mixing reports on similar mixing patterns. Swain and Wesche (1975) had also noted that their informant Michael's English was filled in with French functors, that is, French grammatical morphemes. This they interpreted as a reflection of the difference in the level of development of Michael's English and French, French being his dominant language. Leopold (1949) also reported on Hildegard's use of a predominantly English frame in her mixed utterances at the age of 2;5; she would use German nouns, and to a lesser extent verbs, in otherwise English sentences in interactions with her German-speaking father. As pointed out earlier, this directionality of mixing was also apparent in Vihman's (1985) data — Estonian nouns with English determiners. Vihman claimed that Raivo was

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[8] For a more detailed discussion of this analysis, see Lanza, 1997, Ch. 5.

Table 4

General pattern in all of Siri's mixed utterances

1. English lexical morphemes co-occur with Norwegian and English grammatical morphemes

     eg: *look* E and *look* S
            I eat and JEG *eat*

2a. Norwegian lexical morphemes only co-occur with Norwegian grammatical morphemes

     eg: *husk* E   ("swing + INF")
            jeg spiser   ("I eat")
     This entails the following:

2b. Norwegian lexical morphemes do *not* co-occur with English grammatical morphemes

     eg: **husk* S   ("swingS")
            *I spiser   ("I eat")

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* The asterisk indicates that the form or pattern does not occur

dominant in Estonian; however, no criteria for assessment of this dominance are provided other than that Estonian was the home language. Nevertheless, as noted above, it appears that the home was in fact a more or less bilingual context (cf. Genesee, 1989). A similar directionality of mixing is, moreover, also found in adult code-switching as discussed in Petersen (1988) and Lanza (1993) (cf. Eid, 1985, 1992).

Petersen (1988, p. 486), based on her data from a three-year-old Danish-English bilingual child, proposed the "dominant-language hypothesis":

> The dominant-language hypothesis states that in word-internal code-switching, grammatical morphemes of the DOMINANT language may co-occur with lexical morphemes of either the dominant or the nondominant language. However, grammatical morphemes of the NONDOMINANT language may co-occur only with lexical morphemes of the nondominant language.

These general co-occurrence constraints are the same ones operating on Siri's language production. That Siri should be dominant in Norwegian is indeed not surprising given that she lived in Norway and her mother was her sole source of input for English on a daily basis. As discussed in Lanza (1993), there are other indicators of Siri's language dominance such as greater morphosyntactic development in Norwegian; for example, Siri developed language-specific intra-sentential negation in Norwegian before English. Moreover, her pronominal system was more developed in her Norwegian than in her English.

3.3 Personal pronouns in language mixing

We may examine Siri's use of first person pronouns in both languages, as a case in point concerning her language dominance. Table 5 illustrates Siri's use and development of pronominal self-reference across all interactions.

Table 5 indicates that the Norwegian subject pronoun *jeg* is by far the most preferred by Siri in making self-reference. Of the total of 301 instances of nominative first person reference (*jeg* and *I*), Siri's use of *jeg* accounts for 94%. The use of *jeg* occurred in interactions with the mother, alone and together with the father, as well as with the father alone. The use of *I*,

Table 5

Siri's pronominal self-reference (JEG/I and MEG/ME)

Age	2;0	2;1	2;2	2;3	2;4	2;5	2;6	2;7	total
jeg	1	2	38	75	28	53	70	16	283
meg	25	–	1	–	–	–	7	2	35
I	–	–	3	–	–	5	3	7	18
me	–	–	–	–	–	1	–	2	3
total	26	2	42	75	28	59	80	27	339

Table 6

Examples of Siri's mixed utterances with first person personal pronouns

"JEG almost enough"	(2;2: M)	"jeg *PIG*"	(2;4: F)
"JEG down"	(2;2: MF)	"JEG *sit on it*"	(2;5: M)
"JEG *cramps again*"	(2;3: MF)	"JEG *want to*"	(2;6: MF)
"JEG *lean over*"	(2;4: M)	"JEG *pack up this*"	(2;7: M)

however, only occurred in interactions with the mother (15 tokens) and in interaction with the mother and father (3 tokens). In other words, Siri never used the English *I* while interacting alone with her Norwegian-speaking father although she did use the Norwegian *jeg* while interacting alone with her English-speaking mother. Thus this propensity to use *jeg*, in addition to its presence in many mixed utterances (73 utterances) may be interpreted as another sign of Siri's dominance in Norwegian. Examples include those in Table 6.

An important point to notice in the examples of mixed utterances in Table 6 is that we may ask which language does the mixed item come from? Invariably, recourse is made to the language of the interaction particularly in cases in which the utterances are composed of two morphemes only. In essence this involves assigning a base or matrix language for the mixed utterance. Is there evidence that the child is attempting to maintain the use of one language, in a situation defined as monolingual? Or can the situation be defined bilingual such that it may be argued that the child is switching between languages? This issue was initially raised in 2.1 above; we will return to this issue below.

The dominance of Norwegian in Siri's language use prevails in various degrees across all eight samples. The presence of *jeg* in longer English utterances such as "**jeg** go there one day?" (2;6) in a triadic interaction and "**jeg** cut a little on it **jeg**"(2;7) in a mother-child interaction only strengthens this claim of Siri's dominance in Norwegian. Furthermore, in the latter utterance, we may note the emphatic use of *jeg*, the repetition of the subject pronoun at the end of an utterance, a feature which is peculiar to Norwegian.[9]

Schlyter (1993) provides an excellent discussion and analysis of the relationship between the weaker and stronger (that is, dominant) languages of children acquiring two languages

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[9] Also from a discourse perspective we find evidence of dominance in that Siri switches from the English *I* to the Norwegian *jeg* due to affect (cf. Lanza, 1993).

simultaneously. The stronger language displays all the aspects of normal first language acquisition, that is, core grammatical phenomena such as finiteness, word order, and placement of negation. In the weaker language, on the other hand, there is greater variation of these grammatical aspects. "Correct finiteness" includes the correct finite verb forms, marked for tense and person; explicitly stated subject (normally personal pronouns); and correct word order (Schlyter, 1993, p.297). Schlyter also notes that some elements, for example, a pronominal subject, may be replaced by an item from the stronger language, when the child is speaking the weaker language. An interesting example from a French-Swedish bilingual who is dominant in Swedish is the following, in which the Swedish first person pronoun occurs in a French utterance: "jag dormir dans la fauteuil" ("I (to) sleep in the chair") (p. 296). This use is similar to Siri's pattern. Hence language dominance reflects relative linguistic proficiency, that is, the relation of one language to the other (cf. also Genesee, Nicoladis, & Paradis, 1996; Nicoladis & Genesee, 1996).[10] However, this reflection continues even after the child has purportedly acquired functional categories.

3.4 Discussion

As discussed earlier on in this article, the mixing in of function words as single elements in the mixed utterances of young bilingual children has been invoked as evidence for a qualitative difference between early mixing and that of more mature bilinguals. Recall that Köppe and Meisel (1995) delineated two stages in the language development and language mixing of the young bilingual in their study, with the first stage indicating an absence of the functional category INFL and the mixing of function words at a high rate. At around the age of 2;5, the child's mixing rates decreased, and his mixing essentially consisted of the insertion of single nouns, a category most often switched among older bilinguals. It is at the same age of 2;5 that the category INFL emerged in the child's grammar in both languages, and Köppe and Meisel claimed that it is this development which accounts for the purported transition from the first to the second stage in the young bilingual child's language mixing patterns.

Do we see the same type of development in Siri's language development and language mixing? As discussed in Lanza (1992), Siri's general mixing rate did show some decrease over time; however, and important for this argument, the *type* of mixing remained the same. In other words, there was no qualitative difference between her late and her early mixing. Furthermore, the mixing of pronouns, function words, as a single element persisted even after she had acquired language-specific syntax.[11] And this persistence is claimed to be a sign of her continuing dominance in Norwegian.

Language dominance occurs in bilingual language development and use, as noted above, even after the child utilizes functional categories. In other words, the available evidence from Siri acquiring two languages simultaneously does not support Meisel's claim that there is a qualitative difference between early mixing and the mixing that occurs after the child has

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[10] Genesee, Nicoladis, and Paradis (1996) introduce another measure of language dominance, the amount of "multi-morphemic utterances" MMU (utterances of two morphemes or more) used by a child in interaction. Six French-English bilingual children ranging in age from 1;10 to 2;2 were recorded in dyadic and triadic interactions. An inherent problem with this measure is that potential interactional dominance by one of the parents in triadic conversations can affect the child's MMU rate. For example, if the English-speaking parent spoke more often to the child than the other parent, there is potential for the child's MMU rate to be inflated in English.

[11] Examples of language-specific word order occur in the data from the age of 2;5 (cf. Lanza, 1997: Chap. 4).

acquired functional categories. It is interesting to note that Meisel (1994a, p.433–434) does point out some "problematic cases" of switching between pronominal subject and verb in the speech of his bilingual French-German informants, after the age at which they are claimed to have attained access to functional categories. We will return to these examples below.

A more differentiated view of the theoretical status of pronouns is argued for in the Matrix Language Frame Model (Jake & Myers-Scotton, 1997a; Myers-Scotton, 1993a; Myers-Scotton & Jake, 1995). And this difference will also help shed some light on crosslinguistic variation in pronoun mixing, as discussed in 5.1. We now turn to this model of intra-sentential code-switching although we will return to Siri's data, as well as to other data sets on bilingual first language acquisition, in order to test the model's predictions, and thus further address our main question as to whether or not we are confronted with language encounters of a different kind. The differential contribution of the lexical and grammatical morphemes in Siri's data motivates a comparison with the Matrix Language Frame Model since this model also emphasizes the *differential* roles played by two languages in their contributions to intra-sentential code-switching. In other words, the asymmetry in language contact we noted in Siri's data is also addressed in this code-switching model.

4. The Matrix Language Frame Model

In the analysis of Siri's data we noted the impact of language dominance on her linguistic output. Siri's mixed utterances illustrated a dominance by Norwegian in her processing of language in various situations. Language processing involves linguistic/grammatical knowledge as well as situational knowledge. The Matrix Language Frame Model (henceforth the MLF model) is a bilingual competence and production model of code-switching which draws on theoretical insights from Levelt's (1989) psycholinguistic model of language processing.[12] As such there is further motivation for employing this model in comparing the young bilingual child's language contact patterns with that of older more mature bilingual speakers. Interestingly, Meisel (1994a) discounted this model in his discussion on grammatical constraints on code-switching, claiming in a footnote (p.436) that it is the correct determination of the matrix language that is problematic. As discussed below in 4.2, both contextual/pragmatic as well as structural factors must be taken into account in investigating the bilingual two-year-old's language mixing patterns.

4.1 Some basic tenets of the MLF model of code-switching

Recognizing the complex lexical structure involved in code-switching, the MLF is based on the premise that the languages involved in intra-sentential code-switching play different roles in code-switched utterances. The MLF model which has focused on adult code-switching does not conceptualize code-switching as surface-level "switching"; rather the model can be termed an "insertional" model (cf. Muysken, 1995). Independent motivations for the MLF model come from psycholinguistic research, especially from the type of work that has also provided the theoretical basis for distinguishing between open and closed classes of morphemes.

It is beyond the scope of this article to tease apart the intricacies of the model; however,

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[12] Levelt's "blueprint for the speaker" comprises processing components and knowledge stores, including linguistic knowledge and situation knowledge.

some basic tenets must be outlined. There are two theoretical constructs underlying the MLF model of intra-sentential code-switching: (1) the distinction between the Matrix Language (ML) and the Embedded Language (EL); and, (2) the distinction between content versus system morpheme. Nouns, verbs, and adjectives are prototypical content morphemes while articles and inflections are prototypical system morphemes. The ML is the main language in code-switched utterances; it sets the morphosyntactic frame in these utterances. This involves specifying the order of morphemes and supplying the syntactically relevant morphemes in code-switched utterances. In combination with the Markedness Model (Myers-Scotton, 1993b,c), the MLF model claims the ability to account for attested cases of code-switching. In other words speakers exploit the socio-psychological values associated with the different languages in a specific speech community and once intra-sentential code-switching occurs, language mixing is hence constrained.

The Morpheme Order Principle and the System Morpheme Principle together restrict the role of the EL in mixed constituents. The distinction between the ML and the EL in the MLF model allows for three types of constituents to be identified: constituents that are made up of either the ML, or of EL, islands with the latter "produced when ML morphosyntactic procedures are inhibited and EL procedures are activated" (Myers-Scotton, 1993a), in addition to the ML + EL constituent. It is the ML which supplies the system morphemes in the sentence while some EL system morphemes may occur in EL islands. It is the ML that sets the morphosyntactic frame for ML + EL constituents.

The strength of the model lies in its independent motivations and its clear predictions which allow falsification, within both a grammatical and language production framework. Although the model has met with some critics (cf. Backus & Boeschoten, 1995; Bentahila, 1995), it offers insights into general underlying principles which structure all types of bilingual speech, and as such holds many promises for explaining the interface of languages in contact (cf. Myers-Scotton & Jake, 1995; Jake & Myers-Scotton, 1997b). In the following, we address an important issue which has been noted in previous discussion above.

4.2 Identifying the matrix language in bilingual child data

A potentially important criticism of Petersen's (1988) dominant language hypothesis which was invoked in the analysis of Siri's data is that the directionality of mixing may in fact be difficult to determine. This is due to the fact that determining the base, or matrix, language and the guest, or embedded, language may be an impossible task on purely structural grounds given that many utterances are only composed of two morphemes. Meisel (1994a) posed an objection to the MLF model on this ground as well. The issue of a matrix, or base, language has figured prominently in work on intrasentential code-switching, and indeed is relevant in a discussion of language mixing in early bilingualism.

Myers-Scotton (1993a) provides a fruitful discussion on the identification of the "matrix" (or base) language (ML) and the "embedded" (or guest language) language (EL) in code-switching (CS), claiming that psycholinguistic and sociolinguistic criteria, taken together, contribute to a definition of the matrix language (cf. also Appel & Muysken, 1987). She does, however, state that the relative frequency of morphemes from the ML and the EL is the most verifiable empirically. Determining the matrix language for the language mixing of a bilingual two-year-old on purely structural grounds, however, may be impossible since many of the child's utterances are only composed of two morphemes. Frequency is then of no help.

Myers-Scotton states (p. 67) that "relative proficiency" is the psycholinguistic criterion in the definition of a matrix language; however, given the difficulty in assessing language proficiency, "this criterion only becomes useful when combined with sociolinguistic data." As for sociolinguistic criteria, Myers-Scotton points out (p. 67), that "the ML is the language more unmarked for the specific *type* of interaction in which the CS utterances occur," with the unmarked language being the one that is "expected" in the situation, an issue which is developed in her Markedness Model (Myers-Scotton, 1993b,c). Conversely, the embedded language would be the marked language. Another important point brought up by Myers-Scotton is that ML assignment is "dynamic," that is, a change is possible even within the same conversation.

What can these definitions of a base/matrix language and a guest/embedded language elucidate in the bilingual child's data? What are the methodological and hence theoretical consequences of such an assignment of a matrix language? If we are to determine what the guest/embedded language insertions are purely on structural grounds (frequency of morphemes), then the language assignment of these insertions would vary according to what the base or matrix language was. In this case, a quantitative analysis of "guest insertions" may lead to a quite different picture of Siri's actual mixing patterns. Take as an example, her utterance "**nei jeg kan** do it" ('no I can do it') used in an interaction with her mother when she was 2;5. Although there are more morphemes from Norwegian (all function words) than from English, there is evidence that Siri was in fact trying to stick to English; she used no lexical mixing in that interaction. More importantly, a purely structural determination of the base or matrix language may be impossible in cases of utterances composed of only two morphemes. Finally, a purely structural assignment of the base or matrix language would not address the issue at hand in dyadic interactions in which the parent is attempting to socialize his/her child into using one language or the other.

In Siri's interactions with her mother, the *expected* language was English. Siri's mother strictly enforced the one parent-one language rule in her interactions with her daughter. English in interactions with Siri's mother was then the unmarked language, the matrix language according to the sociolinguistic criterion outlined above; it is the insertion of the marked language, in this case Norwegian in context with the mother, that needs to be investigated in a study of the bilingual child's language socialization and acquisition of bilingual awareness. This perspective is important in determining the extent to which the child code-switches functionally, similar to more mature bilingual speakers.[13]

In Siri's interactions with her mother, there are consistent indicators that Siri is "struggling to comply with the one-person, one-language strategy of interaction" (cf. Döpke, 1992; Lanza, 1997). Siri mixes in certain Norwegian grammatical items in her English utterances to her mother, alternating between the use of English and Norwegian. In other words, we may say that, structurally speaking, Norwegian and English are in competition in the use of grammatical morphemes since Norwegian is Siri's dominant language. This reveals a certain asymmetry in Siri's language use in that this alternation is not found in her mixed utterances with her father. With him, the embedded language always consisted of

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[13] In the "Afterword" of the new edition of Myers-Scotton (1993a), an updated and more refined notion of the matrix language (ML) is discussed. Accordingly, the ML is now presented as a theoretical construct which can only be tested indirectly through the System Morpheme Principle and the Morpheme Order Principle. The ML versus EL opposition is only relevant within a code-switched CP. In Siri's interactions with her mother, we may say that the discourse dominant language is English while Norwegian is the ML of her mixed utterance, a distribution which indicates her language dominance.
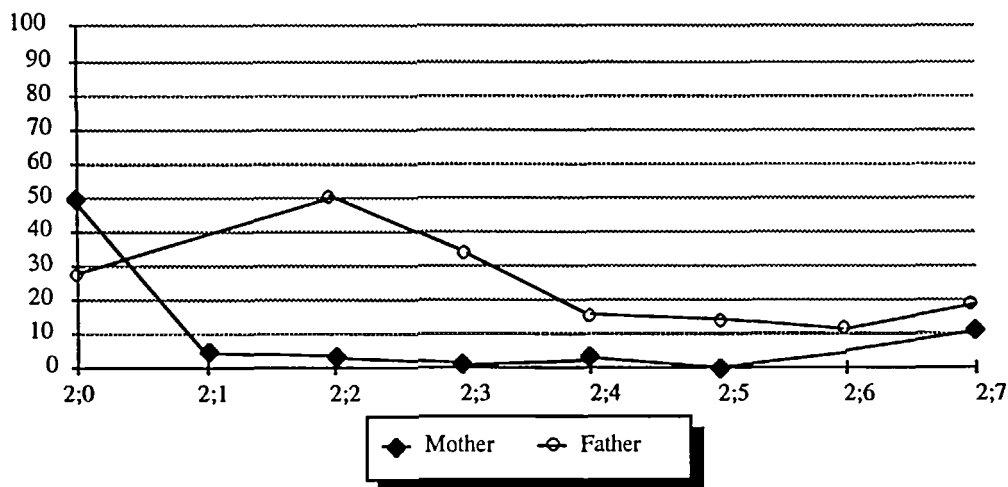
Figure 3

Siri in interaction with her mother and father. Percentage of lexical mixing in relation to total number of turns with lexical items.

lexical/content morphemes. Apart from the first period, Siri persisted in mixing lexically more often with her father than with her mother during the entire period of investigation as illustrated in Figure 3, despite her attested dominance in Norwegian.

As discussed in Lanza (1992, 1997), Siri's mother negotiated a monolingual context with her daughter particularly through the use of clarification requests in response to Siri's use of Norwegian lexical items in interaction with her, and in some cases with grammatical mixes. The following example illustrates such a strategy:

(3) Siri (2;2) and her mother are in the kitchen. Her mother is cooking. Siri is drawing and has just asked for more paper.

Siri	Mother
	Siri run and find it.
Yeah.	
	Mama's standin' right here.
//Mama LØPE].	*Mama's got to look //after the food].*[14]
"run"	
Mama LØPE. Mama LØPE.	
Mama LØPE.	
→	*What do you want Mama to do?*
run.	
	Run.
Mama run.	
	Mama run. OK.

(Siri's mother goes off to get paper.)

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[14] //] indicates overlapping, that is, that Siri's and her mother's utterances co-occurred.

Siri's father, however, was more open for language mixing and even encouraged her use of English either through the repetition of her English words or by merely continuing the conversation. In other words, he negotiated more of a bilingual context with his daughter. Example 4 illustrates a more bilingually oriented approach to responding to language mixing on the part of Siri.

(4)   Siri (2;0) and her father are looking at a picture book.

Siri	**Father**
HUG/ HUG/	
	Å, bamsen får en kos, eller en
→	*HUG, ja. Se, der får bamsen en*
	kos. Ja.
	"Oh, the teddy bear gets a hug, or a HUG yeah. Look, the teddy bear gets a hug there."

These examples provide a window onto Siri's language socialization in regards to language mixing (cf. Lanza, 1997 for a more comprehensive analysis). The acquisition of code-switching skills must be placed within such a language socialization framework. Taking into account the interactional styles of Siri's parents in response to her lexical mixing helps us account for the distribution of this mixing across interactions as noted in Figure 3.

Language dominance is essentially a psycholinguistic phenomenon closely intermeshed with sociolinguistic parameters. Siri alternates between a Norwegian grammatical framework and an English one in her utterances with her mother; in her mixed utterances, a Norwegian morphosyntactic structure prevails in many cases in which she also has the corresponding English item. Siri's mother negotiated more of a monolingual context with her daughter, and Siri quite early on indicated socialization into this language choice pattern through her avoidance of lexical mixing in interactions with her mother.[15] With her father who negotiated a bilingual context with her, Siri maintained a Norwegian framework yet she embedded mostly English nouns, and some verbs and adjectives. The two-year-old bilingual child is an apprentice to language and the socio-cultural norms that he or she is being socialized into, and hence sociolinguistic parameters as well as psycholinguistic ones must be considered in determining the base/matrix language. This language socialization framework also provides the basis for evaluating the extent to which the young bilingual child uses his or her two languages in contextually sensitive ways just like the more mature bilingual speaker. Hence there is no basis for concluding that Siri lacks bilingual awareness (cf. Vihman, 1985).

4.3 Code-switching and the issue of dominance

Let us return to the issue of language dominance. The dominant language hypothesis is fully compatible with the MLF model. Note that in Siri's data, her mother attempted to create a monolingual context for her daughter, thus providing negative sanctioning to lexical mixing in

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[15] The few lexical items mixed at the age of 2;4 involve words that are phonetically quite similar in both languages such as *milk* and *melk*.

her language socialization of her daughter. This enables the issue of dominance to come out more clearly in the data, whereas dominance in a clearly bilingual interaction may be more difficult to ascertain. A somewhat similar pattern to Siri's was found in a recent study of a two-year-old child, bilingual in Norwegian and English (Christiansen, 1995). The child also had an American mother and a Norwegian father, similar to Siri. What Christiansen found was that of the 307 mixed utterances in the corpus, 215 (70%) involved the combination of Norwegian grammatical morphemes with English lexical morphemes. 92 mixed utterances (30%) involved the combination of English grammatical morphemes with Norwegian lexical morphemes. As Christiansen points out (p. 69), the general trend agrees with Petersen's (1988) dominant language hypothesis, but one may be tempted to claim that the 30% utterances that apparently deviate from the pattern are a challenge. However, by looking at the use of these mixed utterances in interaction, she noticed that those involving Norwegian grammatical morphemes occurred in interactions with the father and the mother while those utterances involving English grammatical morphemes *only* occurred in interactions with the mother. Hence there is support for the claim that the child was dominant in Norwegian. Why did the child use Norwegian lexical morphemes with his mother? An analysis of the parents' discourse strategies showed that both parents used response strategies that were bilingually oriented, that is, that opened up for lexical mixing and hence contexts in the code-switching mode. So the reason why Siri's data showed a clearer pattern in support of the dominant language hypothesis was the mother's use of more monolingually oriented discourse strategies towards her daughter's mixing.

This also appears to be the case for Annika, reported on in Köppe and Meisel (1995), whose mixing was claimed to be comparable to Siri's in Köppe (1996). Interestingly, as Köppe (1996, p. 945) notes, although Annika was dominant in German, "her mother strictly insists on being addressed only in French by the child." The mixing of function words also occurred in both linguistic contexts for the children Ivar and Pascal but Köppe rules out dominance as an explanation, seemingly due to a lack of a clear directionality of mixing. An unanswered question, however, is what language(s) was the interaction in, what was the child's attempted ML? In other words, was the interaction clearly monolingual in character as in Siri's case with her mother, or bilingual in character as in the case with Christiansen's (1995) informant?

What the MLF model posits then is, as stated by Myers-Scotton (1993c), that "cognitive-based constraints set the parameters for CS in some universal sense. Within these parameters, the performance of CS may vary across communities and even individual speakers, but what is possible or not possible can be predicted." There is, however, a difference between the categories employed within the dominant language hypothesis and those of the MLF model. Within the MLF model, the system morphemes form a subset of what has been referred to as closed class morphemes, including inflections. For example, the pronouns, modals, and spatial prepositions found in Siri's mixing would be considered content morphemes within the framework of the MLF model (cf. Jake, 1994, for example); their inclusion in the mixed utterances are compatible with the predictions of the MLF model nonetheless.

According to the MLF model, both the Norwegian *jeg* and the English *I* are content morphemes. If we focus on the use of personal pronouns in bilingual child data, we may ask why Siri chooses *jeg* in speaking with her English-speaking mother when she actually has the English *I* in her lexicon, and there are indications that she is indeed trying to maintain the use of English in interactions with her mother. And equally important, why then does Siri not employ the English *I* in speaking Norwegian with her father? It is this distribution of language

mixing that is captured by the open-closed class distinction, and points to her dominance. Hence the dominant language hypothesis and the MLF model complement one another in that the MLF can explain what occurs when it does occur while the dominant language hypothesis explains what doesn't occur when it *could* occur, that is, the directionality of mixing. Siri uses the Norwegian first person pronoun with her English-speaking mother although the English counterpart is in her lexicon; she does not, however, use the English pronoun with her father. The dominant language hypothesis captures this pattern.

Hence the MLF model, which predicts general constraints on all types of language contact, fits the data on Siri's language mixing. On the other hand, the dominant language hypothesis captures the distributional patterns in a particular type of language contact.

5. A comparison with other bilingual child language data

Let us return to the issue of personal pronouns since there is a certain discrepancy in category membership when we consider the open-closed class categorization and the system-content categorization of morphemes, as noted above. Jake (1994) in her work on intra-sentential code-switching argues forcefully against a uniform categorization of pronouns as members of a single functional category. She proposes that the system-content morpheme distinction from the MLF model best characterizes category membership for pronouns with inter- and intra-linguistic variation. Nevertheless the principles for assigning class membership of a particular pronoun as a content morpheme or a system morpheme are held to be universal, based on such considerations as the thematic properties of the item.

Specifically, Jake (1994) holds that the MLF model provides a principled explanation for the distribution of these items into four different types of pronouns: discourse-thematic topic pronouns, indefinite pronouns, personal pronouns, and "dummy" pronouns. As for personal pronouns, she notes that crosslinguistically this class seems to be composed of more system morphemes (clitics and AGR-licensed null pronominals) than content morphemes ("overt thematic pronouns in argument position") (p. 291). In English, for example, personal pronouns are content morphemes (as is the case in Norwegian) while in other languages, for example, French, personal pronouns are clitic and hence system morphemes, although discourse emphatic pronouns are content morphemes (for example, *je* and *moi*, respectively). This distinction is otherwise also referred to as one between "weak" (clitic) pronouns and "strong" (nonclitic) pronouns.

The distinction between system morpheme versus content morpheme as delineated in the MLF model can shed light on crosslinguistic comparisons of infant bilingual language mixing. In the following, I will address the issue of pronoun use in other bilingual first language acquisition data reported on in the literature. As both the English and the Norwegian pronouns in the previous discussion are nonclitic, and hence, content morphemes, according to the MLF, it is interesting to see patterns of mixing in language pairs in which one of the languages contains clitic pronouns (system morphemes) while the other does not. Testing the principles of the MLF model against this set of data may provide further evidence for the claim that early language mixing and code-switching are language encounters of the same kind. Paradis and Genesee (1996) provide interesting data in this regard, as the language pair involved is French and English acquired simultaneously by young children in Montreal, Canada. French is a language with both clitic (or "weak") pronouns and nonclitic (or "strong")

Table 7

Mixed utterances involving pronominal subjects for three bilingual children. (Reproduced and adapted from Paradis and Genesee, 1996: 18–19)

a.	I *pousse là.*	(Gene, 2;7)	"I am pushing there."
b.	He a eyes.	(Gene, 2;7)	"He has eyes."
c.	You mette honey?	(Gene, 3;1)	"You're putting honey?"
d.	I aime pas Maman!	(Gene, 3;1)	"I don't love Mommy!"
e.	I peux pas wash the cou me.	(Gene, 3;1)	"I can't wash my neck."
f.	I mette bandaid à 'tit bobo.	(Gene, 3;1)	"I'm putting a bandaid on the little booboo."
g.	They manger bonbon.	(William, 2;10)	"They eating candy."
h.	He manger.	(William, 2;10)	"He eating."
i.	Moi do it this, moi.	(William, 3;3)	
j.	Moi play thing.	(William, 3;3)	
k.	Moi play this.	(William, 3;3)	
l.	Il a sitting in.....	(Gene, 3;1)	
m.	Il a finish.	(Gene, 3;1)	
n.	J'ai sit down.	(Oliver, 2;6)	
o.	*je find it.	(unattested in the corpus)	

pronouns, in the terminology of the MLF model, with "personal" pronouns as system morphemes and "discourse emphatic" pronouns as content morphemes.

5.1 Pronouns in the language mixing of French-English bilingual children

The data in the study come from three children whose mothers were English-speaking and fathers French-speaking. The families claimed to use the one-person, one-language strategy of interaction with their children; however, the authors did attest to some use of the nonnative language, and some intra-sentential code-switching, by the parents. The main thrust of their paper is to test the issue of autonomy or interdependence in the realm of syntactic development by bilingual children, with a focus on the acquisition of the interrelated aspects of finiteness, negation, and pronominal subject in each of the languages involved. Nonetheless they do examine the children's mixed utterances, utterances which were excluded in their main analysis. They note, "an asymmetry in the children's pattern of code-mixing with regards to pronominal subjects" (p. 24).

It is difficult to test the dominant language hypothesis since we have no information on the contextual parameters for the individual utterances; moreover, there is no indication as to how representative the mixed utterances are of the individual children's patterns of mixing. We may, nonetheless, test the linguistic constraints of the MLF on these utterances. Table 7 lists the mixed utterances involving pronominal subjects used by the children in Paradis and Genesee's study.

In examining bilingual child language data, researchers have stressed the importance of examining monolingual child language development in each language in order to assess the bilingual child's language development (Meisel, 1989; Meisel & Müller, 1992; Paradis & Genesee, 1996). Paradis and Genesee (1996, p. 4) point out that what may seem to be an example of language transfer may indeed be a typical stage in the monolingual acquisition of that language. As for the French-English bilingual data, Paradis and Genesee (1996) point out certain patterns in monolingual French child data that must be taken into account: clitics appear with finite verbs while nonclitics appear with both finite verbs and nonfinite verbs. In English, on the other hand, there is no distinction between weak (system) and strong (content) pronouns and there are no restrictions on pronominal subjects and nonfinite verbs.

We see in Table 7 that the bilingual children adhere to the underlying principles involved in code-switching as articulated in the MLF model, taking into account congruence between the two languages. Let us first examine the nonclitic pronouns particularly *I* in English and the French first person pronoun *moi*. In utterances *d* and *f*, the English first person pronoun is the only mixed element while the rest of the utterances are in French. Utterance *e* contains EL island material although we also have the use of English *me* as an emphatic pronoun, used as in French.[16] In all three cases, the use of the English pronoun is compatible with the MLF model. Similarly, the use of nonclitic *moi* in subject position in utterances *i, j*, and *k* would be captured by the MLF, as a French content morpheme/pronoun may occur in an utterance in which the matrix language is English. Determining the matrix language is difficult in *l* due to the unintelligible segment of the utterance. Has the child merely switched over to English? In any case, a French clitic with a French, and not an English, auxiliary verb can be noted here. In utterances *m* and *n*, French appears to be the matrix language with an English verb in *m* and an English verb plus satellite construction occurring as an EL island in *n*. This, too, would follow the constraints of the MLF allowing the French clitic pronoun to appear.

The asterisked sentence *o* which is *unattested* in the corpus would be blocked by the MLF, since a French system morpheme could not occur in an utterance in which the matrix language is English. Hence the predictions of the MLF model are borne out. The distinction between system versus content morpheme as described in the MLF could explain the occurrences of the various pronominal subjects found in the data. A more complete analysis including that of dominance would require more contextual information for an accurate assignment of the base/unmarked language in the interactions, and whether the interactions were monolingual or bilingual in character. Paradis and Genesee interpret their data as evidence for the young children's correct classification of French weak pronouns as clitics, and French strong pronouns and English pronouns as NPs, hence proof of the children's separate and autonomous acquisition of the grammars of the two languages.

5.2 Other examples of pronoun mixing

Recall that Vihman's (1985) comparisons with code-switching data from adult bilinguals was from Spanish-English code-switching. As Jake (1994, p. 291) points out, "In code-switching, if a language like Arabic, French, Spanish, Wolof, or Japanese is the EL, the system-morpheme principle prevents the occurrence of EL pronouns in argument position in mixed constituents."

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[16] There is no mention as to whether or not this use is also found in Montréal English.

She further concludes (p. 291) that "Since much of the data available in code switching involves language pairs in which one member has system-morpheme pronouns in argument position, it is not surprising that the occurrence of EL pronouns in mixed constituents is uncommon." This can explain why the basis for Vihman's comparison had a certain language-specific bias, at least in the realm of pronouns as function words.

As noted above, Meisel (1994a) whose work is also cited by Paradis and Genesee (1996) presents examples in which there is a switch between pronominal subject and verb in the speech of his French-German bilingual child informants. For the two children whose language use is analyzed, German is deemed the dominant language and French, the weaker. Meisel presents some problematic cases (p. 433) for the grammatical constraints he discusses, two of which are listed below:

(5) Examples taken from Meisel (1994, p. 433–434):

    (a) DU   DU,   aimes ça   la   soupe   (Iv 2;8,15)
          you   you, like   that the soup?

          "Do you like soup?"

    (b) Sonja a   - je SCHENK ça   (A 3;2,24)
          Sonja has - I give   this

          "Sonja has - I give this as a present"

In example (a), the child had been requested by the German adult to ask the French adult a question, and failed to switch in time, as also indicated by the pause after DU (noted by a comma). However, despite the pause, the MLF model would allow *du*, as a discourse emphatic pronoun, a content morpheme in German to occur in this spot, and hence this example is not problematic. In (b), we find a German verb in a French utterance with a clitic subject pronoun, clearly violating the government constraint,[17] as Meisel points out. However, we must note that the interaction was in French and the ML in the child's utterance is French, hence the switch of a German content morpheme can be accounted for by the MLF model. Furthermore, we may note that the German verb is not inflected by any German verbal affix.

Meisel also points out that French clitics were never mixed into a German sentence, a prediction that the MLF would also make. An important point is made in Meisel's (1994a) conclusion, and has been stressed above, namely that "code-switching cannot only be defined in terms of grammatical properties of the languages involved; rather, they should be regarded as principles of language processing" (p. 436). More crosslinguistic work needs to be carried out to test the predictions of the MLF model in order to ascertain to what extent the constraints hold for data on infant bilingualism, as they do for other forms of language contact. Nonetheless we see in the data sets presented here that despite differences in child and adult language, the young bilingual children's combinatorial principles in language mixing are similar to those posited for adult language contact. Moreover, the MLF model provides a principled account for the distribution of pronouns even in the so-called problematic cases.

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[17] Note that Muysken, one of the original proposers of the government constraint, acknowledges the inadequacy of the constraint as previously formulated, that it was "simply too strong" (Muysken, 1995: 187).

7. Conclusion

Are language contact patterns in the speech of bilingual two-year-olds similar to the code-switching of more mature bilingual speakers? In this article, I have argued that these two types of language mixing are *not* language encounters of a different kind. As the child acquires greater grammatical competence and greater pragmatic awareness, he or she will be able to engage in more sophisticated code-switching strategies, yet the basis is there early on. The claim here is not that all early mixing is code-switching if we wish to tease apart the motivation for the different *types* of language contact patterns, such as language dominance. Indeed language dominance is not sorted out well operationally in studies of adult code-switching.

The available evidence reveals that the patterns of language contact in early bilingual speech are similar to those of more mature bilingual speech in that the same underlying processes are at work and are related to the category membership of the individual items mixed. Siri mixed in function words, particularly pronouns, before and after she showed clear evidence of operating with language-specific syntax. Thus there is no support for the claim made by Meisel (1994a) and Köppe and Meisel (1995) that this type of mixing would cease once access to functional categories was attained. However, similar to Meisel (1994a) and Köppe and Meisel (1995), I contend that code-switching must take account of both grammatical properties of the languages involved and issues of language processing.

The issue of language dominance more clearly provides an understanding for this type of mixing (that is, of function words). However, critical to such an analysis was the situation of the mixed utterances within an interactional context. As was noted in the Siri data, Norwegian function words were mixed in her English while she interacted with her English-speaking mother. That is, grammatical morphemes from her dominant language entered into her nondominant language in language production. Siri's mixing with her father while speaking her dominant language, on the other hand, was exclusively lexical and predominantly nouns; this type of mixing was in fact the type claimed to be found in more mature bilingual code-switching. Hence the issue of dominance stands out in Siri's language use.

More work is needed from other language pairs to test the predictions of current models of code-switching, and in particularly the MLF model. A particularly fruitful result of these endeavors is that a bridge may be built over the gap between studies of early child language mixing and studies of code-switching in older populations. As noted in Lanza (1992), any theory of code-switching must encompass and account for the language mixing of children acquiring two languages from infancy.

References

APPEL, R., & MUYSKEN, P. (1987). *Language contact and bilingualism.* London: Edward Arnold.
ARNBERG, L. (1987). *Raising children bilingually: The Pre-school years.* Clevedon, U.K.: Multilingual Matters Ltd.
BACKUS, A., & BOESCHOTEN, H. (1995). Review article of C. Myers-Scotton (1993), Social motivations for codeswitching. Evidence from Africa and duelling languages. *Grammatical Structure in Codeswitching, The International Journal of Applied Linguistics.*

BENTAHILA, A. (1995). Review of: Duelling languages. Grammatical structure in codeswitching by Carol Myers-Scotton. *Language*, 71, 135–140.

BENTAHILA, A. & DAVIES, E. E. (1992). Code-switching and language dominance. In R. J. Harris (Ed.), *Cognitive Processing in Bilinguals* (pp. 443–458). Amsterdam: Elsevier.

BERK-SELIGSON, S. (1986). Linguistic constraints on intrasentential code-switching: A study of Spanish/Hebrew bilingualism. *Language in Society*, 15, 313–348.

BERMAN, R. & SLOBIN, D. (1994). *Relating events in narrative: A crosslinguistic developmental study.* Hillsdale: Lawrence Erlbaum Associates.

CAPLAN, D. (1987). *Neurolinguistics and linguistic aphasiology: An introduction.* Cambridge, U.K.: Cambridge University Press.

CHRISTIANSEN, K. M. H. (1995). "Ka looking for du?" *A study of language differentiation and the effect of context on language mixing.* Thesis presented for the degree of Cand. Philol., University of Bergen, Norway.

CLAHSEN, H., PENKE, M., & PARODI, T. (1993/1994). Functional categories in early child German. *Language Acquisition*, 3(4), 395–429.

Di SCIULLO, A. M., MUYSKEN, P., & SINGH, R. (1986). Government and code-mixing. *Journal of Linguistics*, 22, 1–24.

DÖPKE, S. (1992). A bilingual child's struggle to comply with the "one parent–one language rule." *Journal of Multilingual and Multicultural Development*, 13 (6), 467–485.

EID, M. (1985). *Directionality in Arabic-English code-switching.* Paper presented at the Minnesota Linguistics Conference.

EID, M. (1992). Directionality in Arabic-English code-switching. In A. Rouchdy (Ed.), *The Arabic language in America.* Detroit: Wayne State University Press.

FROMKIN, V. (1980). (Ed.). *Errors in Performance: Slips of the tongue, ear, pen, and hand.* New York: Academic Press.

GARRETT, M. F. (1988). Process in sentence production. In F. Neymeyer (Ed.), *The Cambridge Linguistics Survey, Volume III* (pp. 69–96). Cambridge, U.K.: Cambridge University Press.

GENESEE, F. (1989). Early bilingual development: one language or two? *Journal of Child Language*, 6, 161–179.

GENESEE, F., NICOLADIS, E., & PARADIS, J. (1996). Language differentiation in early bilingual development. *Journal of Child Language*, 22, 611–631.

GUMPERZ, J. J. (1982). *Discourse strategies.* Cambridge, U.K.: Cambridge University Press.

HOUWER, A. de (1990). *The acquisition of two languages: A case study.* Cambridge, U.K.: Cambridge University Press.

HOUWER, A. de (1995). Bilingual language acquisition. In P. Fletcher & B. MacWhinney (Eds.), *The Handbook of Child Language* (pp. 219–250). Oxford: Blackwell.

HYAMS, N. (1994). Nondiscreteness and variation in child language: Implications for principle and parameter models of language development. In Y. Levy (Ed.), *Other children, other languages: Issues in the theory of language acquisition* (pp. 11–40). Hillsdale, N.J.: Lawrence Erlbaum Associates.

JAKE, J. (1994). Intrasentential codeswitching and pronouns: On the categorial status of functional elements. *Linguistics*, 32, 271–298.

JAKE, J., & MYERS-SCOTTON, C. (1997a). Codeswitching and compromise strategies: Implications for lexical structure. *The International Journal of Bilingualism*, 1 (1), 25–39.

JAKE, J., & MYERS-SCOTTON, C. (1997b). Relating interlanguage to codeswitching: The composite matrix language. *Proceedings from the Boston University Conference of Language Development 1996.*

JOSHI, A. (1985). Processing of sentences with intrasentential code switching. In D. R. Dowty, L. Karttunen, & A. Zwicky (Eds.), *Natural language parsing.* Cambridge, U.K.: Cambridge University Press.

KÖPPE, R. (1990). *Code-switching: Strategien und Funktionen der Sprachwahl bei bilingualen Kindern (Französisch – Deutsch) im Vorschulalter.* Master's Thesis, University of Hamburg.

KÖPPE, R. (1996). Language differentiation in bilingual children: The development of grammatical and pragmatic competence. *Linguistics,* 34, 927 – 954.

KÖPPE, R., & MEISEL, J. (1995). Code-switching in bilingual first language acquisition. In L. Milroy & P. Muysken (Eds.), *One speaker, two languages: Cross-disciplinary perspectives on code-switching* (pp. 276 – 301). Cambridge, U.K.: Cambridge University Press.

LANZA, E. (1992). Can bilingual two-year-olds code-switch? *Journal of Child Language,* 19(3), pp. 633 – 658.

LANZA, E. (1993). Language mixing and language dominance in bilingual first language acquisition. In E. Clark (Ed.), *Proceedings of the Twenty-fourth Annual Child Language Research Forum* (pp. 197 – 208). Stanford University: Center for the Study of Language and Information Conference Series.

LANZA, E. (1996). L'input parental et la differentiation linguistique des enfants agés de deux ans: interactions dyadiques et triadiques. *AILE (Acquisition et Interaction en Langue Étrangère),* 6, 11–37.

LANZA, E. (1997). *Language mixing in infant bilingualism: A sociolinguistic perspective.* Oxford: Oxford University Press.

LEOPOLD, W. (1949). *Speech development of a bilingual child: A linguist's record,* Vol. 4.: *Diary from Age 2.* Evanston, Ill.: Northwestern University Press.

LEVELT, W. (1989). *Speaking. From intention to articulation.* Cambridge, Mass.: MIT Press.

LINDHOLM, K., & PADILLA, A. (1978). Language mixing in bilingual children. *Journal of Child Language,* 5, 327 – 335.

MEISEL, J. (1989). Early differentiation of languages in bilingual children. In K. Hyltenstam & L. Obler (Eds.), *Bilingualism across the lifespan: In health and pathology.* Cambridge, U.K.: Cambridge University Press.

MEISEL, J. (Ed.) (1990). *Two first languages: Early grammatical development in bilingual children.* Dordrecht: Foris.

MEISEL, J. (1994a). Code-switching in young bilingual children: The acquisition of grammatical constraints. *Studies in Second Language Acquisition,* 16 (4), 413 – 439.

MEISEL, J. (1994b). (Ed.) *Bilingual first language acquisition: French and German grammatical development.* Amsterdam and Philadelphia: John Benjamins.

MEISEL, J., & MÜLLER, N. (1992). Finiteness and verb placement in early child grammars. Evidence from the simultaneous acquisition of two first languages: French and German. In J. Meisel (Ed.),*The acquisition of verb placement: Functional categories and V2 phenomena in language acquisition* (pp. 109 – 138). Dordrecht: Kluwer.

MUYSKEN, P. (1995). Code-switching and grammatical theory. In L. Milroy & P. Muysken (Eds.), *One speaker, two languages: Cross-disciplinary perspectives on code-switching* (pp. 276 – 301). Cambridge: Cambridge University Press.

MYERS-SCOTTON, C. (1993a). *Duelling languages. Grammatical structure in codeswitching.* Oxford: Oxford University Press.

MYERS-SCOTTON, C. (1993b). *Social motivations for codeswitching: Evidence from Africa.* Oxford, U.K.: Oxford University Press.

MYERS-SCOTTON, C. (1993c). Common and uncommon ground: Social and structural factors in codeswitching. *Language in Society,* 22, 475 – 503.

MYERS-SCOTTON, C., & JAKE, J. (1995). Matching lemmas in a bilingual language competence and production model: Evidence from intrasentential code switching. *Linguistics,* 33, 981 – 1024.

NICOLADIS, E., & GENESEE, F. (1996). A longitudinal study of pragmatic differentiation in young bilingual children. *Language Learning,* 46(3), 439 – 464.

PARADIS, J., & GENESEE, F. (1996). Syntactic acquisition in bilingual children: Autonomous or interdependent? *Studies in Second Language Acquisition,* 18, 1 – 25.

PETERSEN, J. (1988). Word-internal code-switching constraints in a bilingual child's grammar. *Linguistics*, 26, 479–493.

PFAFF, C. (1979). Constraints on language mixing: Intrasentential code-switching and borrowing in Spanish/English. *Language*, 55, 291–318.

PLATZACK, C. (1992). Functional categories and early Swedish. In J. Meisel (Ed.),*The acquisition of verb placement: Functional categories and V2 phenomena in language acquisition* (pp. 63–82). Dordrecht: Kluwer.

POEPPEL, D., & WEXLER, K. (1993). The full competence hypothesis of clause structure in early German. *Language*, 69(1), 1–33.

POPLACK, S. (1980). Sometimes I'll start a sentence in Spanish Y TERMINO EN ESPANOL: Toward a typology of code-switching. *Linguistics*, 18, 581–618.

POPLACK, S. (1981). Syntactic structure and social function of code-switching. In R. Durën (Ed.), *Latino language and communicative behavior* (pp. 169–184). Norwood, NJ: Ablex.

PUJOL BERCHÉ, M. (1993). Interaction bilingue et acquisition simultanée de deux langues. *AILE (Acquisition et Interaction en Langue Étrangère)* 2, 109–142.

QUAY, S. (1996). The bilingual lexicon: Implications for studies of language choice. *Journal of Child Language*, 22, 369–387.

RADFORD, A. (1990). *Syntactic theory and the acquisition of English syntax.* Oxford: Blackwell.

REDLINGER, W., & PARK, T.-Z. (1980). Language mixing in young bilingual children. *Journal of Child Language*, 7, 337–352.

SCHLYTER, S. (1993). The weaker language in bilingual Swedish-French children. In K. Hyltenstam & Å. Viberg (Eds.), *Progression & regression in language* (pp. 289–308). Cambridge, U.K.: Cambridge University Press.

STENZEL, A. (1994). Case assignment and functional categories in bilingual children: Routes of development and implications for linguistic theory. In J. Meisel (Ed.) *Bilingual first language acquisition: French and German grammatical development* (pp. 161–208). Amsterdam and Philadelphia: John Benjamins.

SWAIN, M., & WESCHE, M. (1975). Linguistic interaction: Case study of a bilingual child. *Language Sciences*, 37, 17–22.

TAESCHNER, T. (1983). *The Sun is feminine. A study on language acquisition in bilingual children.* Berlin: Springer-Verlag.

TALMY, L. (1985). Lexicalization patterns: Semantic structure in lexical forms. In T. Shopen (Ed.), *Language typology and syntactic description,* Vol. 3, *Grammatical categories and the lexicon.* Oxford: Blackwell.

TORIBIO, J., & BROWN, B. (1995). Language contact and differentiation in child bilingualism: A syntactic analysis. *Proceedings of the 19th Annual Boston University Conference on Language Development.* Cambridge, MA: Cascadilla Press.

VEH, B. (1990). *Syntaktische Aspekte des Code-switching bei bilingualen Kindern (Französisch-Deutsch) im Vorschulalter.* Master's Thesis, University of Hamburg.

VIHMAN, M. M. (1985). Language differentiation by the bilingual infant. *Journal of Child Language*, 12, 297–324.

VOLTERRA, V., & TAESCHNER, T. (1978). The acquisition and development of language by bilingual children. *Journal of Child Language*, 5, 311–326.