**Title**: Bilingual children as interpreters in everyday life: how natural interpreting reinforces minority languages

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## Bilingual children as interpreters in everyday life: how natural interpreting reinforces minority languages

Children that grow up bilingually often interpret naturally between their two languages. This has been shown to be so in a variety of language pairs, regardless of children's social and family situations and both within the family context as well as between the family and society (e.g. Álvarez de la Fuente and Fernández Fuertes 2015; Angelelli 2016).

This study analyses different contextual and linguistic variables that define the natural interpreting instances produced in spontaneous interactions by 19 young bilingual children (average age: 3;7) with different language pairs. In particular, we aim at characterizing the bilingual practice used by these children and (i) involve the consecutive use of their two languages and (ii) are shaped by the communicative strategies used by parents at home. The analysis is based on freely available corpora in CHILDES (MacWhinney 2000) (i.e. FerFuLice, Pérez-Bazán, Ticio, Vila, Deuchar; GNP) and diary annotations (i.e. Ronjat 1913; Leopold 1935-1945; Lanza 1988, 1997, 2001) that comprise the spontaneous and longitudinal production of these children. Our results show that the language strategies followed by parents at home in combination with the linguistic communities where they live play a key role on this bilingual practice.

Keywords: bilingual children; child natural interpreting; acquisition data; bilingual family context; language strategies; linguistic communities

## Bilingual children's interpreting: a growing research challenge

Bilingual children often use their ability to translate between their two languages within a family context and when the situation requires it (Álvarez de la Fuente 2008; Harris 1980a, 1980b; Fernández Fuertes and Álvarez de la Fuente 2017).

This type of linguistic practice has been termed as *natural translation* or *natural interpreting* (Harris 1977, 2003, 2013) and refers more specifically to those situations where bilingual children, who have not received formal instruction in translation, interpret between two languages in their everyday lives so that the message intended to convey (by either themselves or other interlocutors) is appropriately understood, as shown in the examples in (1).

(1a) [Context: The child interacts with his parents and asks for a lollipop][1]

[1] All the transcripts of the recorded interactions that appear in the corpora presented in this paper follow

Child: mommy I want my lollipop.

Mother: after breakfast you can eat it .

Father: qué memoria tienes !

[you have such a great memory!]

Child: (to his father) yo quiero mi chupa chups .

[I want my lollipop]

[Simon_3;9_FerFuLice corpus_Spanish/English]

(1b) [Context: The room where the child and his father are staying is too cold]

Father: non, reste pas ici, il fait trop froid, va voir Deda.

[no, do not stay here, it is too cold, go and see Deda]

Child (to Deda): Papas Zimmer istzukalt.

[papa's room is very cold]

[Louis_2;6_Ronjat sample_German/French]

Examples in (1) illustrate how two bilingual children, Simon (aged 3 years and 9 months) and Louis (aged 2 years and 6 months), act as natural interpreters. In (1a), Simon asks his English-speaking mother for a lollipop and, as his mother refuses to comply, he turns to his father in Spanish for the same purpose. In (1b), Louis translates what his French-speaking father has said to the German-speaking housemaid.

Although other type of bilingual practices performed by children have been deeply examined from different approaches (e.g. *Child language brokering* in Angelelli 2016; Eksner

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the CHAT transcription system used in CHILDES (MacWhinney 2000). Some of the transcription codes that were not relevant for the specific issues under consideration in this study have, however, been removed in order to make the examples more transparent and easy to follow.

and Orellana 2012; Hall and Guéry 2010; among others), not many works have been dedicated to the study of natural interpreting and those few that have focused on it are found within the language acquisition discipline. More specifically, some of these studies have seen a correlation between bilingualism and the capacity to translate suggesting that this capacity of bilingual children can be developed through the interaction between the bilingual children's languages in bilingual homes (Álvarez de la Fuente 2008; Álvarez de la Fuente and Fernández Fuertes 2012, 2015; Chirsheva 2010; Harris 1980a, 1980b; Harris and Sherwood 1978; Lörscher 1992; Fernández Fuertes and Álvarez de la Fuente 2017). That is, the linguistic interactions of bilingual children that are acquiring their two languages from birth in a natural context (referred to as *simultaneous bilinguals*; Bhatia and Ritchie 2006; Butler and Hakuta 2004) reflect that these children can translate between their two languages as part of their bilingual acquisition development, even at very ages, as examples in (1) show.

Therefore, natural interpreting is part of a specific language-contact situation bilingual children are immersed in and that enables them to not only communicate the same message in two languages but also to act as language mediators within the family context.

From this perspective, child natural interpreting is a bilingual phenomenon that emerges when bilingual child-parent interactions at home require the communication of the same information in two different languages. That is, child natural interpreting usually occurs in a very narrow context which is the family scenario, where the child is raised bilingually and is often triggered by his parents' language strategy at home. For instance, the One-Parent-One-Language (OPOL) approach is mainly used by families where one of the parents is a minority language speaker, usually the only source of input of this language, and the other language is spoken in the community (Barron-Hauwaert 2004, 2011). Given the linguistic profiles of the parents in bilingual families of this type, usually one of the parents (or both) knows the language

of the community so they do not need their children to act as interpreters for them. However, they may require their children to translate to keep to OPOL strategy when the child addresses one of the parents in the other language.

As yet another aspect of this bilingual practice, interpreting in the family context often occurs at a very early age. For instance, several studies point to the interpreting done by bilinguals in a home context as early as 1;2 years (Álvarez de la Fuente 2008; Álvarez de la Fuente and Fernández Fuertes 2012, 2015; Harris 1980a, 1980b; Harris and Sherwood 1978; Fernández Fuertes and Álvarez de la Fuente 2017). This implies that it may become a common situation for children, throughout their linguistic development as bilinguals: to find themselves in the role of interpreting between their two languages, required to fill in the communicative gaps that appear when two languages are at stake in child-parent interactions.

Although studies on bilingual acquisition are often not concerned with natural interpreting, our study is meant to provide a qualitative and a quantitative analysis of this bilingual practice evidencing how linguistic and contextual factors can affect the home interactions of bilingual children from very early ages when they act as natural interpreters. Therefore, and taking these factors as a point of departure, the present research analyzes the interpreting in natural occurring interactions of simultaneous bilingual children of different ages (1;0-8;0 years) and language pairs who live in different home and social linguistic contexts. This analysis is meant to determine the home practices used by these bilingual children that (i) involve the consecutive use of their two languages to express the same message, (ii) are shaped by the language strategies followed by their parents at home and in different linguistic communities (i.e. monolingual and bilingual communities), and (iii) go beyond the use of two linguistic systems by building communicative bridges across two languages.

By taking into account home bilingual practices as well as social contexts, this study

seeks to contribute to the complex and intricate patterns of language communication in bilingual contexts beyond the individual perspective.

The remaining of the paper is organized in the following sections. The second section provides the theoretical framework of our study based on previous works that examine some common language strategies used by parents in bilingual families that live in different linguistic environments. Our proposal to study natural interpreting (NI) based on the formulation of our research questions is presented in the third section. Our empirical study appears in the fourth section, where the selection of available bilingual acquisition data involving English, Spanish, Catalan, French, German and Norwegian is described and then linked to the main research questions of this work. These data are analyzed in terms of the languages and the motivations involved in the interpreting practice and the results are included in the fifth section. The main conclusions derived from the discussion are pointed out in the sixth section.

**An approach to NI research: the role of language strategies in home and community contexts**

The main aim of the present work is to provide a picture of NI as part of the linguistic resources commonly used by simultaneous bilinguals in a family setting showing how the proportion and the nature of this resource can be directly linked to a more external and intercultural setting such as the community context (i.e. monolingual or bilingual communities) where the bilingual families live. On these terms, NI is a bilingual practice where context plays a key role since children's linguistic exposure in certain home and community contexts may affect the quantity and the quality of this type of practice.

According to Barron-Hauwaert (2004, 2011), in families where two languages are used

regularly, different variations can be found depending on the type of parental strategy established from the child's birth. These variations can be reduced to three linguistic strategies that portray the three most common scenarios, defined as follows:

Scenario 1. One-Parent-One-Language strategy (OPOL) (Grammont 1902; Ronjat 1913): The parents have different native languages (one of them being the language of the community where they live) and each parent addresses the child consistently in his/her respective mother tongue.

Scenario 2. Bilingual-Monolingual Interaction strategy (BMI) (Lanza 1992): One parent addresses the child in both languages (the minority language and the community language) while the other parent prefers a monolingual interaction with the child (usually in the minority language).[2]

Scenario 3. Minority Language at Home strategy (MLH) (Barron-Hauwaert 2004): Both parents speak the minority language to the child at home so that the majority language is acquired by the child through contact and interaction with the community (e.g. school, friends).

Regardless of the linguistic strategy used by parents at home, the linguistic profile of the community where the children live may have an effect on the parents' decision on the home

[2] In the present study *community language* is understood as either the country (or majority) language in monolingual areas or the co-official languages in bilingual areas of a country. *Minority language* (also referred to as *immigrant language* (Lauchlan and Parafita Couto 2017)) is that spoken in the home context or in a limited social context.

strategy to be used as well as on the children's language practice. In particular, monolingual communities where only one official language is spoken differ from bilingual communities where two languages are in contact. Therefore, the community language(s) may interact with the home language practices (see Tables 1 and 2 in section 5). In this way, for instance, if an English monolingual parent insists on addressing his children in English in Spain or a Spanish monolingual parent communicates with them in Spanish in the UK, this situation will presumably provoke more NI from the language of the community (Spanish in Spain, English in the UK) to the minority language (English in Spain, Spanish in the UK). However, this NI pattern could be different if that family lived in Gibraltar, an English-Spanish bilingual context, where both are community languages and so the parent's persistence in their children being immersed in the minority language would diminish and then, probably, less NI into the minority language would be demanded.

By focusing on the analysis of the NI performed by young simultaneous bilingual children in these scenarios, our study adopts an innovative approach since it provides not only a broader scope of research into the nature of bilingual children interpreting produced from the onset of language development, but also because it shows how contextual factors such as the language strategy followed by parents have a key role on this bilingual practice.

At the same time, if not only home but also linguistic social factors can have an influence on NI (i.e. the language of the community where they live), then a different pattern in the directionality of their interpreting performance (i.e. from the minority to the community language or *vice versa*) may be found depending on the type of community (monolingual or bilingual) where the family lives.

**Research questions**

We have formulated the following three research questions derived from the combination of both home and linguistic communities as described above and how they could relate to the NI production of different bilingual children. In particular, the three research questions deal with three of the factors that shape the NI production: The directionality of the interpreting, the person providing the source utterance in an interpreting interaction (where the target utterance will always be provided by the child in this case) and the parents' language strategy in determining the amount and type of interpreting children use.

Research question 1: Is the NI directionality determined by the language strategy followed by the parents? If this is so, then

(i) will most NI be produced to the minority language in a monolingual community due either to the insistence of the minority-language parent to keep the OPOL strategy strictly (as in scenario 1) or to the MLH strategy, that is, the exclusive use of the minority language at home (as in scenario 3)?

(ii) will the use of the BMI strategy (as in scenario 2) imply that in NI there is no preference for any direction (to or from the minority/community language)? Or rather will one of the types of parent-child interactions (i.e. monolingual *versus* bilingual mode) trigger the children's interpreting mostly into one of the languages as the main source language?

(iii) will a strict OPOL strategy in a bilingual community also imply a non-preference for any direction since in this case both languages are used inside and outside home?

Research question 2: Do the language strategies have also an influence on the type of NI in terms of who produces the source utterance (i.e. the children themselves or the interlocutors)?

If this is so, then

(i) will bilingual children translate what they have just said themselves in one language into the other in scenarios where children are insisted on either following strictly the OPOL strategy (as in scenario 1, both in monolingual and bilingual communities) or using only the minority language at home (as in scenario 3)?

(ii) in the case of scenario 2, since one of the parents addresses the children using both languages, while the other using only one, will there be a mixed pattern of both source utterance types and no preference will, therefore, appear?

Research question 3: Is the type of home strategy directly linked to specific motivations that the children have when they translate between languages (i.e. verbally requested by their parents or on their own initiative)? If this is so, then

(i) will the OPOL (scenario 1) and the BMI (scenario 2) strategies trigger most NI cases given the bilingual mode established by parents in the home context (regardless of the former being used in monolingual or bilingual communities) or will the MLH strategy (scenario 3) trigger most given the monolingual mode it entails?

(ii) if the OPOL and BMI strategies differ in the NI cases produced, will the amount of bilingual interaction at home play a role and so more NI will appear in OPOL contexts than in BMI ones? And, in the case of the OPOL strategy, will the community context where it is used (e.g. monolingual vs. bilingual communities) play a role as well?

The answers to these research questions would enhance our understanding about how simultaneous bilingual children start out to develop their interpreting practices in their earlier

stages of acquisition and how these are also shaped by contextual factors.

## Research methodology

To contribute to the characterization of NI and to provide an answer to the research questions above, we set out to analyze bilingual acquisition data available through different simultaneous bilingual children corpora and diary annotations. We start by presenting our corpus of study and the data we have selected, followed by the variables used for the codification of the NI cases found in our data. The use of both longitudinal corpora of bilingual children's spontaneous production as well as the analyses based on linguistic and extra-linguistic variables provides an approach to bilingual children's interpreting from a perspective and a methodology different from previous works on acquisition.

### *Data selection*

The data considered for this study are summarized in Table 1, where a distinction is made between two compilation types: Data coming from corpora and data coming from diary annotations. Table 1 also presents a general overview of the data that we have analyzed from nineteen bilingual children including both background information as well as the actual amount of data that we have covered.

Table 1

*The study corpus and annotations*

| **Corpus** | **Language pair** | **Child's name** | **Age range** | **# of words** |
|---|---|---|---|---|
| FerFuLice | Spanish/English | Leo | 1;1-6;11 | 77,365 |
| | | Simon | 1;1-6;11 | 74,687 |

| | | | | |
|---|---|---|---|---|
| Ticio | Spanish/English | Diego | 1;6-1;10 | 2,898 |
| Pérez-Bazán | Spanish/English | Alberto | 1;8-3;0 | 2,208 |
| | | Antonio | 2;11-3;2 | 734 |
| | | Carla | 2;0-3;3 | 2,929 |
| | | John | 2;0-3;3 | 2,481 |
| | | Sheila | 2;2-2;11 | 1,096 |
| | | Tina | 2;2-2;11 | 739 |
| Deuchar | Spanish/English | Manuela | 1;3-2;6 | 4,843 |
| Vila | Spanish/Catalan | María del Mar | 1;9-5;4 | 32,971 |
| GNP | French/English | Leila | 1;2-2;3 | 670 |
| | | Jessica | 1;10-1;11 | 1,041 |
| | | Gene | 1;10-3;7 | 3,062 |
| | | Olivier | 1;10-3;7 | 6,685 |
| | | Joelle | 2;4-2;5 | 1,417 |
| **Diary annotations** | | | | |
| Ronjat | German/French | Louis | 1;0-4;9 | |
| Leopold | German/English | Hildegard | 0;9-8;0 | |
| Lanza | Norwegian/English | Siri | 1;11-2;8 | |

Although the amount of data available is different across children, the information of the children under analysis provided in Table 1 shows a homogeneous profile in that they are all simultaneous bilinguals, that is, children that have been exposed to the two languages from birth and in a natural context. Regarding the six corpora (i.e. FerFuLice, Ticio, Pérez-Bazán, Deuchar, Vila, and GNP), a complete record of the transcriptions of the spontaneous speech of the children in the home context and in interactions (usually) with their parents is freely available on-line through the CHILDES project (MacWhinney 2000). The data of sixteen children are included in these corpora and three language pairs are considered: Spanish/English,

Spanish/Catalan and French/English.

With regard to the diary data analyzed in this study (i.e. Ronjat 1913; Leopold 1939-1949; Lanza 1988, 1997, 2001), these involve the specific NI cases as selected by the researchers and accompanied by a brief linguistic context in which they appear so that no more immediate context can be recovered. From the diary annotations, a total of three children have been analyzed and three different language pairs are involved: German/French, German/English and Norwegian/English.

Table 1 shows that the ages of the nineteen children range from 1 to 8 years. The word-count of the data from all these children renders a total of 215,826 words in the case of the corpora data (since the diary data come from annotations, no similar word-count of the children's production could be done).

***Participants' data: home and community linguistic scenarios***

Information about the home and community linguistic scenarios in which the participants of our study are immersed is shown in Table 2.

Table 2

*Home and community linguistic scenarios*

| **Child's name** | **Linguistic community** | **Minority language** | **Community language** | **Strategy at home** |
|---|---|---|---|---|
| Leo | Salamanca, Spain | EN | SP | OPOL |
| Simon | | EN | SP | OPOL |
| Diego | Texas, USA | SP | EN | OPOL |
| Alberto | Michigan/Utah, USA | SP | EN | BMI |
| Antonio | | SP | EN | OPOL |
| Carla | | SP | EN | MLH |
| John | | SP | EN | BMI |
| Sheila | | SP | EN | OPOL |

| | | | | |
|---|---|---|---|---|
| Tina | | SP | EN | MLH |
| Manuela | Brighton, UK | SP | EN | BMI[3] |
| María del Mar | Catalonia, Spain | SP/CAT | SP/CAT | OPOL |
| Leila | Montreal, Canada | FR/EN | FR/EN | OPOL |
| Jessica | | FR/EN | FR/EN | OPOL |
| Gene | | FR/EN | FR/EN | OPOL |
| Olivier | | FR/EN | FR/EN | OPOL |
| Joelle | | FR/EN | FR/EN | OPOL |
| Louis | Paris, France | GER | FR | OPOL |
| Hildegard | Illinois, USA | GER | EN | OPOL |
| Siri | Oslo, Norway | EN | NOR | BMI |

OPOL (One-Parent-One-Language); BMI (Bilingual-Monolingual Interaction); MHL (Minority Language at Home)

The different home and linguistic communities in the participants' families lead to a typology of the different scenarios where NI can occur. More specifically, out of the nineteen children, thirteen live in a monolingual community (i.e. Spain, UK, USA, France, Norway) while six live in a bilingual community (i.e. Canada, Catalonia). Most participants are reported to be raised following predominantly the OPOL strategy at home.

All the language use patterns shown in Table 2 give different scenarios for the children under analysis, which are linked to the research questions presented in the fourth section:

Scenario 1. OPOL (one parent addresses the child in the minority language): English to Leo and Simon, who live in a Spanish-speaking community (Spain); Spanish to Diego, Antonio and Sheila, who live in an English-speaking community (USA); and German to Louis and

[3] Although in the description of the Deuchar corpus both parents are reported to speak Spanish to Manuela, in the English sessions in CHILDES her mother (together with her grandmother) addresses the child only in English, and in the Spanish sessions she predominantly speaks Spanish to the child but she uses English sometimes. Therefore, the strategy followed at home has been classified as a Bilingual-Monolingual Interaction (BMI).

Hildegard, who live in a French-speaking (France) and an English-speaking community (USA), respectively. In this study, a variation of the OPOL strategy in terms of the community or the country where the family lives will be referred to as OPOL(B), that is, the OPOL strategy used in a bilingual community (i.e. Catalonia, in the case of María del Mar, and Montreal, in the case of Leila, Jessica, Gene, Oliver and Joelle), in contrast with OPOL(M), used in monolingual communities or countries (Spain, USA, England, France and Norway).[4]

Scenario 2. BMI (one parent addresses the child in both languages, i.e. the minority language and the community language): Spanish and English in the USA in the case of Alberto and John; Spanish and English in England in the case of Manuela; English and Norwegian in Norway in the case of Siri.

Scenario 3. MLH (both parents address the child in the minority language): Spanish in the case of Carla and Tina, who live in Michigan and Utah (USA), respectively.

***Data classification***

We have isolated the NI cases produced by the child participants presented in Table 2 by considering the cases where the children translate a message in a source language (produced by themselves or by a different person) into a target language, as in (2), where Leo translates what

[4] The five children of the GNP corpus (i.e. Leila, Jessica, Gene, Olivier and Joelle) live in Montreal (Canada) or surrounding communities, which, according to the description of the GNP corpus provided in CHILDES, is a bilingual community where French and English are used on a daily basis; in the case of María del Mar, she lives in Catalonia, an autonomous community of Spain where Catalan and Spanish are used to different degrees in many areas of daily life.

he has just said in Spanish (the source language in this case) into English (the target language).

(2) [Context: The child sees the camera that is used to do the data recordings]

Mother: don't step on the camera, no.

Child: lo quiero, sí.

[I want it, yes]

Mother: can you say that in English?

Child: I want hold it that.

[Leo_2;7_ FerFuLice corpus_Spanish/English]

NI cases may imply a code-switched target utterance rendering an incomplete translation, as in (3), where the child does not translate the entire original English utterance into German, leaving one word, 'on', in the original language. However, although the child provides an incomplete translation, she does interpret between both languages meeting her father's demand.

(3) [Context: The child and her father are interacting at home]

Child: Put this shoe on.

Father: Sag´s auf deutsch!

[say it in German!]

Child: $\text{Schuh}_{\text{German}}$ $\text{on}_{\text{English}}$.

[Hildegard_3;3_ Leopold's diary_German/English]

Some cases are excluded from the analysis if the translation (or part of it) is provided to the child, as in (4a), where the mother provides the first part of the target word (i.e. vowel a-),

or if the child does not respond to a request to translate, as in (4b).

(4a) [Context: The child and her mother are drawing with some colored pencils]

Child: el blau.

Mother: sí y en castellano como se dice?

[yes and how do you say it in Spanish?]

Child: blau.

[blue]

Mother: es de color a...

[it is bl…]

Child: …zul.

[…ue]

[María del Mar_4;6_Vila corpus_Spanish/Catalan]

(4b) [Context: The child and his mother are playing with the lego and she points to one of the pieces, a tree]

Mother: escucha, cómo se dice esto en inglés?

[Listen, how do you say this in English?]

Child: hmm.

Mother: Antonio.

Child: 0.

[Antonio_3;1_Pérez-Bazán corpus_Spanish/English]

We have classified these (both complete and incomplete) interpreting cases in terms of the following three variables: (i) the directionality in terms of the source language and the target

language involved; (ii) the origin of the source utterance that will be translated; and (iii) the type of stimulus the children receive (or do not receive) when they perform interpreting. The first variable is considered linguistic in nature while the other two variables are linked to contextual factors.

*Linguistic variables: directionality of interpreting*

With regards to the directionality variable and taking, for instance, the Spanish/English pair, NI cases could be of two types: From English into Spanish and from Spanish into English, as in (5) and (6), respectively.

(5) [Context: The child is touching the picture of a book]

Father: mira Manuela qué es eso?

[look M, what is that?]

Child: nappy.

Father: no pero también se llama...

[no, but it is also called…]

Child: pañal.

[nappy]

[Manuela 1;9_Deuchar corpus_Spanish/English]

(6) [Context: The child cannot turn on a toy with which he wants to play]

Child: no puedo no puedo.

[I can't I can't]

Mother: how do you say no puedo in English?

Child: help.

[Simon 2;5_FerFuLice corpus_Spanish/English]

*Contextual variables: source utterance origin and stimulus*

In terms of the origin of the source utterance involved in the child interpreting, two possibilities are found. The first one is an instance termed by Harris (1980a) as auto-translation and by Chirsheva (2010) as self-interpreting, when both the source utterance as well as the translation itself or target utterance are produced by the child. This is the case of (7), where *airplane* and *avion*, both uttered by the child, are the source and the target utterance respectively. The second possibility is found when the child translates a source utterance produced originally by other interlocutor, as in (8), where the child translates into Catalan one of the words originally produced by an adult.

(7) [Context: The child and her mother are looking at a book]

Mother: quoi ca.

[what is it]

Child: airplane.

Mother: oui mais c'est quoi aussi.

[yes but what is it too]

Child: avion.

[Jessica_1;10_GNP corpus_French/English]

(8) [Context: The child and an adult family friend are drawing a house]

Adult: mm, la hacemos con tejado.

[mhm we do it with roof]

Child: con tejado.

[with roof]

Adult: con tejado sí.

[with roof yes]

Child: en català se llama teulada.

[in Catalan it is called teulada]

[María del Mar_5;3_Vila corpus_Spanish/Catalan]

The compilation of NI cases in our study also involve those occurrences in which children are verbally induced by an adult (one parent or other adult interlocutor) to translate, as in (9), where Alberto's mother asks him explicitly to translate into Spanish the word he used in English.

(9) [Context: The child's mother is helping him to get dressed]

Mother: de qué color son los pantalones?

[what color are the trousers?]

Mother: Albertito , de qué color son?

[Albertitio what color are they?]

Mother: dime.

[tell me]

Child: ese es blue.

[that is$_{Spanish}$ blue$_{English}$]

Mother: blue.

Mother: en español qué color es?

[in Spanish what color is it?]

Child: ese azul.

[that is blue]

[Alberto_2;2_Pérez-Bazán corpus_Spanish/English]

In other cases, children translate on their own initiative, responding to different reasons: In (10a) Simon, child 2, reports to his English-speaking mother what his brother, child 1, said even though he was not asked to do so, adapting to the language of communication with his mother; and in (10b) he translates the word 'house' into Spanish as a disambiguation resource to make her mother understand what he is saying.

(10a) [Context: The twins are playing with toy animals]

Mother: [picking up the cow] and what is this one?

Child 1: vaca.

[cow]

*Mother laughs*

Child 2: cow.

[Simon 2;2_FerFuLice corpus_Spanish/English]

(10b) [Context: The child and his mother are playing with blocks]

Mother: you wanna make something with blocks?

Child: sí.

[yes]

Mother: what would you like to make?

Child: douse [: house].

Mother: two?

Child: casa!

[house]

Mother: a house?

Child: sí.

[yes]

[Simon 2;1_Deuchar corpus_Spanish/English]

On the whole, this classification procedure allows us to address different issues concerning NI in general and the interpreting of these bilingual children in particular: On the one hand, the incidence of minority and community languages in these everyday performances and, on the other hand, the role of parents (or children themselves) in this practice in terms of what their children translate and the motivations they have when they mediate between languages through NI.

**An analysis of NI in bilingual acquisition data**

The analysis of NI cases is conducted taking into account the variables proposed in the fifth section in order to address the issues outlined in our research questions. A series of statistical analyses have also been done (contrasts of proportions to calculate *p*-values) in order to detect significant differences when comparing across settings. We now offer an overview of the data and then zoom into the different variables in relation with the language strategies followed at bilingual homes.

***NI and different language strategies***

The analysis of the relationship between the NI performed by the nineteen simultaneous bilingual children of our study and the language strategies followed by their parents (as in the fifth section) is summarized in Table 3.

Table 3

*NI production of each child according to different language strategies*

| | # of children | Child's name | # NI cases | # NI cases (total) |
|---|---|---|---|---|
| OPOL(M) | 7 | Leo | 54 (16.9%) | 156 (48.8%) |
| | | Simon | 56 (17.5%) | |
| | | Diego | 1 (0.3%) | |
| | | Antonio | 2 (0.6%) | |
| | | Sheila | 6 (1.9%) | |
| | | Louis | 13 (4.1%) | |
| | | Hildegard | 24 (7.5%) | |
| BMI | 4 | Alberto | 4 (1.3%) | 48 (15%) |
| | | John | 5 (1.6%) | |
| | | Manuela | 17 (5.3%) | |
| | | Siri | 22 (6.9%) | |
| MLH | 2 | Carla | 7 (2.2%) | 11 (3.4%) |
| | | Tina | 4 (1.3%) | |
| OPOL(B) | 6 | María del Mar | 56 (17.5%) | 105 (32.8%) |
| | | Leila | 0 | |
| | | Jessica | 12 (3.8%) | |
| | | Gene | 11 (3.4%) | |
| | | Olivier | 13 (4.1%) | |
| | | Joelle | 13 (4.1%) | |
| Total | 19 | | | 320 (100%) |

OPOL (One-Parent-One-Language); BMI (Bilingual-Monolingual Interaction); MHL (Minority Language at Home) (M)onolingual; community; (B)ilingual community

As shown in Table 3, a total of 320 NI cases are produced by the child participants. Most of the NI activity correspond to children that live in a family where the OPOL strategy is followed (thirteen children out of nineteen); in particular, 7 of them live in a monolingual community (OPOL(M)) and perform almost half of the interpreting cases (48.8%, 156 cases), while the other 6 children live in a bilingual community (OPOL(B)) and also show a high percentage in the total production of interpreting cases (32.8%, 105 cases). When other strategies are followed (e.g. BMI and MLH), the percentage of NI cases produced is significantly much lower (15%, 48 cases, and 3.4%, 11 cases, respectively) (all $p$-values < .01).

If the focus is placed on the NI cases produced per child, some bilingual children are more prolific than others as interpreters, and this is so regardless of the language pair and the language strategy of their families, although the amount and the type of data available from each child is a factor that must be taken into consideration in this respect, too. As illustrated in Table 1, Leo and Simon (FerFuLice corpus) and María del Mar (Vila corpus) are the children who produce the highest number of words in all the corpora studied and are also the ones that show a higher rate of NI, while in the case of Leila (GNP corpus), the only child that does not produce any case of interpreting, her speech production is the most limited in terms of the number of words considered.

A further analysis of these results in terms of our first variable, the directionality of the NI, shows the occurrence of NI cases across language strategies.

***NI directionality***

The distribution of NI cases in terms of directionality is shown in Table 4 (examples in 3 and 4 above).

Table 4

*NI directionality according to different language strategies*

| MONOLINGUAL COMMUNITY | | | |
|---|---|---|---|
| | **To the community language** | **To the minority language** | Total |
| OPOL(M) | 50 (32.1%) | 106 (67.9%) | 156 (100%) |
| BMI | 19 (39.6%) | 29 (60.4%) | 48 (100%) |
| MLH | 8 (72.7%) | 3 (27.3%) | 11 (100%) |
| Total | 77 (35.8 %) | 138 (64.2%) | 215 (100%) |
| BILINGUAL COMMUNITY | | | |
| | **To language A** | **To language B** | |
| OPOL(B) | 55 (52.4%) | 50 (47.6%) | 105 (100%) |

OPOL (One-Parent-One-Language); BMI (Bilingual-Monolingual Interaction); MHL (Minority Language at Home)

(M)onolingual; community; (B)ilingual community

Overall Table 4 shows that, in monolingual communities, NI is significantly more frequently produced into the minority language (64.2%, 138 cases) than into the community language (35.8%, 77 cases) ($p$-value < .01), a result that confirms that NI directionality is determined by the language strategy used by parents (research question 1).

However, each strategy implies a different pattern: While NI to the minority language is significantly favored when BMI and especially OPOL are followed ($p$ = .02 and $p$ < .01, respectively), the MLH strategy (i.e. the use of only the minority language at home) involves the opposite result, that is, a higher production of NI into the community language ($p$ = .01).

In bilingual communities, if OPOL is followed, there is no significant preference for any direction ($p$ = .24), which leads to state that although NI directionality is determined by the language practice in bilingual families, other more external factors such as the language of the community should be taken into consideration in the study of this variable: Except for the MLH strategy (which seems to imply that the community language is not excluded from the language use of the family but enhanced through NI), both the OPOL and the BMI strategies followed in a monolingual community imply a similar linguistic pattern, that is, NI produced predominantly to the minority language.

In order to further consider the role played by language practice, our research question 2, as to whether these children auto-translate from the community language (and maybe their dominant language) into the minority language to conform the context established by each strategy, is addressed through the analysis of our next variable, i.e. the origin of the source utterance.

***Source utterance origin in NI***

With regard to the origin of the source utterances involved in NI, Table 5 shows the distribution between auto-translations and the translations of other interlocutors' utterances (examples 7 and 8 above).

Table 5

*Source utterance origin in NI according to different language strategies*

| | **Auto-translation** | **Translation of others'** | Total |
|---|---|---|---|
| OPOL(M) | 107 (68.6%) | 49 (31.4%) | 156 (100%) |
| BMI | 35 (72.9%) | 13 (27.1%) | 48 (100%) |
| MLH | 7 (63.6%) | 4 (36.4%) | 11 (100%) |
| OPOL(B) | 79 (75.2%) | 26 (24.8%) | 105 (100%) |
| total | 228 (71.3%) | 92 (28.7%) | 320 (100%) |

OPOL (One-Parent-One-Language); BMI (Bilingual-Monolingual Interaction); MHL (Minority Language at Home) (M)onolingual; community; (B)ilingual community

When comparing the total number of auto-translations (71.3%, 228 cases) and the translation of other interlocutors' utterances (28.7%, 92 cases), the difference is significant ($p < .01$). This result is further observed regardless of the type of community where the children are immersed ($p < .01$ in OPOL(M), BMI and OPOL(B) contexts). As for the MLH strategy, although more auto-translations are produced, the difference is not significant ($p = .1$).

When comparing across the two different translation sources in each of the language strategies, the same pattern is found, that is, the production of auto-translations (from 63.6% to 75.2%) and that of the translation of other interlocutor's utterances (from 24.8% to 36.4%) present similar proportions across each strategy (all *p*-values > .05). This pattern seems to indicate that the language strategies do not have a strong influence on the NI production in terms of the source utterance origin variable (research question 2) since in three out of the four strategies under analysis the most common type of interpreting implies the translation of what the child

himself/herself has already said.

If auto-translation is a common practice in bilingual homes, then, as part of the next step in our analysis, the role of the type of motivation these children receive should be taken into consideration as a possible key effect on their interpreting production.

***Stimulus in NI***

With respect to the relation between the language strategy and the motivation involved in NI (research question 3), exemplified in (9) and (10) above, the data in Table 6 suggest that, in general terms, there are significantly more cases of interpreting performed on the children's own initiative than on their parents' (or other adults') prompt, regardless of the community context ($p = .05$ in monolingual communities, $p < .01$ in bilingual communities).

Table 6

*Stimulus in NI according to different language strategies*

| MONOLINGUAL COMMUNITY | | | |
|---|---|---|---|
| | **Own initiative** | **Minority-language parent/adults' prompt** | **Community-language parent/adults' prompt** |
| OPOL(M) | 80 (51.3%) | 65 (41.7%) | 11 (7%) |
| BMI | 29 (60.4%) | 16 (33.3%) | 3 (6.3%) |
| MLH | 7 (63.6%) | 4 (36.4%) | 0 (0%) |
| total | 116 (54%) | 85 (39.5%) | 14 (6.5%) |
| BILINGUAL COMMUNITY | | | |
| | **Own initiative** | **Parents'/adults' prompt (to either language A or B)** | |
| OPOL(B) | 84 (80%) | 21 (20%) | |

OPOL (One-Parent-One-Language); BMI (Bilingual-Monolingual Interaction); MHL (Minority Language at Home) (M)onolingual; community; (B)ilingual community

A closer look at the results in Table 6 reveals that although in the OPOL(B) and BMI contexts this tendency in favor of own-initiative translations is clearly observed ($p <. 01$ and $p$

= .02, respectively), if the OPOL(M) and MLH strategies are followed, then there is no significant difference between these two types of interpreting according to the stimulus (or lack of verbal stimulus) the children receive when they translate ($p$ = .32 and $p$ = .10, respectively).

In a monolingual community context, when NI is induced, most cases are significantly prompted by the minority-language parent/adult regardless of the strategy used at home ($p$ < .01 in the case of OPOL(M), $p$ = .0004 in BMI and $p$ = .01 in MLH). When comparing the three strategies, a similar pattern appears both in the translations done on their own-initiative and the translation of others' utterances (all $p$-values > .05).

In a bilingual community context, out of the 21 cases where the child is prompted to translate, most of them (16 cases) are produced by María del Mar ($p$ = .005), who is induced by a Spanish-speaking adult, the rest (5 cases) are produced by the English/French children of the GNP corpus at an equal rate since 3 cases are induced by a French-speaking parent, 2 cases by an English-speaking parent ($p$ = .32).

Therefore, most NI is not induced by parents to strictly keep a certain strategy at home but is rather due to the children's communicative needs (either to be understood, as in example (10b), or to conform to the linguistic context, as in (1) and (10a)). In this respect, these bilingual children are usually involved in interpreting regardless of the language practice of their families. This contributes to show that, on the one hand, NI is part of the bilingual development of simultaneous bilingual children (i.e. a precocious and recurring bilingual practice) and, on the other hand, NI is also related to a communicative necessity from the part of the parents or of the children themselves. In the case of the parents, if they follow the OPOL(M), BMI or MLH strategies when living in a monolingual community, they assure their children will produce output in the minority language. In the case of the children, in all the strategies and the linguistic communities under analysis, although especially evident in the OPOL(B) strategy, they use the

other language as a communicative resource or to respect the linguistic strategy at home.

## Conclusion and further research

Interpreting between languages is an instance of intercultural communication in a multilingual world where bilingualism goes beyond teaching practices and is part of the complex linguistic situations found in our society, where 50% of the worldwide population is estimated to be bilingual (Grosjean 2010). On these terms, the mediation between two languages and so, between two cultures, plays a key role in bilingual contexts since it is not reduced to an educational context but, more importantly, as our work shows, has family and social dimensions where the bilingual families' language strategies are implemented.

A case in point where two languages are bridged through mediations in bilingual homes is child NI as performed by bilingual children, which is the focus of the present study. In NI the children have to render the same message in their two languages in family contexts and, from this approach, our study contributes to provide new insights into this bilingual practice using bilingual acquisition data.

In particular, our analysis shows that NI is produced regardless of the language strategy followed at home and reflects NI as a common communicative resource in bilingual children (Álvarez de la Fuente and Fernández Fuertes 2012, 2015; Fernández Fuertes and Álvarez de la Fuente 2017). That is, the NI cases we have considered are related to specific communicative needs that emerge from bilingual child-parent interactions.

More specifically, and in the light of our results, we argue that parents' language strategies are in tune with the language of the social context in which the family lives and this, in turn, has a great influence on NI directionality (research question 1) since most NI is produced to the minority language in monolingual communities but not in bilingual ones. In

order to observe other factors intervening in this result, we have looked at the origin of the source utterance involved in NI (research question 2), concluding that auto-translations are the most common type of NI in practically all the language strategies under analysis and that this is so regardless of the type of community where the children live. That is, children translate not only because they are prompted to do so. Therefore, it is the analysis of the last factor taken into consideration in this work, i.e. the type of stimuli the children receive when performing NI (research question 3), which is telling of the link between the motivation that drives parents and children to this type of linguistic practice at home and the linguistic context in the community: In monolingual communities, parents' strategies (i.e. OPOL(M), BMI and MLH) seek to reinforce the minority language while in bilingual communities the use of the same strategy (i.e. OPOL(B)) makes both parents and children strongly rely on NI to adhere to the linguistic strategy at home, which implies explicit demands on the part of their parents but especially auto-translations on the part of the children to conform to it.

The available data analyzed involve some limitations as most children are infants and pre-schoolers (only 4 of our participants are older than 5 years old) and so we are not able to assert whether our results could be extrapolated to older children. However, future research using corpus data could be conducted to determine whether child NI in spontaneous acquisition data and child language brokering (older in age) share or differ in their (extra-)linguistic properties. Moreover, research could involve a comparison between brokering and the NI found in experimental settings where young bilingual children act as interpreters between two monolingual adults that need to communicate with each other (Álvarez de la Fuente 2008; Cossato 2008; Álvarez de la Fuente and Fernández Fuertes 2012, 2015). This situation would be similar to the one that motivates brokering and, from this perspective, NI (performed in both spontaneous and experimental contexts) could be seen as a potential precursor of brokering.

This way, NI may or may not develop into brokering at some later time and given appropriate circumstances; for instance, when a bilingual child acts as an interpreter with other relatives different from their parents or with other peers at school (Portolés and Marti 2017). All this will surely have implications on language policies and the development of pedagogical models and curricular planning of language teaching.

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