

RE-EXAMINING CROSS-LINGUISTIC INFLUENCE IN THE BILINGUAL ACQUISITION OF *WH*-QUESTIONS*

Lyn Shan Tieu
University of Connecticut

1. Introduction

Many recent studies suggest that bilingual children differentiate between their two languages early on (Genesee, 1989; Meisel, 1989; De Houwer, 1990; Genesee, Nicoladis & Paradis, 1995; cited by Yip & Matthews, 2000). A question of interest however concerns the degree of interaction between a bilingual's two languages, and the cross-linguistic influence that can arise (Müller, 1998). This paper examines the bilingual acquisition of *wh*-questions by children who are acquiring English and Cantonese Chinese simultaneously. The data from the seven bilingual children whose data we consider in this paper belong to the Yip-Matthews set of corpora, available on CHILDES (MacWhinney, 2000). In their own analysis of the corpora, Yip and Matthews conclude that the cross-linguistic influence they find is due to language dominance. In this paper, I propose to enrich this explanation by looking more closely at the syntactic features that are involved in the *wh*-question types of the two languages being acquired.

This paper is organized as follows. Section 2 presents two proposals from the bilingualism literature on cross-linguistic influence, comparing and contrasting the two proposals in the context of the bilingual production of *wh*-questions. Section 3 presents Yip and Matthews' main findings, and offers some new insights based on a re-examination of their bilingual corpora (as well as some additional monolingual data). In Section 4, I suggest an enrichment of the two proposals discussed in Section 2, proposing a way of reconciling language-external and language-internal accounts of cross-linguistic influence. More specifically, I reanalyze the main findings under the proposed model. Section 5 summarizes and concludes the discussion.

2. Previous accounts of transfer

2.1 Language dominance (Yip and Matthews, 2000, 2007)

Yip and Matthews (hereafter Y&M) (2000, 2007) offer several examples of cross-linguistic influence, or *transfer*, that arise in the bilingual acquisition of

* I am grateful to Diane Lillo-Martin for helpful comments and discussion. This work has been funded in part by SSHRC 752-2008-2450. This project was also supported in part by Award Number R01DC009263 from the National Institute on Deafness and Other Communication Disorders (United States). The content is solely the responsibility of the author and does not necessarily represent the official views of the National Institute on Deafness and Other Communication Disorders or the National Institutes of Health (United States).

Cantonese and English.¹ They distinguish between qualitative and quantitative effects of transfer: qualitatively, transfer effects can be seen when structures that do not occur in monolingual development show up in the bilingual child's language (Y&M, 2000:194); quantitatively, we can identify cross-linguistic influence when the frequency or productivity of a particular structure in the target language is either increased or decreased compared to the monolingual data (Y&M, 2000:194). In their studies of the bilingual child Timmy (Y&M, 2000) and six other Cantonese-English bilingual children (Y&M, 2007), the authors look at *wh*-interrogatives, null objects, and pronominal relatives, and find both qualitative and quantitative effects of transfer. This paper is mainly concerned with their findings regarding *wh*-questions. While English is generally a *wh*-movement language, with the exception of echo questions and a small set of pragmatically constrained *wh*-in-situ questions,² Cantonese is a purely *wh*-in-situ language. Comparing the bilingual data to that of monolingual English-speaking children, the authors find that the bilingual children produce some proportion of *wh*-in-situ questions in their English, in contrast to monolingual English-speaking children, whom they claim generally do not produce *wh*-in-situ questions.³ The authors suggest that the transfer effects are largely determined by language dominance; that is, since the bilingual children are more dominant in their Cantonese than in their English, the influence of their Cantonese can be seen (in the form of transfer) in their English. Y&M use the children's Mean Length of Utterance in words (MLUw) as an indicator of their linguistic development in each language, and argue that periods during which transfer is most evident correspond to periods during which the MLUw for Cantonese clearly exceeds that for English. In summary, while Y&M believe that the bilingual children are indeed developing two distinct and separate linguistic systems, syntactic transfer effects are found, and these are largely due to language dominance.^{4,5}

¹ Yip and Matthews (2007) distinguish between transfer and cross-linguistic influence; following Paradis & Genesee (1996), they define transfer as the 'incorporation of a grammatical property into one language from the other' (Y&M, 2007:37). I use these terms somewhat interchangeably in this paper.

² See Pires and Taylor (2007) for a good inventory of licit *wh*-in-situ questions in English; examples will be provided in Section 3.

³ They exclude *wh*-in-situ productions that are imitations of adult utterances.

⁴ In their discussion of transfer pertaining to null objects, they suggest that input ambiguity may also play a role. I restrict my attention to the acquisition of *wh*-questions in this paper, and for this particular construction, Y&M argue that it is language dominance that is largely responsible for the observed transfer effects.

⁵ Y&M's account predicts different results for a bilingual child who is English-dominant, rather than Cantonese-dominant. Presumably such a child's *wh*-questions might exhibit influence from English to Cantonese, such that she would show evidence of *wh*-movement in her Cantonese. In fact, Lai (2006) looks more closely at one of the children in Y&M's corpora, Charlotte, and argues that despite Charlotte's dominance in English, the direction of the observed cross-linguistic influence in the domain of *wh*-questions is still from Cantonese to English. More detailed studies of English-dominant Cantonese-English bilingual children would be helpful in this regard.

While Y&M provide convincing evidence that there may indeed be a relationship between a bilingual child's dominance in one of her languages and the cross-linguistic influence that can arise, one is led to wonder about the exact nature of the interaction between the two languages. What does it mean to say that the dominant language influences the less dominant language? Language dominance is a purely language-external notion; arguing for it implies that there is nothing internal to the two languages themselves that is causing the transfer. Rather it is something completely external to the languages, namely the relative proficiency of the learner in the two languages. I suggest that to better understand the nature of cross-linguistic influence, we need to look more closely at the linguistic features of the affected constructions themselves. Moreover, while it is fairly intuitive that the less dominant language will be the one affected by transfer, the transfer is itself not unconstrained. In fact, much of the work on cross-language influence sets out to predict domains where cross-linguistic influence can arise. I suggest that we can only do this by also looking internally at the languages involved. On this note, I turn next to a rather influential account of cross-linguistic influence that, in contrast to Y&M's account, attributes transfer to language-internal factors.

2.2 The C-domain and surface overlap (Hulk and Müller, 2000)

Given the possibility of interaction between a bilingual child's two languages, Hulk and Müller (2000) (hereafter H&M) set out to predict when cross-linguistic influence may occur. They propose the following two conditions:

- (1) Cross-linguistic influence occurs at the interface between two modules of grammar, and more particularly at the interface between pragmatics and syntax in the so-called C-domain, since this is an area which has been claimed to create problems in L1 acquisition also.
- (2) Syntactic cross-linguistic influence occurs only if language A has a syntactic construction which may seem to allow more than one syntactic analysis and, at the same time, language B contains evidence for one of these two possible analyses. In other words, there has to be a certain overlap of the two systems at the surface level.

(H&M, 2000:228-229)

Regarding the first condition, H&M suggest that it is the syntax-pragmatics interface that is vulnerable to transfer; that is, the C-domain, which involves grammatical properties such as verb second, complementizers, and topicalization, is particularly vulnerable to cross-linguistic influence. The second condition pertains to a structural overlap between the two languages, namely where a particular construction in language A seems to the child to have more than one structural analysis, and language B appears to reinforce one of these two structural analyses. In the event that the analysis being reinforced is the 'wrong' one, we see the manifestation of a 'transfer effect'.

H&M go on to look at the acquisition of object drop and of root infinitives in a bilingual Dutch-French and a German-Italian child; they show that cross-linguistic influence occurs in the domain of object drop (which meets the conditions above), but not in the domain of root infinitives (which do not meet the conditions above). Since the influence in object drop and lack of influence in root infinitives were observed in the same period, the authors conclude that cross-linguistic influence occurs as the result of language-internal factors, rather than language-external factors, such as language dominance.

Let us consider briefly whether *wh*-questions meet the two conditions outlined in H&M's proposal. First, *wh*-questions meet the condition in (1), since *wh*-questions form part of the C-domain. Next, *wh*-questions do indeed meet the second condition, particularly when we look more closely at the kinds of *wh*-in-situ questions that are available in English (see Section 3.1). Assuming *wh*-in-situ is indeed an option in English, there is surface overlap between English and Cantonese, and according to H&M's model, the in-situ input from Cantonese may encourage overproduction of *wh*-in-situ in the bilinguals' English. H&M's proposal therefore correctly predicts Yip and Matthews' findings of transfer from Cantonese to English.

2.3 Comparing models

Consider Y&M's and H&M's models together now. We've seen that both correctly predict transfer (in the right direction) in the case of *wh*-questions acquired by bilingual children in the Yip-Matthews corpora. On the one hand, it is indeed the bilingual children's dominant language, Cantonese, that influences their less dominant language, English. On the other hand, *wh*-questions meet H&M's two conditions in (1) and (2), with the surface overlap predicting the directionality of the transfer. Theoretically, the two models appear to be at odds with each other; a language-external phenomenon precludes it from being language-internal, and vice versa. It seems impossible that they might both be simultaneously correct, and yet they both have their merits. On the one hand, H&M's model allows us to make testable predictions about constructions that haven't been previously studied; moreover, if correct, it allows us insight into the precise nature of cross-linguistic "influence", and where such influence can be predicted to arise. On the other hand, H&M's proposal doesn't force cross-linguistic influence wherever the two conditions in (1) and (2) are met; it merely predicts that influence *may* arise in case the two conditions are met. What governs then, when such influence can arise, beyond the two conditions being met? It is here that I believe language dominance has something to say. In Section 4, I will discuss a way of enriching the two proposals we have seen, reconciling them in a way that can allow us to explain not only what transfer effects can arise, but also when and why they do.

3. The bilingual acquisition of *wh*-questions

In this section, we will review Y&M's main findings, and provide some new data that might help to shed light on the patterns found in the bilingual production. Let us begin by looking at the types of *wh*-questions that are available in the two languages.

3.1 *Wh*-questions in English and Cantonese

English *wh*-questions involve overt movement to the specifier of CP (i.e. to check a strong *wh*-feature on C), while *wh*-phrases in Cantonese remain in situ:

(3) What did you eat? (Yip & Matthews, 2000:195)

(4) lei5 sik6-zo2 mat1je5?
 you eat-PERF what
 'What did you eat?'

There are however, exceptions to the *wh*-movement rule in English. For example, echo questions involve *wh*-in-situ:

(5) A: Mary ate a skunk. (Pires & Taylor, 2007)
 B: Mary ate WHAT ↑ ?

According to Pires & Taylor (2007), echo questions form only a subset of licit *wh*-in-situ constructions. They propose that *wh*-in-situ is licensed when the set of possible answers is part of the Common Ground (i.e. what is presupposed by the speaker to be common knowledge shared by the speaker and interlocutor). In addition to echo questions, they propose that there are at least three other kinds of licit *wh*-in-situ constructions in English: (i) [+specific]-questions request specific information about something that has been immediately mentioned prior to the question, as in (6); (ii) *expect*-questions occur when further questioning for new information is expected, as in (7); (iii) *reference*-questions ask for a paraphrase or repetition of an immediately prior antecedent, as in (8).

(6) A: I made desserts.
 B: You made [what ↑kind of desserts↓]?

(7) A (Attorney): Tell me what happened on January 1, 2005 at 4pm.
 B (Defendant): I was driving along Andrews Avenue.
 A (Attorney): And you were driving which↑ direction↓?
 B (Defendant): I was headed south, towards the library.
 A (Attorney): And the police officer said you were traveling about how fast?

(8) A: I did not sell those strange pictures.
 B: You didn't sell what↑ ↓strange pictures↓?

Syntactically, Pires and Taylor argue for a distinct null question complementizer (C_{CG} , for Common Ground) that also bears [+*wh*, +Q] features but that does not trigger movement of the *wh*-phrase. For our purposes in this acquisition study, we can assume that there are two (relevant) question complementizers in English (one with a strong uninterpretable *wh*-feature, signified as [**u-wh*], and one with a weak uninterpretable *wh*-feature [*u-wh*]), while Cantonese has only

one question complementizer with a weak *wh*-feature that does not trigger *wh*-movement.⁶

Table 1. Types of complementizers (*=strong feature)

English	Cantonese
C _{CG} [u- <i>wh</i>]	C _(CG) [u- <i>wh</i>]
C [*u- <i>wh</i>]	

In the approach that will be advocated in Section 4, we need not be so concerned with the acquisition of the syntactic operation of *wh*-movement per se, but rather of the complementizer that triggers *wh*-movement. We'll see in greater detail in Section 4 how to use the features involved in *wh*-questions to explain the transfer effects found by Yip and Matthews.

3.2 The monolingual and bilingual data

We have already seen the gist of Y&M's main findings in passing. Y&M (2000) look at particular constructions produced by the bilingual child Timmy and argue that while his Cantonese is completely unaffected by his English (i.e. all of his Cantonese *wh*-questions are well-formed, in-situ questions), his English is affected by his Cantonese. Y&M find quantitative effects of transfer in the form of higher rates of *wh*-in-situ compared to monolingual English-speaking children, and qualitative effects of transfer in the form of pragmatically illicit *wh*-in-situ questions, i.e. non-echoic *wh*-in-situ questions. Y&M (2007) expand their original study to include six other bilingual children (whose transcripts form the Yip/Matthews corpora on CHILDES (*cf.* MacWhinney, 2000)). Their results confirm their earlier case study of Timmy; the bilingual children produce far more *wh*-in-situ questions than monolingual English-speaking children, and these in-situ questions are pragmatically illicit.

In the remainder of this section, I offer some additional insights from the Yip/Matthews corpora that suggest an enrichment of our current models of cross-linguistic influence. I looked at the same seven children from Y&M (2007), as well as four monolingual English-speaking children (Adam, Brown corpus; Eve, Brown corpus; Naomi, Sachs corpus; Nina, Suppes corpus), but for reasons of space, will limit my focus to the bilingual child Timmy (Yip/Matthews corpus) and the monolingual child Adam (Brown corpus). Timmy was the focus of Yip and Matthews' (2000) study, and as already discovered by Y&M, he exhibits the greatest "transfer" effects of the seven bilingual children. Adam on the other hand produces the greatest number of *wh*-

⁶ A theoretical question is whether two complementizers ought to be differentiated in Cantonese, i.e. both may have the weak *wh*-feature, allowing the *wh*-phrase to stay in situ, but one would be used specifically in the same Common Ground contexts as English. Yet another possibility, assuming that lexical items do not have language-specific features, e.g., [+Cantonese] or [+English], is that the Common Ground complementizer is the same as the Cantonese question complementizer, with additional semantic/pragmatic constraints on its use. For simplicity, I assume the three question complementizers in Table 1.

questions of the four monolingual children I looked at, and provides a good contrast to the bilingual child Timmy.

My examination of Timmy's *wh*-productions confirm a couple of Y&M's findings, namely that he does produce a larger proportion of *wh*-in-situ compared to monolingual English-speaking children, that the cross-linguistic influence is indeed unidirectional (from Cantonese to English), and that he is indeed Cantonese-dominant as determined by MLUw. In addition however, I would like to focus on the following: while Timmy does indeed produce quite a few *wh*-in-situ questions in his English, when we look more closely at these in-situ questions, a fraction of them are in fact pragmatically licit.⁷ I extracted all questions containing *what* in object position,⁸ and of the 65 that had the *what* in its base (object) position, 11 of them were pragmatically licit.⁹ The proportion of illicit *wh*-in-situ questions constituted a little over 50% of Timmy's *wh*-questions.¹⁰ Below are some examples of the pragmatically licit *wh*-in-situ questions:

- (9) Timmy, *te961118*, line 741 (3;05,28)
 *LIN: let me call the police, shall we call the police ? To come ?
 *CHI: come and do what .
- (10) Timmy, *te961216*, line 302 (3;06,25)
 *BEL: otherwise the daddy is coming out .
 *LIN: yeh, is gone now .
 *CHI: going to the what .
 *LIN: going to the station right, the police station .

The main findings from Timmy's corpora are the following: (i) Timmy's dominant language (Cantonese) appears to influence his less dominant language (English); (ii) this influence is unidirectional; (iii) Timmy produces some number of illicit *wh*-in-situ and licit *wh*-in-situ in his English.

Next, consider the monolingual English data. Of the four children I looked at, only Adam produced a non-negligible number of *wh*-in-situ in his English;¹¹ of the 120 *what*-in-situ questions he produced, 109 were judged to be

⁷ Y&M note that they excluded echoic uses of *wh*-questions in their analysis, so as not to attribute them to transfer.

⁸ In discussing the findings, I will refer to *wh*-in-situ questions, but note that I only looked at questions involving *what* in object position.

⁹ I judged the questions as either pragmatically appropriate or inappropriate; two other native speakers of English also judged the utterances (without knowing which child produced them or at which age they were produced). Each question was presented with as much preceding/following discourse context as was relevant to the question being asked.

¹⁰ Y&M excluded questions such as, "This is what?" as formulaic; since I counted "What is this?" as a well-formed *wh*-movement question, I also counted "This is what?" as a *wh*-in-situ question, with its acceptability dependent on the context. Note that this discrepancy results in slightly different numbers between what is presented here, and what is presented in Y&M's results.

¹¹ Eve and Naomi produced no *what*-in-situ questions, while Nina produced three.

pragmatically appropriate. Adam produced over 2000 *what*-object questions throughout his corpora; less than 0.5% of these constituted illicit *wh*-in-situ questions. In short, Adam generally does not produce *wh*-in-situ errors.¹² While he does produce *wh*-in-situ questions, these are generally pragmatically licit, i.e. licensed in the adult grammar. Some examples follow:

- (11) Adam, Transcript 34, line 2051 (3;07,07)
 *CHI: what you use them for ?
 *URS: you paste them together .
 *CHI: so you can what ?
 *URS: you can make a bracelet with paper clips .
- (12) Adam, Transcript 35, line 2730 (3;08,00)
 *MOT: look at that stretching .
 *CHI: huh ?
 *CHI: look at dat what ?
 *MOT: stretching .
 *CHI: like a stretching man ?
 *MOT: have you ever seen a stretching man ?

To summarize, the main findings to be accounted for are the following: (i) the bilingual child produces illicit *wh*-in-situ in his English, where the monolingual English-speaking children do not; (ii) the apparent “transfer” from Cantonese to English is unidirectional; (iii) the monolingual English-speaking child does produce *wh*-in-situ questions, but these are pragmatically licit, i.e. licensed in the adult grammar.

4. Proposal

4.1 Inspiration from code-switching (MacSwan, 2000)

The account of cross-linguistic influence I would like to propose is inspired by MacSwan’s work on code-switching in the speech of adult bilingual speakers. Previous work on code-switching has found that intrasentential code-switching (i.e. switching below the sentential level) at some boundaries is licit, while code-switching at other boundaries is not, as seen in (13).

- (13) a. The students *habían* visto *la* *película italiana*
 The students had seen the Italian movie
- b. * The student had visto *la* *película italiana*
 The student had seen the Italian movie

(Belazi, Rubin & Toribio, 1994; cited by MacSwan, 2000:38)

¹² Nor do the other three monolingual children; Nina’s two illicit *what*-in-situ questions constitute less than 0.3% of her *what*-question productions.

Much of the work on code-switching has consequently been dedicated to deriving the constraints that act on intra-sentential code-switching. While earlier approaches proposed constraints that govern the interaction of the two language systems (*cf.* Poplack, 1980, 1981; Poplack & Sankoff, 1981), essentially postulating the existence of a “third grammar” (Mahootian, 1993; MacSwan, 2000), MacSwan offers what can be seen as the simplest explanation of the data. He suggests that intra-sentential code-switched utterances are constrained in the same way that non-code-switched, monolingual utterances are. That is, the grammatical constraints that rule out ungrammatical monolingual utterances are also responsible for ruling out unacceptable code-switched utterances. Following Chomsky’s minimalist program (Chomsky, 1995), MacSwan assumes that in both cases, a mismatch of features will result in a cancelled (crashed) derivation. In building up a derivation, a bilingual speaker can choose lexical items from the lexicon of either language; what is important, just as in monolingual utterances, is that all features must be checked in the course of the derivation. MacSwan’s model of the bilingual language faculty is as follows: bilinguals have two separate lexicons (different vocabularies, different principles of word formation, separate phonological systems); however, there is no doubling of syntactic/computational operations such as Select, which select from the union of the two lexicons to contribute to the Numeration.

- (14) *Components of the bilingual language faculty* (MacSwan, 2000:52)
 Lexicon (L_x) (with internal rules of word formation)
 Lexicon (L_y) (with internal rules of word formation)
 Computation System for Human Language (C_{HL})
 Select
 Overt component
 Covert component
 Phonological component (L_x)
 Phonological component (L_y)

The lexically encoded features of each item in the Numeration must be checked in the course of a convergent derivation; crucially, the same constraints that rule out non-convergent derivations in a “monolingual” or non-code-switched utterance are the same as those that act on code-switching. In (15), the Spanish verb *quiere* is already inflected, and cannot discharge its tense feature, since tense is already represented in *doesn’t*. In this sense, (15) and (16) are ill-formed for the same reason.

- (15) *He doesn’t *quiere* *ir* (MacSwan, 2000:48)
 He doesn’t want/3Ss go/INF
 ‘He doesn’t want to go’
- (16) *He doesn’t want_s to go

What constrains code-switching is therefore the requirement that the features of every lexical item in the Numeration be checked in the course of the derivation.¹³ Let us now consider how we can apply MacSwan's model to child bilingual acquisition. Studies such as Lillo-Martin et al. (2009) have appealed to MacSwan's model in accounting for cross-language influence, since it makes explicit connections between the two languages of bilinguals. Such a model allows us to look at cross-linguistic influence in a different light; the key is the assumption that the language faculty of a bilingual child is identical to that of a monolingual child, except for the fact that there are two lexicons (and two phonological systems associated with them). We are now in a position to re-examine transfer effects; I suggest that these are in fact the result of a kind of code-switching, or rather that they are similarly constrained. In the next section, I apply such a model to the bilingual acquisition of *wh*-questions.

4.2 Completing the model

First, recall the particular lexical items and syntactic features that are involved in the formation of *wh*-questions in English and Cantonese (Table 1). English has two question complementizers (one with a weak *wh*-feature, one with a strong *wh*-feature), while Cantonese has only one question complementizer (with a weak *wh*-feature). Looking at the syntactic features that are behind *wh*-question formation in English and Cantonese offers us a way of making explicit the explanation of *what* bilingual children are doing when they produce utterances that involve "transfer". Consider first a *wh*-question produced by a monolingual English-speaking child. She has in her lexicon a regular question complementizer that triggers *wh*-movement; if she selects this C, the *wh*-phrase will have to move to the Spec of CP in order to check the strong *wh*-feature on C. Alternatively, if the context is appropriate,¹⁴ she can select the Common Ground complementizer, which will allow the *wh*-phrase to remain in situ.

Now consider how a bilingual child produces a *wh*-question in English. Recall that the bilingual child has the same syntactic/computational system as the monolingual child, but two separate phonological/morphological systems, as well as the union of the lexicons of her two languages. When she builds up her English *wh*-question, she can actually choose from three different question

¹³ MacSwan's story is not quite as simple as this. Since the Phonological Component is different in nature from the syntax, building structure in a way that makes reference to specific morphological material with its phonetic content, code-switching at PF is constrained differently (in fact, banned, according to MacSwan). These details are not crucial to the immediate discussion, but they do offer a way of ruling out examples such as (13b); see MacSwan's paper for more details.

¹⁴ Pires and Taylor (2007) suggest that *wh*-in-situ questions in English must satisfy a Common Ground Requirement: the information being requested must be expected (by the speaker) to be part of the Common Ground (p. 205). Further details need to be developed, but the authors show that at least the syntax of these *wh*-in-situ questions is relatively straightforward – there is no movement, neither overt nor covert. Any other conditions on the use of these questions are therefore semantic/pragmatic in nature.

complementizers.¹⁵ Selecting the regular question complementizer triggers *wh*-movement; selecting the Common Ground complementizer (in the appropriate pragmatic contexts) allows the *wh*-phrase to remain in situ; finally, selecting the Cantonese question complementizer results in an illicit *wh*-in-situ question.

Now we can explain the monolingual and bilingual data sets. Adam produces questions with *wh*-movement (via selection of the regular question complementizer with the strong *wh*-feature) and grammatical *wh*-in-situ questions (via selection of the Common Ground complementizer). Given that he has only the two question complementizers in his lexicon, he simply does not have any choice other than these two categories of *wh*-questions, and this is reflected in his production (assuming the <.05% of illicit *wh*-in-situ is negligible).

Next consider the bilingual child's data. Timmy produces three categories of *wh*-questions in English: he produces questions with *wh*-movement (via selection of the regular question complementizer with the strong *wh*-feature); he produces some grammatical *wh*-in-situ questions (via selection of the Common Ground complementizer); finally, and in contrast to the monolingual data set, Timmy also produces a large number of illicit *wh*-in-situ questions. I argue that these are the result of selecting the Cantonese question complementizer, which is only available to the bilingual child, and not to the monolingual English-speaking child. When the bilingual child is building his *wh*-question, he can select the Cantonese question complementizer, and the weak feature allows the *wh*-phrase to remain in situ. Assuming *wh*-phrases do not carry language-specific features (e.g., [+English] vs. [+Cantonese]), the *wh*-feature on *what* will be able to satisfy the weak feature on the Cantonese question complementizer in the same way that the Cantonese equivalent of *what* would.

Now that we have seen what happens in the production of *wh*-questions, we need to further constrain the possibilities to account for the directionality of the observed transfer effects. None of the bilingual children produced a moved *wh*-question in their Cantonese. If the bilingual children have access to all three question complementizers, why is it that they never select the English complementizer with the strong *wh*-feature in forming their Cantonese questions? It is here that I would like to bring both Hulk and Müller's model and Yip and Matthews' account back into the picture.

4.2.1 Surface overlap as feature overlap

Let's start with H&M's second condition concerning surface overlap, repeated below:

¹⁵ As I alluded to in an earlier footnote, there is an interesting theoretical question here as to whether we ought to consider the Common Ground complementizer in English as (syntactically) equivalent to the question complementizer in Cantonese, since they both have a weak *wh*-feature; the use of this question complementizer would simply have additional pragmatic conditions on its use in English. I do not pursue this idea here.

- (17) Syntactic cross-linguistic influence occurs only if language A has a syntactic construction which may seem to allow more than one syntactic analysis and, at the same time, language B contains evidence for one of these two possible analyses. In other words, there has to be a certain overlap of the two systems at the surface level.

(H&M, 2000:228-229)

I suggest that we can enrich this condition by making specific reference to the features involved. In the case of *wh*-questions, the “overlap” between the two languages comes down to the fact that they both have a question complementizer with a weak *wh*-feature. On the surface, the child receives ambiguous input in English (i.e. she hears both *wh*-movement and *wh*-in-situ) and completely unambiguous input in Cantonese (i.e. she hears only *wh*-in-situ in Cantonese). In fact, this is the direct consequence of the lexical items and features involved: English has a question complementizer with a weak *wh*-feature, as does Cantonese; as a result, the uncertain bilingual child may select the ‘wrong’ question complementizer (i.e. the Cantonese one) in building up an English *wh*-question, resulting in an illicit *wh*-in-situ question. In contrast, Cantonese only has the one question complementizer with the weak *wh*-feature; it does *not* share the question complementizer with the strong feature that is found in English. I suggest then that the surface overlap is driven by a very specific arrangement of lexical items and their respective features; the consequence of this, now back in line with H&M’s original proposal, is an input ambiguity (in English) that can trigger confusion. Given that the Cantonese input is unambiguous however, the child should never confuse the complementizers in Cantonese questions.

To sum up then, input ambiguity, which boils down to the overlap of specific syntactic features between the two languages, contributes to whether or not the bilingual child might accidentally select the wrong item, resulting in a non-target-like structure. Surface overlap (feature overlap, under our system) is necessary for cross-linguistic influence, but does not in itself guarantee influence. It thus only offers us half of the story, i.e. precisely *what* children are doing when they exhibit cross-language influence. There must be another half to the story that allows us to explain why, in cases where the feature overlap condition is met, bilingual children go on to exhibit cross-linguistic influence.

4.2.2 Language dominance as fluency

According to Yip and Matthews, periods of greater Cantonese dominance (as measured by MLUw) corresponded to greater use of *wh*-in-situ in English. Almost all of the seven bilingual children they looked at in their (2007) study were also Cantonese-dominant. Until we have access to data from English-dominant bilinguals, we cannot satisfactorily rule out the role of language dominance. But what does it mean for the dominant language to affect the less dominant language? The account I pursue in this paper implies that there is no real way in which one language *influences* another; it is purely a matter of the lexical items and features that are involved that give rise to the apparent

‘transfer’ patterns that we see. Under such an account, nothing is transferring from the Cantonese linguistic system to the English linguistic system; it is in the course of the derivation itself that the child happens to select a Cantonese item, resulting in a non-target-like construction.

However, given that the bilingual children examined were not perfectly balanced bilinguals, I suggest that there is indeed something to the notion of language dominance, namely the part of dominance that has something to say about a bilingual child’s relative proficiency in her two languages. This notion plays directly to the question of how and why the bilingual child can get “confused” enough to select the wrong lexical item, resulting in a non-target-like construction. I suggest that what is important about being ‘less dominant’ in one of the languages (say, language B) is not so much that the child is less dominant in B relative to the other language, but rather that the child may be less fluent in B than a monolingual learner of B. The notion of fluency in bilingualism is not novel. Cantone and Müller (2005) and Cantone (2007) make reference to the notion of fluency in child bilingualism, and it is their particular approach that I believe proponents of the language dominance account should pay attention to.

Cantone and Müller (2005) study early mixing in bilingual children younger than 2;06 and suggest that the operation *Select* may be vulnerable in child language. Cantone (2007) goes on to suggest that since *Select* can pick words from both lexicons rather than just one, *readiness* or language *fluency* (measured by the total number of utterances per recording) can be related to language mixing. As soon as *fluency* is achieved in the respective language, mixing decreases. Cantone and Müller correlate the percentage of mixed utterances in their sample of four children with the total number of utterances for all recordings until the age of 3;00. They find that mixing clearly decreases the higher the total number of utterances. The authors conclude that language mixing in young bilinguals can thus be grounded on performance factors rather than on language-internal ones.¹⁶ Such a result can be extended to our present study; the only difference is that the mixing involves a phonologically null element, namely the question complementizer. We can thus explain both the Cantonese and the English patterns. If *dominance* can be tied to *fluency*, we can explain the unidirectionality of the influence; the bilingual children’s dominance in Cantonese is reanalyzed as their fluency in Cantonese. Since they are more fluent in Cantonese, they do not demonstrate ‘mixing’ of the complementizers, i.e. they do not *Select* the English complementizer in their Cantonese questions. The bilingual children are less fluent in their English, and thus ‘mix’ their complementizers, i.e. *Select* the Cantonese complementizer in their English-questions, resulting in *wh*-in-situ questions that monolingual children do not produce. Note that this makes the prediction that the rates of *wh*-in-situ should decrease with the bilingual children’s increasing fluency in English.¹⁷ Note also

¹⁶ As I allude to in the conclusion, I do not think that a purely performance-based approach captures the entire story.

¹⁷ This prediction would be very interesting to test with longitudinal corpora that extend beyond early childhood, perhaps well into the school years.

that this kind of approach can account for variation in rates of influence among bilinguals.

5. Conclusion

In this paper, I have looked at one particular case of cross-linguistic influence documented by Yip and Matthews (2000, 2007) concerning the formation of English *wh*-questions by Cantonese-English bilingual children. These authors found unidirectional transfer effects from Cantonese to English, with the bilingual children producing greater rates of *wh*-in-situ when compared to monolingual English-speaking children. I have proposed that this result is in fact the consequence of both language-internal and language-external factors. On the one hand, I have argued that the specific pattern of the observed illicit *wh*-in-situ in the bilingual productions is the result of the bilingual child having access to the Cantonese question complementizer. On the other hand, I have suggested that the fact that a child actually goes on to produce such constructions, given that she has the possibility of doing so, is connected to her fluency in English. The bilingual children examined were less dominant in their English than their Cantonese; I have suggested that what is important is not so much the relative dominance, but rather the fluency in the language in question. Since the bilingual children observed were less fluent in English, their Select operation was more vulnerable (Cantone and Müller, 2005), leading to the increased possibility of selecting the wrong item.

In summary, this account offers a more explicit explanation of what exactly is happening when bilingual children produce non-target-like constructions that appear to be the result of cross-linguistic influence. It explains the patterns produced by bilingual children by making explicit reference to the syntactic features that are behind the constructions. Finally, it reconciles this language-internal explanation with the language-external notion of fluency. We have successfully accounted for the patterns found in a very specific domain of grammar, with a specific language pair. What remains to be seen is whether this approach can be successfully extended to other bilingual phenomena that have been associated with transfer or cross-linguistic influence.

References

- Belazi, H. M., Rubin, E.J. and Toribio, A.J. 1994. "Code switching and X-bar theory: The Functional Head Constraint." *Linguistic Inquiry* 25(2):221-237.
- Brown, Roger. 1973. *A First Language: The Early Stages*. Cambridge, MA: Harvard University Press.
- Cantone, Katja F. 2007. *Code-switching in Bilingual Children*. Dordrecht, Netherlands: Springer.
- Cantone, Katja F. and Natascha Müller. 2005. "Code-switching at the interface of language-specific lexicons and the computational system." *International Journal of Bilingualism* 9(2):205-225.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.

- De Houwer, A. 1990. *The Acquisition of Two Languages from Birth: A Case Study*. Cambridge: Cambridge University Press.
- Döpke, S. 1997. "Is the simultaneous acquisition of two languages in early childhood equal to acquiring each of two languages individually?" In E. Clark, ed., *Proceedings of the 28th Annual Child Language Research Forum*, pp. 95-113. Stanford Linguistic Forum.
- Gawlitzek-Maiwald, I. & Tracy, R. 1996. "Bilingual bootstrapping." *Linguistics* 34:901-926.
- Genesee, Fred. 1989. "Early bilingual development: one language or two?" *Journal of Child Language* 6:161-179.
- Genesee, Fred., N. Nicoladis, and J. Paradis. 1995. "Language differentiation in early bilingual development." *Journal of Child Language* 22:611-631.
- Hulk, Aafke and Natascha Müller. 2000. "Bilingual first language acquisition at the interface between syntax and pragmatics." *Bilingualism: Language and Cognition* 3(3):227-244.
- Hulk, A. and E. van der Linden. 1996. "Language mixing in a French-Dutch bilingual child." In E. Kellerman, B. Weltens and T. Bongaerts, eds., *EUROSLA 6: A selection of papers*, pp. 89-101. Utrecht: Vereniging voor Toegepaste Taalwetenschap.
- Lai, Regina Yee King. 2006. *Language mixing in an English-Cantonese bilingual child with uneven development*. Masters thesis, The University of Hong Kong.
- Lillo-Martin, Diane, Ronice Müller de Quadros, Helen Koulidobrova, and Deborah Chen Pichler. 2009. "Bimodal bilingual cross-language influence in unexpected domains." To appear in *Proceedings of GALA 2009*.
- MacWhinney, B. 2000. *The CHILDES Project: Tools for Analyzing Talk. 3rd Edition*. Mahwah, NJ: Lawrence Erlbaum Associates.
- MacSwan, Jeff. 2000. "The architecture of the bilingual language faculty: evidence from intrasentential code switching." *Bilingualism: Language and Cognition* 3(1):37-54.
- Matthews, Stephen and Virginia Yip. Forthcoming. "Relative clauses in early bilingual development: Transfer and universals." In Giacalone, A., ed., *Typology and Second Language Acquisition*. Mouton de Gruyter.
- Meisel, J. 1989. "Early differentiation of languages in bilingual children." In K. Hyttenstam and L. Obler, eds., *Bilingualism across the lifespan: aspects of acquisition, maturity, and loss*, pp. 13-40. Cambridge: Cambridge University Press.
- Paradis, Johanne and Fred Genesee. 1996. "Syntactic acquisition in bilingual children: autonomous or interdependent?" *Studies in Second Language Acquisition* 18:1-25.
- Pires, Acrisio and Heather Lee Taylor. 2007. "The syntax of *wh*-in-situ and Common Ground." Submitted to *Romance Languages: Structure, interfaces, and microparametric variation: Proceedings of the 37th Linguistic Symposium on Romance Languages*. Amsterdam: John Benjamins, 15 pages.
- Sachs, Jacqueline. 1983. "Talking about the there and then: The emergence of displaced reference in parent-child discourse." In K.E. Nelson, ed., *Children's Language, Vol. 4*, Hillsdale, NJ: Lawrence Erlbaum Associates.
- Suppes, Patrick. 1974. "The semantics of children's language." *American Psychologist* 29:103-114.
- Yip, Virginia and Stephen Matthews. 2000. "Syntactic transfer in a bilingual child." *Bilingualism: Language and Cognition* 3(3):193-208.
- Yip, Virginia and Stephen Matthews. 2007. *The Bilingual Child: Early development and language contact*. Cambridge University Press.