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## Bilingual mothers' language choice in child-directed speech: continuity and change

Annick De Houwer<sup>a</sup> and Marc H. Bornstein<sup>b</sup>

<sup>a</sup>Linguistics, Erfurt University, Erfurt, Germany; <sup>b</sup>Child and Family Research, Eunice Kennedy Shriver National Institute of Child Health and Human Development, Bethesda, MD, USA

### ABSTRACT

An important aspect of Family Language Policy in bilingual families is parental language choice. Little is known about the continuity in parental language choice and the factors affecting it. This longitudinal study explores maternal language choice over time. Thirty-one bilingual mothers provided reports of what language(s) they spoke with their children. Mother–child interactions were videotaped when children were pre-verbal (5M), producing words in two languages (20M), and fluent speakers (53M). All children had heard two languages from birth in the home. Most mothers reported addressing children in the same single language. Observational data confirmed mothers' use of mainly a single language in interactions with their children, but also showed the occasional use of the other language in over half the sample when children were 20 months. Once children were 53 months mothers again used only the same language they reported speaking to children. These findings reveal a possible effect of children's overall level of language development and demonstrate the difficulty of adhering to a strict 'one person, one language' policy. The fact that there was longitudinal continuity in the language most mothers mainly spoke with children provided children with cumulative language input learning opportunities.

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## Introduction

An important aspect of input to young bilingual children concerns the language(s) that parents speak to them. Parental language choice in bilingual families has been studied from many different perspectives and using different methodologies (cf., for instance, Curdt-Christiansen 2009; De Houwer 2007; Lanza 1997; Li 1994; Zhu 2008). All of these perspectives can be subsumed under the heading of 'Family Language Policy' or FLP (King, Fogle, and Logan-Terry 2008; Lanza 2014; Parke and Drury 2001). The present study aims to contribute to FLP by considering the degree to which parental language choice in addressing young bilingual children varies across time or fundamentally remains the same. We also investigate whether differences in data collection methods lead to different results.

In her study of reported parental language choice in bilingual families in Vancouver, Canada, Byers-Heinlein (2013) used longitudinal data collected six months apart from 17 bilingual parents to test the reliability of the 'Language Mixing Scale', a questionnaire instrument developed to assess parental language choice. The assumption appears to have been that parental reports would stay the same over time. Yet, it is possible that, as children grow, parents change their reported language choices. In fact, Byers-Heinlein (2013) found some changes in reported parental language choice,

but by and large the 17 parents reported the same patterns at times one and six months later, when their children were around two years of age.

The six-month period covered in Byers-Heinlein (2013) may be too short to uncover any major changes in reported parental language choice. The current study covers a period of four years between the child ages of 5 months to 53 months. This time span allows the investigation of possible changes in parental language choice over a period in which children's own linguistic modes of expression undergo dramatic change. These four years typically cover the pre-verbal period, the time when children start to produce words, and the time they start to produce longer and complex sentences. This pattern holds for bilingual and monolingual children alike (De Houwer 2009).

In addition to greatly expanding on the period of time considered for assessing possible changes in reported parental language choice, this study relies on observational, video-recorded data collected concurrently with parental reports. Observational data of language choice yield a more complete picture than self-reported data alone, but observational data may also conflict with reported data. Both kinds of data have different kinds of reliability issues (see, e.g. Li and Moyer 2008; Marian 2008). On the whole, however, observational data on people's language use suffer less from influences of their attitudes towards particular patterns of language choice than do self-reports (Hakuta and D'Andrea 1992).

Regardless of which language(s) and how many languages they are learning, young children need regular and frequent input to learn a particular language. The more frequent language input to young children is, the more words children learn (Bornstein, Tamis-LeMonda, and Haynes 1999; Hart and Risley 1995). The more words that children know at an early age, the more proficient speakers they are later on (Marchman and Fernald 2008). Thus, high levels of frequency of input in a particular language are important to children's development (note that the important role of language input frequency does not imply that input quality is unimportant; see e.g. Rowe 2012).

Caregivers tend to be quite stable over time in the overall level of language input frequency they provide; stability here refers to relative status compared to others (Bornstein and Bornstein 2008; Bornstein, Tamis-LeMonda, and Haynes 1999). At the same time, caregivers also talk a lot more to children as children transition from hardly speaking to saying several words (Bornstein, Tamis-LeMonda, and Haynes 1999). There is little group mean level continuity here. Rather, there is developmental change. The quantity of child-directed speech (CDS) does not necessarily increase as children grow from toddlerhood into preschool age, but various other aspects of CDS do (Rowe 2012). Thus, children's overall level of language development is an important factor in adjustments that parents (*in casu*, mothers) make when addressing children.

The above findings regarding parental speech are based on monolingual data. In monolingual settings, there is strong continuity in the actual language that children hear from their caregivers. Day after day, they hear more in that same language. As such, their experience with language input is typically cumulative. In bilingual settings, the situation may be quite different. This is particularly the case for children growing up with two languages from birth, the focus of this study. These children are growing up in a Bilingual First Language Acquisition (BFLA) setting (De Houwer 1990; Meisel 1989; Swain 1976). It is well known that BFLA children do not necessarily receive the same amount of input in their two languages (De Houwer 2009; see also the contributions in Gruter and Paradis 2014). Children may hear more of one particular language for a while, then less, then more again, and so on. Yet, to learn two languages, young children need regular and frequent input in both.

Input frequency in BFLA is closely linked to the continuity of caregiver language choice. Changes in this language choice over time may lead to changes in the absolute and relative frequency of language input, both of which may affect children's bilingual development (De Houwer 2011, 2014; absolute input frequency refers to how many words or utterances children hear in a particular language; relative input frequency refers to the proportion of time children hear one vs. another language). Continuity in initial language choice contributes to a sustained level of absolute language input frequency which offers children a cumulative experience with that language and the benefits

that circumstance entails for language learning. Continuity in initial language choice will also affect relative input frequency.

To date, there has been little research on continuity in parental language choice in BFLA. Various case studies show that such continuity is certainly possible, but it is unclear how typical these cases are (for cases using the ‘one person, one language’ approach, where each parent addressed children in a single language, see e.g. De Houwer 1990; Lanza 1997; Ronjat 1913; for a case where one parent addressed the child in a single language and the other one addressed her in two, see Deuchar and Quay 2000). In an observational study of a group of 16 mothers in bilingual families, De Houwer (2014) found that mothers addressed their children mainly in Dutch when children were 13 months old, and also 7 months later, when they were 20 months of age. Like in the Byers-Heinlein (2013) study, a period of seven months may not be enough to show a change in language choice. However, the seven-month period in the De Houwer (2014) study was sufficient to show that mothers exhibited significant developmental change as regards the input frequency of Dutch CDS, that is, they spoke more to their children when children were older, confirming monolingual findings. For these 16 mothers’ children growing up in bilingual families, maternal input in dyadic interaction offered cumulative language learning experiences for Dutch. The present study provides information on a group of 31 bilingual mothers in bilingual families and their language choice in CDS (16 of these 31 mothers were subjects in De Houwer 2014).

Continuity in caregiver language choice may be important not only from a language acquisition viewpoint, but also from a socio-emotional perspective. Patterns of language choice are an integral part of a person’s bilingual persona, that is, how a bilingual individual presents herself or himself on a particular occasion or on a range of occasions (De Houwer 1999; Hult 2014; Pavlenko and Blackledge 2004), and it is well known that young children attach emotional importance to their caregivers’ language choice (De Houwer 2009). Lack of continuity in that language choice may not be beneficial to young children’s harmonious bilingual development (De Houwer 2006, 2009, 2015), that is, to their experience of their bilingual situation as neutral or positive.

Continuity in maternal language choice is affected by many different factors. These include, but are not limited to, whether children actually speak the language they are addressed in (Curd-Christiansen 2014; many multilingually reared children speak only a single language [De Houwer 2004; Yamamoto 2001]), whether caregivers are advised to change their language choice by medical practitioners or childcare staff (King, Fogle, and Logan-Terry 2008), or whether caregivers change their mind about the benefit of speaking just one or two languages to children. Another factor may be children’s overall level of language development. The present study’s main goal is to investigate continuity in maternal language choice in speech addressed to young BFLA children over a long period of time and to consider such continuity (or the lack thereof) as it might relate to children’s overall increasing level of language development. Data were collected when children were 5, 20, and 53 months of age and included both maternal responses on questionnaires and video-recorded material of mother–child interactions. In our analyses, we take into account that different measures of language choice (self-reported vs. investigator-observed data) may yield different results.

## Method

### Participants

The participants were 31 middle- to upper-middle-class mothers living in Belgium. Belgium has officially two main languages, Dutch and French. Dutch is the language of public life and subsidised education in Flanders. In Wallonia, with about half the population of Flanders, French is the language of public life and education. Brussels has official bilingual status, meaning that residents have the choice of government services and education in French or in Dutch (but not in both). Historically, there has been a lot of intermarriage between Dutch- and French-speaking populations (but strife as well; see, e.g. Willemyns 1996). Especially in Brussels and Flanders many languages other

than Dutch and French are frequently heard on the streets and in the media (De Houwer 2003); educated people commonly know three or more languages.

Most mothers in this study lived in Flanders or Brussels; one lived in Wallonia. At the time of recruitment (when their firstborn children were two months of age), mothers were living with their firstborn children and their children's fathers. Mothers were all part of a Dutch-French linguistically mixed couple. When children were two months old, all mothers but one reported that they and the children's father each addressed children in a different language, that is, one parent spoke Dutch to the baby, and the other parent French (the one exception was that both parents reportedly each addressed the infant in both Dutch and French). Mothers reported that this bilingual input situation was unchanged since children were born. Thus, all children had heard two languages in the home from birth.

When their firstborn children were five months of age, mothers were asked to indicate what language(s) the mothers were able to speak and what language(s) they understood but did not speak, or did not speak well. Thirty of the 31 mothers indicated that they spoke both Dutch and French. The one mother who spoke no Dutch indicated that she understood Dutch (this mother lived in Dutch-speaking Flanders). Eleven mothers indicated that they spoke both Dutch and French in shops and services (the others used either just Dutch or just French); 18 mothers reported speaking either Dutch or French with friends they happened to meet (one mother mentioned speaking Dutch or Italian, another reported speaking Dutch or English; the remaining 11 mothers mentioned speaking only Dutch or only French).

Only one mother (cf. above) spoke just a single language. All other mothers were able to speak both Dutch and French, and only five mothers spoke just these two languages. Most (25/31) mothers spoke more than two languages: 16 reported speaking three languages, eight reported speaking four languages, and one mother reported speaking five languages. In addition to languages spoken, 14 mothers reported they understood one additional language that they did not necessarily speak or speak well; eight mothers reported understanding two additional languages. The total pool of languages that mothers spoke and/or understood aside from Dutch and French consisted of English, Spanish, German, and Italian. The group of 31 mothers as a whole, then, was not only bilingual but also multilingual.

Data were collected when children (14 females) were 5, 20, and 53 months of age (henceforth: 5M, 20M, 53M). By the children's average age of 53 months there were only 25 mothers left in the study (some families had moved abroad, others could no longer be located).

Children were participants in the study only in the sense that part of the data were collected while mothers interacted with their children. All children were firstborn, carried to full term, and there had been no birth complications. There were no known disorders for any children throughout the study. All children were in preschool by the time they were 53 months of age. For 24 of the 25 children the language of instruction at preschool was Dutch (this includes children growing up in the officially bilingual city-state of Brussels and in the officially monolingual Dutch-speaking region of Flanders). The child who heard French at preschool lived in officially monolingual French-speaking Wallonia.

## **Procedures**

At each child age (5M, 20M, and 53M) mothers filled in language use questionnaires. These instruments asked about the language(s) that mothers generally addressed to children. At 53M, mothers were asked to also indicate what language(s) they used with children in book reading. There are missing reported language choice data for one mother at 53M.

Mothers also participated in video-audio-recorded interactions with their children. These interactions took place in the family home. At 5M and 20M, research assistants made recordings of spontaneous, largely non-structured mother-child interaction. While recording, assistants made no eye contact with mothers or children but instead looked through the viewer of a fairly large camera. They did not otherwise interact with mothers or children during the recordings and were as quiet as

possible. At 53M, longer and more structured task-based recordings were made in the much more noticeable and active presence of a bilingual investigator, who was also recorded in interaction with the child. At 53M, the camera was on a tripod.

At 5M, mothers were asked to do what they normally did in their infants' presence while the latter were awake. They were video-recorded for 60 consecutive minutes of spontaneous, non-structured mother-child interaction, which might include episodes of high as well as low engagement with children.

At 20M, mothers were asked to feed their children. These mealtime sessions were recorded for 10 minutes. In addition, mothers were asked to play with their children for 10 minutes. The same set of toys and books was provided for all dyads.

At 53M, an investigator came to the home to engage children in several structured tasks utilising materials brought by the investigator. In addition, mothers were requested to engage children in a few tasks without the investigator's participation. These concerned reading of two word-less books, the first one told by mothers (*Good dog Carl* by Alexandra Day), the second one first shown to children, after which they were asked to tell mothers about it (extracts from *Kikker is verliefd* [*Frog in Love*] by Max Velthuijs); making a puzzle together; and drawing the family's house. The time for these tasks was not pre-set, and the entire recording session lasted anywhere between two and two-and-a-half hours. Mothers spoke to children during the specific mother-child tasks, but some also addressed children during the investigator-led tasks, or in the short intervals between tasks.

## **Data handling**

### ***Reported maternal language choice***

For all child ages, the answers to the questions about current maternal language use were processed and tallied.

### ***Recorded maternal language choice***

For the analysis of the 5M and 53M data, maternal language choice was tracked throughout the recordings and the language(s) mothers spoke were noted. For the 20M data, maternal language choice coding was based on transcripts of five consecutive minutes out of each 10-minute recording session. Transcription of maternal utterances was orthographic and followed the CHAT format (MacWhinney 2000).

Following the coding scheme in De Houwer (1990), maternal utterances were coded as either entirely Dutch, entirely French, mixed (consisting of Dutch and French morphemes), both (meaning that the utterance could be seen as entirely Dutch or entirely French; this was the case for some short utterances such as 'voilà' [there you go]), and unintelligible or uninterpretable. The latter are not discussed any further.

## ***Children's overall level of language development***

At 5M, a simple tracking of the video-recordings showed that none of the 31 infant children was speaking, as was to be expected. Previous results for 20M showed that all children (now toddlers) understood and produced words in both Dutch and French (De Houwer, Bornstein, and Putnick 2014). However, there was wide inter-individual variation in children's vocabulary sizes, both within a single language, and when data for both languages were summed: for instance, there was a child who produced only 14 different words in total, and one who produced a total of 1,234 words (De Houwer, Bornstein, and Putnick 2014). At 53M all children, now preschoolers, fluently produced complex sentences in at least one language (Neiss, De Houwer, and Bornstein 2008). Thus, as expected, children's overall level of language development changed substantially in function of their increasing age.

## Results

This section first discusses the questionnaire results for each child age separately, with comparisons from 5M to 20M (31 mothers) and from 5M to 20M to 53M (24 mothers). Then follow the observation-based results, with the same structure (5M to 20M to 53M comparisons rely on data for 25 mothers). Finally, the results for reported and recorded data are compared.

### *Questionnaire results: reported maternal language choice*

#### *Child age 5M*

When their children were five months old, 29/31 mothers reported speaking only a single language to them (15 reported speaking Dutch; 14 reported speaking French). Two mothers reported speaking both Dutch and French to their child, including one mother who had stated the same at the time of recruitment.

#### *Child age 20M*

When their children were 20 months old, all 31 mothers reported speaking only a single language to them (16 reported speaking Dutch; 15 reported speaking French).

#### *5M and 20M compared*

The 29 mothers who reported just single language use to their children at 5M and 20M reported using the same single language throughout (15 Dutch; 14 French). The two mothers who reported speaking both languages to children at 5M each reportedly dropped one language by the time the child was 20M (one mother dropped Dutch, the other French).

#### *Child age 53M*

When their children were 53 months old, 24 mothers provided information on their language use to children. Most mothers (18) reported speaking only a single language to children (12 reported speaking just Dutch; six reported speaking just French). The remaining six mothers reported speaking both languages to children. For four of them, use of the second language was restricted to book reading (two mothers otherwise addressed their children in Dutch, two others in French). For the remaining two mothers, it was the other way round, and they normally spoke both languages to children but selected only one language for book reading (one mother Dutch, the other French).

#### *5M, 20M, and 53M compared*

This comparison is restricted to the 24 mothers who supplied information at all three ages. Eighteen mothers reported addressing their child in the same single language throughout (Dutch in 12 cases, French in 6). The subsample of 24 mothers includes one mother who reportedly used both languages with her child at 5M. After reporting at 20M that she spoke just French, at 53M she added book reading in both Dutch and French to generally speaking just French to her child. One mother changed from reportedly speaking only French to her child at 5M and 20M to speaking Dutch to him at 53M except for book reading, which she stated she continued to do in French. Two mothers who previously spoke only a single language to children (one Dutch, one French) continued to do so, but had added the other language for book reading by age 53M. The two remaining mothers changed from speaking only a single language to children earlier (one Dutch, one French) to addressing children in two languages, except for book reading, which remained in the single language they used previously.

These findings are summarised in [Table 1](#).



**Table 1.** Reported maternal language choice in child directed speech (CDS) from 5M through 53M for 24 mothers.

The same mothers always spoke only Dutch	12/24
The same mothers always spoke only French	6/24
Mothers spoke only Dutch at 5M and 20M but had added French for book reading by 53M	2/24
Mothers spoke only French at 5M and 20M but had added Dutch for book reading by 53M	2/24
Mother spoke both languages at 5M and 53M but only French at 20M	1/24
Mother spoke only French at 5M and 20M but Dutch at 53M except for book reading	1/24

## **Observational results: recorded maternal language choice**

### **Child age 5M**

In the 5M recording session, 30 mothers were observed to address their children in a single language only, or in brief utterances that could belong to either language (16 spoke Dutch; 14 spoke French). One mother spoke mostly French but occasionally used Dutch utterances as well. Mixed utterances were absent.

### **Child age 20M**

In the 20M transcriptions of the recording sessions, 14 of the 31 mothers spoke only a single language to their children (5 spoke Dutch; 9 spoke French). The other 17 mothers all spoke mainly, but not exclusively, a single language. Seven of these 17 mothers said just a single utterance in the other language, and all other utterances (152 on average; range: 121–175) were in either Dutch (3 mothers) or French (4 mothers). The remaining 10 mothers all spoke mainly one language to their children (Dutch in 8 cases and French in 2) but in addition produced between 2 and 10 utterances in their other language. However, the proportion of non-usual language use was never more than 6% of utterances in both languages combined.

Mixed utterances hardly ever occurred (5 out of a total of 5,030 fully transcribed and intelligible utterances). Mothers produced a fair number of short utterances that could be either Dutch or French (335 or 6.6%). Dutch and French utterances were fairly evenly distributed, with 46.4% and 46.9% of all maternal transcribed utterances, respectively. The overall distribution of maternal language choice was virtually identical for mainly Dutch- and mainly French-speaking mothers, but the former usually spoke Dutch and the latter French (Table 2).

### **5M and 20M compared**

Just fewer than half (14) of the 30 mothers who spoke a single language to their children at 5M continued to speak just that single language to them at 20M. All other mothers who had previously exclusively addressed their infants in a single language now spoke the other language as well, even though use of the other language was minimal for seven mothers and only slightly less minimal for the remaining nine mothers. The one mother who had used some Dutch in a mainly fully French recording session at 5M spoke mainly French to her child at 20M as well, with just a single Dutch utterance.

### **Child age 53M**

During the 53M recording sessions, 21 of the 25 mothers exclusively spoke a single language (14 spoke Dutch; 7 spoke French). Three of the remaining mothers spoke mainly one language (one

**Table 2.** Observed maternal language choice at 20M: overall language distribution (31 mothers).

Utterance type	Mainly Dutch-speaking mothers (%)	Mainly French-speaking mothers (%)
Dutch	92.26	0.36
French	1.51	92.35
Both	6.07	7.25
Mixed	0.16	0.04
<i>n</i> utterances	2,519	2,511



Dutch, two French), but also addressed children in several utterances in their other language. One mother used about equal amounts of Dutch and French. Mixed utterances were very rare.

### *5M, 20M, and 53M compared*

Eleven of the 25 recorded mothers addressed children the same way throughout: five did so entirely in Dutch, five in French, and one mother spoke mostly French but always used some Dutch as well. Eleven other mothers addressed children in the same single language at 5M and 53M (9 in Dutch and 2 in French) but also produced one or a few more utterances in the other language at 20M. Two mothers exclusively spoke one language at 5M, added one utterance in the other language at 20M, and used both languages at 53M (one mother did so about equally; the other mother used far more of the language she had previously mainly addressed her child in). Finally, one mother used both languages at 53M, whereas she had hitherto been observed to speak only French to her child.

The use of mixed utterances was negligible at all three ages.

### *Reported and recorded maternal language choice compared*

#### *Child age 5M*

The results for reported and recorded maternal language choice when children were five months old and not yet speaking were identical for 30 of the 31 mothers. One mother reported addressing her child in two languages but was observed to only speak one.

#### *Child age 20M*

At 20M only 14 of the 31 mothers showed identical language choice patterns for reported and recorded maternal language choice. The 17 other mothers claimed they spoke only a single language to their children, but in the transcribed recording sessions they all sometimes spoke the other language as well. The main language of interaction, though, was still the language they claimed to speak exclusively with their child.

#### *Child age 53M*

Most (21) of the 24 mothers for whom full data were available showed the same language choice patterns in reported and recorded data. Twelve mothers only used Dutch, six only French, and three mothers used both languages in addressing their children (even if not to the same extent). Two of the remaining mothers reported addressing children in both languages, but during the recording session they used only a single language. The last mother claimed to speak Dutch with her child except for book reading, but was heard speaking both languages about equally in the 53M-recording session, with French not limited to book reading.

### *5M, 20M, and 53M compared*

Table 3 shows a comparison at each age level for the 24 mothers for whom full data are available. Of the 72 data points (3 comparisons for 24 mothers), most (58) show a complete overlap between reported and recorded maternal language choice. Fourteen out of 72 show a discrepancy between reported and recorded maternal language choice. Two of those concern the use of just a single

**Table 3.** Comparison of reported and recorded maternal language choice over time (24 mothers)<sup>a</sup>.

	5M	20M	53M
Same single language reported and recorded	23/24	12/24	18/24
Both languages reported, both languages recorded	1/24	–	4/24
Both languages reported, single language recorded	–	–	<b>2/24</b>
Single language reported, both languages recorded	–	<b>12/24</b>	–

<sup>a</sup>Discrepancies between reported and recorded language choice are in bold italics.

language when reportedly mothers addressed children in two languages. The bulk (12) of the 14 discrepant patterns, however, consists of mothers addressing children in more than a single language despite their report of exclusive single language use. All 12 cases can be found at 20M.

## Results summary and discussion

This study looked at maternal language choice in bilingual mothers as their children progressed from being pre-verbal infants through word-producing toddlers to full-sentence-producing preschoolers. All mothers except one were able to speak the two family languages, Dutch and French, when children were five months of age.

According to their reports, mothers overwhelmingly addressed their children in a single language only. Only two mothers out of 31 reported a change in maternal language choice from 5 to 20 months, that is, they switched from speaking two languages to children at 5 months to speaking only one of them. In contrast, a quarter of the subsample of 24 mothers for whom data were available at three child ages reported changes between 20M and 53M: six mothers added a second language in reported CDS when at 20M they had reported single language use only. One of these six mothers claimed she switched languages completely except for book reading. In three-quarters of the 24 cases, however, reported maternal language choice remained the same throughout the four years of data collection.

On the whole, then, reported maternal language choice showed considerable continuity. If there were changes, they had mostly occurred by the time children had reached preschool age. Furthermore, in only a single case was there a complete switch in the language mothers addressed to children. All other cases involved the 'deletion' of one of two languages, or the addition of a second language.

Observed maternal language choice generally showed a high degree of continuity as well, with most mothers addressing their children mainly in the same single language at all three ages. One mother spoke two languages to her child throughout, but used one of them, Dutch, only minimally at all three child ages: thus, there was also a high degree of continuity here. However, whereas at 5M most mothers addressed their children in just a single language, at the age of 20M more than half the sample of 31 mothers very occasionally was observed to address children in the other language as well. At 53M, most of those mothers reverted to addressing children strictly in the same single language they had used at 5M. At 53M, only 3 of 25 mothers said several utterances in the language they had previously not or hardly spoken to their children.

There was almost complete continuity in the use of mixed utterances, that is, there were hardly any at any age.

A comparison of reported and recorded maternal language choice showed that, on the whole, the two overlapped. The main exception occurred at 20M, when more than half the mothers claimed they spoke only a single language to their children but the transcribed recordings showed them using some of their other language as well. Furthermore, both reported and recorded use of either language in the larger sample was about equal. In the original group of 31 mothers, both languages were about equally distributed in reported CDS. The proportion of recorded Dutch and French utterances at 20M was almost identical. Thus, no bias towards one particular language that might have influenced the results was in evidence.

The few changes in reported maternal language choice occurred in the time between 20M and 53M, that is, when children had started to become fluent speakers. However, for most mothers, reported language choice did not change and thus was not affected by children's overall level of language development. This finding differs from recorded maternal language choice, where for over half the sample small changes in maternal language choice were observed at an earlier time, that is, between 5M and 20M. Children's changed level of language development from pre-verbal to producing words thus coincided with changes in many mothers' observed language choice, suggesting that children's ability to speak (but not necessarily in the expected language) may lead

to maternal adaptations (see also below). The fact that there are some indications for a link with children's overall level of language development highlights the role of children in FLP (Fogle and King 2013; Goodz 1989), even at this very young age. Most mothers, however, showed no fundamental changes in their observed language choice over time, that is, they mainly stayed with their initial choices throughout. Just 3 of 25 mothers addressed children in both languages at 53M where previously they had addressed them mainly in just one language. The recorded data, then, showed continuity for part of the sample but small changes that coincided with children's changed level of language development for another portion. Yet, on the whole, most mothers continued to mainly speak the same single language to children across their early development. Thus, children's level of language development at these early ages appears not to have fundamentally affected maternal language choice. In dyadic interactions with their mothers, then, children's input in a particular language was cumulative over time, offering children continued language learning opportunities in the language mainly or solely spoken to them by their mothers. Like monolingual children, bilingual children can thus have the benefit of receiving cumulative maternal input in a particular language – or in two, as the case may be (De Houwer 2014).

Unlike the group of 181 parents with very young children studied by Byers-Heinlein (2013), the bulk of the sample of 31 mothers studied here was clearly committed to speaking just a single language to children and thus to portraying a monolingual persona. At the child age of 20M, however, we found that in just 10 minutes of dyadic interaction more than half of these committed mothers used between 1 and 10 utterances in another language (Goodz 1989 found similar discrepancies between reported and recorded CDS for 4 French-English bilingual families). If this language choice behaviour was representative of mothers' overall CDS, the totality of their linguistic persona as communicated to children would likely turn out to be more bilingual than monolingual. Furthermore, the fact that already when children were only 20 months of age the other language 'crept in' for these mothers indicates that it is not easy to stick to a monolingual commitment in a bilingual family. Importantly, at 20M children were all speaking. One reason for the other language 'creeping in' may be that children were perhaps not always speaking in the same language that mothers spoke to them, and that if children used the 'other' language, mothers automatically switched, too (cf. also Goodz 1989). We will explore this possibility in future research (note, though, that parents in bilingual families may consciously stick to their initial language choice pattern in spite of children not responding in their language of choice; for a well-documented recent example, see Slavkov 2014).

The fact that many mothers claimed to stick to a single language but that more than half of them did not actually do so, however slightly, implies that studies of language input to BFLA children and of FLP relying only on reports of that input should allow for a certain degree of error in their findings. Self-reported language choice data tend to express an idealisation and represent a strong attitudinal component (Hakuta and D'Andrea 1992). An additional reason why self-reports may differ from actual language use is that not all bilinguals are equally aware of which language they are using at a particular time (De Houwer 2009; Hult 2014).

Many more mothers used two languages in addressing children at 20M than at 53M. This difference may relate to children's overall level of language development. Alternatively, the different recording contexts may have played a role. At 20M, the recording context was more natural and spontaneous. Mothers were simply asked to play with their children and to feed them. The research assistant was 'hidden' by the camera. In contrast, at 53M the recording sessions were far more structured and task oriented. The investigator was much more visibly present, although the recorded mother-child interactions were still dyadic. These different circumstances may have caused mothers to limit themselves more to a single language at 53M than at 20M.

Tare and Gelman (2011) showed that in interactions with their children bilingual mothers limited their use of a language that was not spoken by a monolingual investigator who was silently present during the recordings (thus, for instance, they spoke relatively less Marathi when an investigator they believed did not speak any Marathi was present than when a bilingual Marathi-speaking investigator or no investigator was present). The findings in the present study do not correspond to these results,

because mothers were *less* apt to use two languages in the presence of a bilingual investigator (at 53M) and *more* apt to use two languages in the presence of a research assistant they had only heard using a single language (at 20M). At 20M most research assistants communicated with mothers in Dutch. The Tare and Gelman (2011) findings would suggest that mothers who mainly addressed their children in Dutch would stick to just Dutch if the research assistant's language persona was an important factor, and that French-speaking mothers would be more likely to use Dutch utterances in their CDS during the recordings. The data do not support this conclusion: only 5 Dutch-speaking mothers stuck to using only Dutch (and 12 mainly Dutch-speaking mothers used some French as well), whereas the majority of French-speaking mothers (9) used only French, and only 6 mainly French-speaking mothers also used some Dutch. In addition, the mother who produced the most utterances (10) in the non-expected language (French) was a mother who mainly addressed her child in Dutch. The differences between mothers' observed language choices at 20M and 53M, then, may reflect differences between the recording contexts in terms of tasks and activities rather than in terms of participant structure. At the same time, these longitudinal differences may reflect real changes in maternal language choice in CDS, with most mothers going back to strictly speaking a single language to children as they got older, perhaps as a result of increased language choice monitoring in response to children's developing symbolic competence (Hult 2014; Kramsch 2006).

Six mothers (in a group of 24) reported changes in maternal language choice between ages 20M and 53M and reported speaking two languages with children at 53M where previously they had used only one. One of the six mothers reported changing from speaking only French to her child at 5M and 20M to speaking mainly Dutch to him at three years. At the 53M data collection wave she explained her very conscious language shift as a result of fears that her child was not speaking the school language (Dutch) well enough, and that she wanted to offer him more support in Dutch. Unfortunately data on the reasons why the other five mothers modified their reported language choice are lacking (note, though, that none of these mothers reported a language shift). We may speculate that the reported changes find their sources in mothers' longer experiences with being part of a bilingual family and all this entails, such as contacts with friends and relatives, which may have led to more awareness of and reflection on bilingual choices. Mothers may also have become wary of presenting themselves as monolinguals in contacts with their children. After all, all mothers (except one) were actively bilingual in Dutch and French (we have no information on whether the one mother who spoke no Dutch but understood it well when her daughter was five months old had learned to speak any Dutch four years later). In addressing children in only a single language, most mothers were covering up their bilingual persona, so to speak (see also Lanza 1992). It may be harder to continue with this 'covering up' after children have grown into more mature persons who can discuss and argue about aspects of language choice (Fogle and King 2013).

Only half of the six mothers who reported speaking both languages to children at 53M were actually heard to speak both languages during the recording session. This session included book reading, which several mothers indicated they normally did in either of two languages. The reason for speaking only a single language during the 53M session is unclear: we may be dealing with a coincidence (a sampling limitation) or mothers may for some reason have construed the setting as warranting the use of just a single language (in spite of the presence of an investigator who used both languages).

## Conclusion

This study has shown that maternal language choice in bilingual families remained largely the same over a four-year period as children transitioned from being pre-verbal to being fluent speakers, suggesting that children's overall level of language development played no major role in determining which language(s) mothers used in child directed speech (CDS). Thus, maternal CDS in bilingual families can in principle have a cumulative effect on children's language learning. This finding is most likely of great importance for supporting children's increasing language comprehension.

Whether continuity in maternal language choice affects children's language production is another matter. The sample of mothers studied here was generally very committed to speaking only a single language to children. Research has shown that using a one person/one language (1P/1L) family language policy (FLP) does not guarantee that children in bilingual families will actually speak two languages (De Houwer 2007). Thus, continuity in maternal language choice is not a panacea, but without it, children likely have even less chance to develop into active bilinguals.

While the longitudinal analyses here showed mainly continuity in maternal language choice in the group as a whole, several individual mothers showed no complete continuity. This was particularly the case for the actual speech mothers addressed to children, rather than their reported language choice. For children's language learning, it is the actual speech directed at them that can affect their language development, rather than ideas mothers have about their own language use (De Houwer 1999). Even in a very 'committed' and relatively large 1P/1L sample as the one studied here, there is some 'leakage' into using more than one language in mother-child interaction. This result shows the limits of trying to adhere to a strong overt 1P/1L FLP. Future research will have to establish to what extent continuity in caregiver language choice or the lack thereof affect bilingual development in children. As the many websites and web fora devoted to bilingual child rearing show, parents in bilingual settings are desperate for empirically founded information that can help them reach their parenting goals. We owe it to them to provide that information.

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