



## Acquisition of English Plural Marking by a Cantonese-English Bilingual Child: A Corpus-based Case Study

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### Abstract

With regard to the nature of simultaneous bilingual acquisition, more studies on different aspects of bilingual language acquisition are required to determine whether these two linguistic systems are developed autonomously or interdependently. This corpus-based longitudinal study aims to provide new evidence concerning this controversial issue by examining the acquisition of English plural marking by a Cantonese-English simultaneous bilingual child and an English-speaking monolingual child. The results revealed that, overall, the bilingual child produced more errors in plural marking, with all of them being required but omitted (RO) errors. Moreover, it was found that over-regularisation (OG) was absent in the bilingual's production of plurals. Furthermore, regarding the development sequence, it was found that the bilingual child lagged behind the monolingual child and achieved mastery of plural marking at a later age, which may have been related to the inevitably less frequent English input received by the bilingual child.

**Keywords:** language acquisition, bilingualism, plural marking, corpus-based study, English

### INTRODUCTION

In the field of bilingual acquisition, there is still controversy regarding whether simultaneous bilingual children develop the two languages autonomously via two entirely separate systems, or whether they develop the two languages interdependently in such a way that the two language systems interact with each other. This study will provide new evidence concerning this controversial issue by comparing the acquisition of English plural marking by a Cantonese-English simultaneous bilingual child and by an English-speaking monolingual child. The comparison will address the two major manifestations of the interdependence hypothesis (IH), transfer and delay, by analysing the frequency and types of error produced by the two subjects, as well as their developmental sequences.

## The Language Acquisition of Simultaneous Bilingual Children

The acquisition of language by simultaneous bilingual children has attracted significant interest in recent decades. Researchers in the earliest stages developed two contrasting views regarding the nature of bilingual language development, namely the unitary language system hypothesis (ULSH) and the separate development hypothesis (SDH). The ULSH suggests that bilingual children originally possess only one language system, which subsequently splits into two in the lexical, morphological and syntactic domains (Redlinger & Park, 1980; Vihman, 1985). However, Meisel (1989) opposed this hypothesis by claiming that bilingual children adopting identical grammatical structures for two languages did not necessarily demonstrate that they possessed a unified system because the acquisition of different languages may undergo the same developmental patterns. Thus, due to a lack of evidence to reinforce the ULSH, the majority of researchers argue in favour of the SDH (Peng, 1999), which considers the existence of two different language systems to be evidence that bilingual children can apply language-specific rules for each language from the beginning (Bergman, 1976; Lindholm & Padilla, 1978). For example, Meisel (1989) and Parodi (1990) found that French-German bilingual children were able to adopt distinct rules for agreement and case marking in each language as soon as functional categories were present in their speech. With the support of more experimental data, some researchers further claimed that there was an evident manifestation of two distinct language systems at the earliest stage of bilingual acquisition (Mishina-Mori, 2005).

If simultaneous bilingual children acquire languages through two separate systems, one question that remains unanswered is whether the two languages develop autonomously, meaning that the two systems are entirely separate, or whether they develop interdependently, indicating that the two systems interact with each other (Peng, 1999). The autonomous development hypothesis (ADH) regards the two languages as two parallel lines that would never intersect, and predicts that each of the two languages developed by bilingual children should be similar to the language developed by monolingual children (Peng, 1999). The IH, in contrast to the ADH, suggests that interdependence may be demonstrated in two forms, namely transfer and delay. According to Paradis and Genesee (1996), transfer is the incorporation of a grammatical property from one language into another language. In addition to transfer, interdependence may be manifested in the form of delay, which is reflected in the acquisition process of bilinguals lagging behind that of monolinguals. There are still debates concerning the ADH and IH that require further investigation.

### English Plural Marking

English nouns can be divided into countable and uncountable nouns (Nelson, 2019). Countable nouns have a singular form and a plural form. According to the obligatory plural context, a plural marker must be added to a countable noun to indicate its plurality. For example, in English, most of the regular nouns are made plural by adding an -s or -es to the stem, while irregular nouns need to be changed in order to become plural. According to Jia (2003), linguistic cues and contextual cues are the two conditions that are necessary for the obligatory plural context. Determinatives (such as 'some'), cardinal

numerals (such as 'three'), noun phrases (such as 'a pair'), fractions (such as 'two thirds') and plural demonstratives (such as 'these') are all considered to be linguistic cues indicating where plural markers must be added. Contextual cues, or semantic cues, include those derived from sentential contexts ('look into your eyes'), discourse contexts ('passengers were hurt') and pictorial contexts (when plural entities are shown in a picture).

Plural markers are amongst the first bound morphemes that English-speaking children acquire (Jia, 2003). Most typical monolingual children enter the transitional pre-rule stage at the age of 20 months, when the occasional production of plurals occurs. It is believed that they will then master the use of plural markers at 29-33 months, or before they attain a mean length of utterance (MLU) of 3.0 to 3.5. Monolingual children will produce different types of errors during their language acquisition. However, equivalent research in simultaneous bilingual acquisition is scarce. It is not clear how Cantonese-English simultaneous bilingual children acquire the plural marking in English.

### **The Current Study**

This study aims to examine whether the ADH or IH holds during the acquisition of English plural marking by a simultaneous Cantonese-English bilingual child with a focus on transfer and delay. The research questions to be addressed are as follows:

- 1) Is there any difference between the bilingual child and the monolingual child in terms of the error rate during the acquisition of plural marking in English?
- 2) What types of errors are produced by the bilingual child? Is this pattern similar to the pattern for the monolingual child?
- 3) Is there any difference between the bilingual child and the monolingual child in the developmental sequence of plural marking in English?

## **METHODOLOGY**

### **The Corpora and the Informants**

This corpus-based study investigated the acquisition of English plural marking using longitudinal data from two corpora via CHILDES (Child Language Data Exchange System): the CHILDES Cantonese-English Yip/Matthews Corpus (Yip & Matthews, 2007) and the CHILDES English MacWhinney Corpus (MacWhinney, 1991).

The Yip/Matthews Corpus collected longitudinal data from eight Cantonese-English bilingual children who had been exposed to both languages regularly since birth. Of the eight children, Darren was chosen because he showed relatively balanced development in the two languages, as suggested by the MLU. During the period of data collection, Darren's parents adopted the one parent-two language strategy, whereby both of them speaking Cantonese and English to him regularly. His corpus covers the ages from 1;07.23 to 3;11.24, with 28 English files containing 5,079 utterances. However, four files that did not involve any noun phrases (NPs) were eliminated from the analysis.

The MacWhinney Corpus contains transcripts from MacWhinney's diary study of his two sons' language development. Ross, who was recorded between the ages of 0;6 and 8;0,

was chosen for the comparison of the acquisition of English plural marking with Darren. Only 28 files (from 1;06.09 to 3;11.14) were processed further in this study, with a total of 2,577 NPs.

### Data Extraction and Annotation

Utterances involving NPs in the obligatory plural context were extracted from the corpora for further analysis to compare the acquisition of English plural markers by the bilingual and monolingual children using the software CLAN (MacWhinney, 2000). The KWAL command in CLAN was used to facilitate the extraction. The +w2 and -w2 commands were also added to confirm whether there were imitations of previous utterances. An example of a command line for extracting the NPs from the file 020903 is provided below:

```
kwat +t*CHI +t%mor +s"m|-n,|-n:*" -w2 +w2 020903.cha
```

After extracting all the NPs, those in the obligatory plural contexts were organised using an Excel sheet for further annotation. For each file (corresponding to each recording session), the MLU was calculated using CLAN and listed on the Excel sheet. The MLU is the average number of morphemes per utterance, which is a reliable indicator of children's overall linguistic abilities (Carvalho et al., 2014). In addition to the basic information and the MLU, the following annotations were made in this study:

- 1) the type of noun (regular or irregular);
- 2) how the obligatory plural context was cued (via a linguistic cue or by a semantic cue);
- 3) accuracy ('1' for correct use and '0' for incorrect use or not marking the plural); and
- 4) the types of errors made when forming plurals (to be described in detail below).

### Coding of Errors

The error coding system adopted in this study followed the convention of the inflection coding system by Cazden (1968): RO (required but omitted) and OGplu (over-regularisation in the obligatory plural context). There are two sub-categories of RO: RO<sub>r</sub> is the absence of a regular plural ending, such as 'apple' instead of 'apples', while RO<sub>i</sub> indicates the use of the singular form rather than the plural form for irregular nouns, such as 'man' for 'men'. There are three types of OGplu errors:

- 1) adding a regular plural ending to the stems of irregular nouns, such as 'mans';
- 2) adding a regular plural ending to nouns that do not differentiate singular and plural forms, such as 'sheeps'; and
- 3) double marking for irregular nouns, such as 'mens'.

To provide an objective comparison of the errors made by the two children, the error rates were calculated using the following formula (Jia, 2003):

$$\text{Error rate} = \frac{\text{Number of Error (RO + OGplu)}}{\text{Number of Obligatory Plural Context}}$$

## RESULTS

### Summary of the Production

Table 1 presents the distribution of the different types of nouns produced in the obligatory plural context by the bilingual child, Darren, and the monolingual child, Ross, respectively. Although a similar number of files was extracted from the two corpora, only 95 obligatory plural contexts were recorded in Darren's data, while 528 were recorded in Ross' corpus. It was found that, for both Darren and Ross, 94.7% of the produced nouns were in the regular form. In addition, most of the obligatory plural contexts were identified via semantic cues rather than by linguistic cues.

**Table 1.** Distribution of nouns produced by Darren and Ross

	Regular Form of Plural		Irregular Form of Plural		Total
	Linguistic Cue	Semantic Cue	Linguistic Cue	Semantic Cue	
<b>Darren</b>	9 (10.0%)	81 (90.0%)	1 (20%)	4 (80%)	95
<b>Ross</b>	125 (25.0%)	375 (75.0%)	10 (35.7%)	18 (64.3%)	528

### Comparison of Types of Error

Table 2 lists the frequency of the different types of errors produced by the two children. It was found that all 12 errors that Darren produced were RO errors, which means that he adopted the singular form for the plural context. Specifically, all the RO errors that Darren produced were RO<sub>r</sub> errors, as he transformed all the irregular nouns recorded in his data into their plural forms correctly. Of these 12 errors, three of their obligatory plural contexts were formed according to linguistic cues, and the remaining nine RO errors occurred in the semantically cued obligatory plural context. No OG<sub>plu</sub> errors were found in Darren's data.

**Table 2.** Comparison of the types and frequency of errors

Types of Error	Error Counts and Rates	
	Darren	Ross
<b>RO</b>	12/95 (12.6%)	6/528 (1.14%)
By Linguistic Cue	3/33 (9.10%)	4/203 (1.97%)
By Semantic Cue	9/62 (14.51%)	2/325 (0.62%)
<b>RO<sub>r</sub></b>	12/95 (12.6%)	6/528 (1.14%)
By Linguistic Cue	3/33 (9.10%)	4/203 (1.97%)
By Semantic Cue	9/62 (14.51%)	2/325 (0.62%)
<b>RO<sub>ir</sub></b>	-	-
By Linguistic Cue	-	-
By Semantic Cue	-	-
<b>OG<sub>plu</sub></b>	-	8/528 (1.52%)

Fewer than half of the errors produced by Ross were RO errors. Ross produced six RO errors in the 528 obligatory plural contexts. As was the case with Darren, all six of the RO errors were RO<sub>r</sub> errors, amongst which four were formed based on linguistic cues and two based on semantic cues. In addition to the RO errors, Ross produced eight OG<sub>plu</sub> errors. Although Cazden (1968) suggested three ways in which OG<sub>plus</sub> could occur, only two were identified in the present study. Ross added a regular plural ending -s to a noun that took an irregular form once, and double marked the irregular plural form three times. However, another type of OG<sub>plu</sub> error that was not defined by Cazden (1968) was found in Ross' speech, namely the application of the plural marker -es instead of -s.

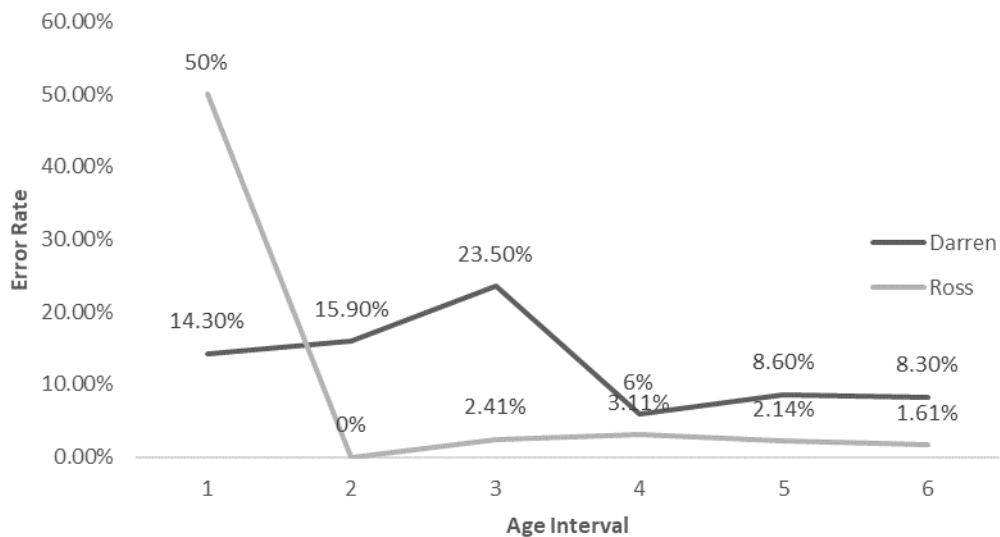
### Comparison of Error Rates by Age and MLU

To examine whether a delay occurred in the bilingual child's acquisition of English plural markers, the files were divided into six age intervals, most of which covered a duration of five months (the final interval lasted for four months due to the limited corpus data). Table 3 presents the error rates and the MUL across the six age intervals. Ross produced a larger number of nouns in the obligatory plural context from the third interval onwards, but very few nouns were recorded in his first and second intervals because some months were missing in the MacWhinney Corpus. As the number of recorded files between 01;06.09 and 02;04.09 was insufficient from Ross' data, only one file was included for each of his first two intervals.

**Table 3.** Comparison of the types and frequency of errors

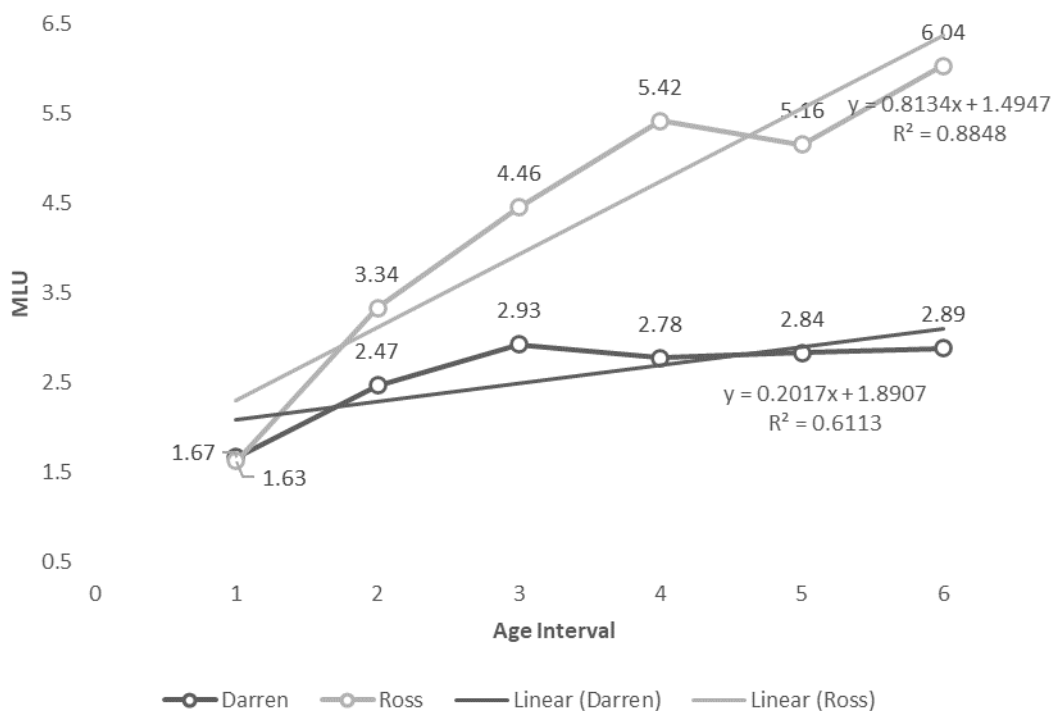
Interval	Age	Darren		Ross	
		MLU	Error Rate	MLU	Error Rate
1	01;06-01;11	(M = 1.67, SD = 0.33)	14.3% (1/7)	(M = 1.63, SD = 0)	50% (1/2)
2	01;12-02;04	(M = 2.47, SD = 0.33)	15.9% (3/19)	(M = 3.34, SD = 0)	0% (0/2)
3	02;05-02;09	(M = 2.93, SD = 0.22)	23.5% (4/17)	(M = 4.46, SD = 1.02)	2.41% (2/83)
4	02;10-03;02	(M = 2.78, SD = 0.27)	5.88% (1/17)	(M = 5.42, SD = 1.06)	3.11% (6/193)
5	03;03-03;07	(M = 2.84, SD = 0.23)	8.6% (2/23)	(M = 5.16, SD = 0.59)	2.14% (4/187)
6	03;08-03;11	(M = 2.89, SD = 0.23)	8.3% (1/12)	(M = 6.04, SD = 0.32)	1.61% (1/62)

Figure 1 shows the comparison of the error rate across the six age intervals by the children, where the x-axis refers to the intervals and the y-axis represents the error rate. Ross' error rate was lower than Darren's in each interval except for the first interval. As explained above, the observations from the first two intervals may be biased due to the data limitation. In addition, both children showed a decline in the error rate with an increase in age.



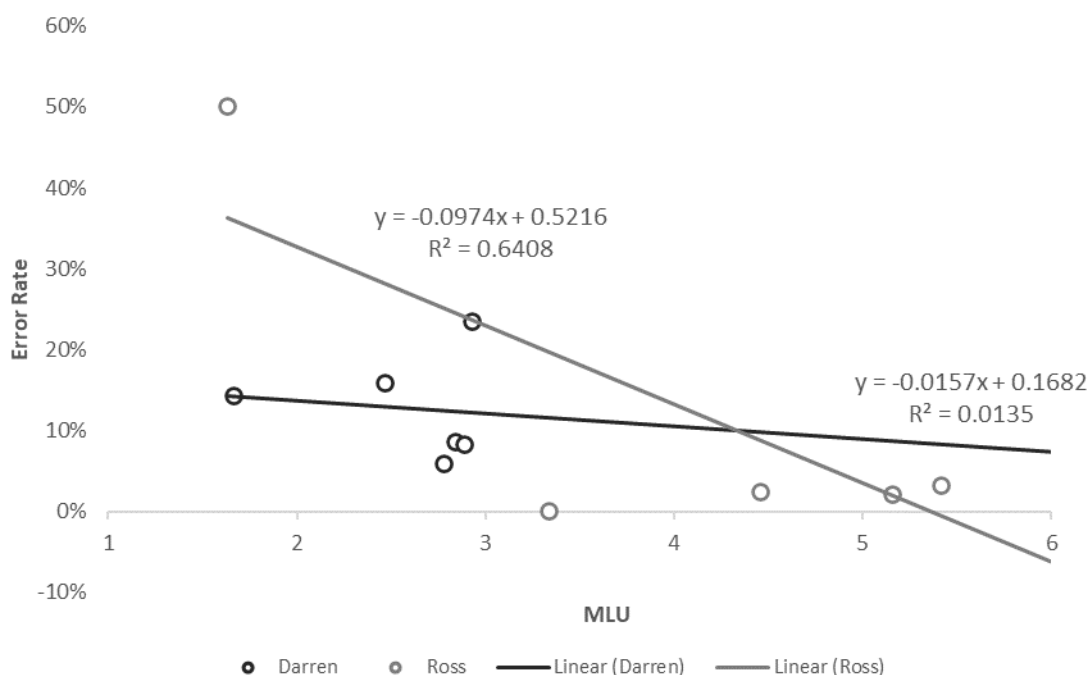
**Figure 1.** Comparison of the error rate across age intervals

Figure 2 compares the MLU across different age intervals, with the x-axis and y-axis standing for the age intervals and the MLU, respectively. The thin lines represent the actual development of the MLU and the thick lines show the models of the linear regression. As denoted by the thick lines, a positive relationship between age and the MLU was predicted in the development of both children. However, this relationship was only significant in Ross’ development, with a regression slope of 0.8134 ( $p = .02$ ), thus indicating that his data points suited the regression model well. The relationship was non-significant in Darren’s development ( $p = .24$ ). According to Figure 2, although he two children had very close MLUs in the first interval, their differences became greater as they aged.



**Figure 2.** Comparison of the MLU across age intervals

Figure 3 shows the relationship between the two subjects' MLU and their corresponding error rate in the obligatory plural context, which are represented in the x-axis and y-axis, respectively. According to the figure, a regression line with a slope of  $-0.0974$  suggests a negative relationship between Ross' MLU and the error rate, but no significance was reached ( $p = 0.24$ ). Moreover, the relationship between the MLU and the error rate was non-significant in Darren's data ( $p = 0.98$ ). Unlike Ross' data points, which were dispersed across the x-axis, most of Darren's data points were centred between two and three on the x-axis, thus revealing that Darren's English-language development was slower than was Ross' language development in general.



**Figure 3.** Comparison of the error rate across the development of MLU

## DISCUSSION

The results of this study provide evidence in favour of the IH and against the ADH. While plurality must be indicated for English countable nouns, plural inflection does not exist in Cantonese, except for personal pronouns in which 'dei6' is attached to mark plurality, such as 'ngo5 (I/me)' and 'ngo5 dei6 (we/us)'. Darren's frequent omission of the plural markers suggests a negative transfer from Cantonese. In addition, Darren also showed delayed acquisition of the plural marking, which was attributed to having received less English input.

### Differences in the Error Rate

The bilingual child had a higher error rate than did the monolingual child. This is in line with the findings of Döpke (2000), in which bilingual children produced more grammatical errors overall than did their monolingual peers. This could be explained via a suggestion by Serratrice, Sorace and Paoli (2004: 183), who claimed that bilingual children could only rely on 'the same set of cognitive and processing resources' to understand the potentially competing systems of two different languages; thus, they may



fail to manage the tremendous mental load entailed in processing of two grammatical rules. They will then develop a default strategy in which transfer from the less complex language to the language with more complex constraints will take place.

### **Distribution of Errors**

As shown above, the types of errors differed in the two children's productions. While Ross produced six RO errors and eight OGplu errors, no OGplu errors were recorded in Darren's data. Given that the nature of these two types of errors is different, discussing their underlying causes will provide more information about the acquisition of plural marking by the bilingual child.

The bilingual child showed a higher frequency in producing RO errors in the obligatory plural context. The RO error rate for Darren and Ross was 12.6% and 1.06%, respectively. Unlike English, Cantonese does not have plural inflections, except for indicating the plurality of personal pronouns. Darren's frequent omission of plural markers in the obligatory plural context may be interpreted as a manifestation of the Cantonese influence on the English morphological structure (negative transfer). The results of the study by Blom et al. (2012) also indicated that English inflection was particularly challenging for Chinese bilingual children, as Chinese does not have the morphological agreement rules from which they could benefit. Furthermore, Darren's language environment may also have given rise to transfer. Darren's parents adopted a one parent-two language strategy, whereby each spoke Cantonese and English to Darren regularly. Studies have suggested that the type of language exposure received by bilingual children is important in determining the occurrence of transfer. It has been claimed that, in order to develop the two languages autonomously, bilingual children should be exposed to the two languages in a separate manner, and each parent should interact with the child in only one of the languages (De Houwer, 1990; Meisel, 1989). Due to the extremely limited use of plural markers in Cantonese and the language policy adopted by Darren's parents, it can be inferred that Darren's higher rate of omitting plural markers in the obligatory plural context was a manifestation of transfer, which reinforces the IH.

In addition to RO errors, this study also investigated OGplu errors. Darren did not produce any OGplu errors while Ross produced eight of them, which accounted for more than half of the errors that Ross produced in the obligatory context. OG errors have long been considered to be a manifestation of children having acquired the abstract rules or having generalised certain schemas (Matthews & Theakston, 2005). The dual-route model of inflection is an influential classic hypothesis that explains children's acquisition of inflections. It proposes that nouns with regular plural forms are computed via a default rule, such as adding the suffix -s, while nouns with irregular plural forms are stored in associative memory (Clahsen, Avelledo, & Roca, 2002; Pinker & Ullman, 2002). OGplu errors would occur when a child did not have the appropriate irregular plural form in his or her associative memory; due to having acquired the default rule well, he or she will then add a suffix to the irregular noun. Therefore, according to this model, errors of omission should occur before the complete acquisition of the default rule. Due to the simplicity of this model, two possible interpretations of a bilingual child's absence of OGplu errors can be made. The first possible interpretation is that, together with the large

number of RO errors, the absence of OGplu errors in Darren's speech revealed that he had not established the default rule as completely as Ross had to make any OG errors. The second possible interpretation is that he had a more proficient associative memory for nouns with irregular plural forms; thus, he retrieved them appropriately and successfully without producing any errors. The second interpretation is supported by the research by Barac and Bialystok (2011) and by Bialystok and Craik (2010), who found that bilinguals showed better performances in a basic associative word-learning task. The authors suggested that the superior performances may have been due to a bilingual advantage in executive functioning, such as planning and attention. Kovács and Mehler (2009) also reported that, while a 12-month-old bilingual was able to acquire two associative rules between syllable strings and target locations, monolinguals who were the same age could only acquire one. Such a bilingual advantage has also been documented in adult bilingual speakers' perception of prosody (Yang, 2022).

However, it appears that implications based on the dual-route model are unprecise. The results for Ross contradicted the model in two ways. Firstly, according to the dual-route model, RO errors should disappear as soon as there is a demonstration of OG errors. However, although the first OGplu error recorded in Ross' data occurred in 02:09:28, repeated RO errors could still be identified until the age of 03;10;01. It appears that this pattern was better matched to the schema models (Bybee & Slobin, 1982). Contrary to the dual-route model, schema models propose that nouns with regular and with irregular plural forms are operated by the same storage and processing mechanism. It is easier for a child to retrieve high-frequency inflected or irregular plural forms in their entirety from his or her memory (Bybee & Slobin, 1982; Dabrowska, 2001, 2004). Thus, RO errors can co-occur with OGplu errors, as in the error pattern that Ross produced. Another problem with the dual-route model is the cause of OGplu errors, as it is claimed that OGplu errors occur when a child does not have the appropriate irregular plural form stored in the memory. However, this claim overlooks the OGplu error of the double marking of the irregular plural forms, which was found three times in Ross' data. By contrast, schema models are more comprehensive in explaining how OGplu errors are formed. Bybee and Slobin (1982) proposed that, during acquisition, children formed product-oriented schemas, which are generalisations of the properties of plural inflected forms. Source-oriented schemas are also formed at the same time: These schemas are generalisations regarding how an inflected form is produced; for example, 'to make a plural noun, take a noun stem and add -s'. As Bybee and Slobin (1982) claimed, adult-like mastery of plural markers is achieved by balancing product-oriented schemas. Taking this into account, the double marking OGplu errors that Ross produced may have been due to the imbalanced development of the two schemas. Even though he was able to use the irregular plural forms of nouns as he perceived them as being high frequency, when his formation of product-oriented schemas overrode source-oriented schemas, he decided to supply a suffix -s for these irregular nouns to produce the plural form.

### **Developmental Sequence**

As Jia (2003) explained, the mastery of plural markers is marked by attaining 90% correct use in obligatory plural contexts during two or three consecutive assessment sessions.

Based on this definition, Darren had begun to reach the mastery stage at the fourth age interval (02;10-03;02) with an error rate of 5.88%, while Ross was one interval ahead of Darren by attaining an error rate of 2.41% in the third age interval (02;05-02;09). This is in line with the conclusions drawn by the majority of studies comparing morphosyntactic acquisition by bilingual and monolingual children (Yang et al., 2018). Therefore, this manifestation of interdependence contradicts the ADH.

It is suggested that, compared to monolingual children, the smaller amount of English input received by simultaneous bilingual children could account for this phenomenon, as the language environment is a key factor in explaining bilingual children's language abilities and convergence to monolingual norms. Such a claim is supported by multiple studies that have confirmed that it is also applicable for explaining the language domain of morphology (Blom et al., 2012; Paradis, 2010; Thomas et al., 2013). In addition, this study showed the non-significant age effect on the MLU in Darren's development, thus suggesting that the less frequent input of English may have hindered Darren's acquisition of plural markers, leading to the delayed acquisition.

### **Limitations**

There are some limitations in this study. Firstly, the small sample size is a major concern. As children's language acquisition is a complex procedure that may be influenced by different internal and external factors (Fitria, 2020), children's proficiency with regard to English plural marking can vary within monolingual and bilingual groups. For example, in this study, one key factor that suggested that transfer was possible in Darren's acquisition of English plural markers was the language strategy adopted by his parents. If the same research method were to be applied to a bilingual subject who was being raised according to a one parent-one language strategy and similar statistical results are obtained, a high RO rate would not necessarily manifest transfer, but could indicate that other factors may be responsible instead. Thus, the limited number of research participants in the study may not have been sufficient to present the full picture of the general acquisition of English plural marking by simultaneous bilingual children. Furthermore, the nouns available for the analysis were very limited due to the small sample size, thus making the statistical results less reliable.

Another limitation was the inconsistent timeframe of the source data. Although the start and end dates of the two corpora adopted in the present study were similar, some months were missing in the MacWhinney Corpus. Recording files between 01;06;09 and 02;04;09 were absent in Ross' data, which had three major impacts on the study. Firstly, it decreased the fairness in the comparison of the overall error rate. The results of the present study predict that, as a child ages, his or her proficiency in English plural marking increases. However, due to the absence of data for 01;06;09 and 02;04;09, most of the data used to analyse Ross' overall acquisition were produced after the age of 02;04;09. Secondly, due to this time gap, it was not possible to conduct a month-by-month comparison of the developmental timetable. Thirdly, although age intervals were adopted to compensate for the missing months, the available data for the intervals that involved the missing months were very limited. These issues should be considered in future studies.

## CONCLUDING REMARKS

The present research investigated the acquisition of English plural marking by a bilingual child through addressing two manifestations of the IH, namely transfer and delay. The findings revealed that transfer and delay took place during the acquisition, as the bilingual child differed from the monolingual child in three ways. Firstly, the bilingual child had a higher overall error rate. Secondly, while both RO and OGplu errors were identified in the monolingual child's data, the bilingual child only produced RO errors. Due to the insignificant use of plural markers in Cantonese and the adoption of the one parent-two language strategy by Darren's parents, it can be inferred that the bilingual child's higher rate of omitting plural markers in the obligatory plural context was a manifestation of transfer. Thirdly, by comparing their error rates at different age intervals, it was found that the bilingual child lagged behind the monolingual child and achieved mastery of plural marking at a later age. The findings provided evidence against the ADH.

However, due to the small sample size in the study, the present conclusion cannot present the full picture of the general acquisition of English plural markers by all simultaneous bilingual children. Further studies that examine a larger population should be conducted in the future to provide a better understanding of how Cantonese-English simultaneous bilingual children acquire English plural markers, and provide more evidence supporting either the ADH or the IH.

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## APPENDICES

### Appendix 1: List of Errors Produced by Darren

Age	Utterance	NP	Type	Cue
01;10.30	bean .	Bean	ROr	Semantic
02;04.00	<there's some battery> [?] .	some battery	ROr	Linguistic
02;04.00	let's put the battery in other .	the battery	ROr	Semantic
02;04.00	let's put the battery .	the battery	ROr	Semantic
02;07.08	two cassette tape .	two cassette tape	ROr	Linguistic
02;07.24	I want to open this [//] their battery .	their battery	ROr	Semantic
02;07.24	I want to take out the (.) battery .	the battery	ROr	Semantic
02;07.24	I want take out the battery .	the battery	ROr	Semantic
02;10.03	dark cloud xxx the (s)ky .	dark cloud	ROr	Semantic
03;06.07	it's eye .	eye	ROr	Semantic
03;06.29	why there is [: are] [*] two excavator [: excavators] [*] ?	two excavator	ROr	Linguistic
03;10.10	penguin .	penguin	ROr	Semantic

**Appendix 2: List of Errors Produced by Ross**

Age	Utterance	NP	Type	Cue
01;06.09	car key .	car key	ROr	Semantic
02;07.18	you ate too much cake ?	too much cake	ROr	Linguistic
02;09.28	and my two farmer mans [: men] [* +s] ?	two farmer mans	OGplu	Linguistic
02;10.01	and they bring [/] they bring me blockses [: blocks] .	blockses	OGplu	Semantic
02;10.01	ghostses [: ghosts] [* +es-dup] (.) and Snoopy is my friend .	ghostses	OGplu	Semantic
02;11.09	my dogs (.) my dogses [: dogs] [* +s-dup] .	my dogses	OGplu	Semantic
02;11.14	these peoples don't know how to eat .	these peoples	OGplu	Linguistic
02;11.14	I'm not cold (.) but sometimes my feets get cold on here .	my feets	OGplu	Semantic
03;01.05	Matthew poke Zachary with the stick .	the stick	ROr	Semantic
03;03.15	here's some gum .	some gum	ROr	Linguistic
03;03.15	yeah (.) there is no more cause I ate all the candy up in that red one .	all the candy	ROr	Linguistic
03;03.15	I wants those things for my wristes [: wrists] .	my wristes	OGplu	Semantic
03;03.15	+" I like to eat mouses [: mice] [*] .	mouses	OGplu	Semantic
03;10.01	here's some bubble gum and a chocolate bar for you . [+ dia]	some bubble gum	ROr	Linguistic