

A Continuum-based Model for Insertional Code-Switching

Japanese Nominal Insertion in English Matrix Language Frames

Kazuhiko Namba
Kyoto Sangyo University

This study explores one of the structural aspects of code-switching (CS) in two typologically distant languages, English and Japanese. Only the ‘insertion’ type of CS is dealt with, since it entails grammatical interaction between the two languages. Data collected from a pair of English-Japanese bilingual siblings’ CS are analyzed using Myers-Scotton’s MLF and 4-M models (2002), which are insertion frameworks. Viewed from the perspective of EL activation, the study identifies a continuum from borrowing to single-item insertion, to multi-item insertion. The study also investigates whether the matrix language (ML) can be identified using the System Morpheme and Morpheme Order Principles. The combination of the two Principles works well when the EL activation level is low. However, the System Morpheme Principle does not work in cases where the EL is fully activated. Based on this study, it is suggested that the MLF model can be subsumed under the continuum-based model.

この研究は、英語と日本語という典型的に離れた言語間のコードスイッチング(CS)の文法構造面についてのものである。言語間で文法の相互作用が起こる「挿入」タイプのCSに焦点が当てられ、英-日バイリンガル兄弟の自然な会話のCSデータを(使い、「挿入」の枠組であるMyers-ScottonのMLFモデルと4-Mモデル(2002)で分析された。埋め込まれた言語(EL)の活性化の視点からデータを見ると、借用語から単独アイテム挿入、さらに複数アイテムの挿入は、連続体としてとらえることができ、借用語と単独アイテム挿入を区別できないことがわかった。また、母体言語(ML)を判別するのに、システム形態素・形態素順序原則を使って判別できるのか検証されたが、EL活性化のレベルが低いときは、二つの原則は有効であるが、ELが完全に活性化しているときには、システム形態素原則は有効でないケースが見られた。このことから、MLFモデルは、連続体のモデルの中に取り込むことができることが示唆された。

Introduction

For many people or communities, the use of two or more languages in a conversation, i.e. code-switching (CS hereafter), is not an extraordinary phenomenon but the norm (Baker & Jones, 1998, p. 59). This being the case, linguistic research should not underestimate the importance of understanding the mechanisms that underlie code-switching. In interactions between bilinguals, we need to look at how CS is influenced by the two sets of grammar in use.

In order to explore some of the structural aspects of CS, the present study is based on code-switched data between two typologically distant languages—English and Japanese. Naturalistic conversational data from two English/Japanese bilingual siblings were collected through audio-recordings of unsolicited speech. The focus of the current

analysis is limited to the ‘insertion’ type of CS (Muysken, 2000), which will be analyzed within the framework of Myers-Scotton’s MLF model (1997, 2002). Specifically the most frequently observed pattern, the insertion of Japanese nominal items into the English grammatical frame, will form the main focus of this study. One of the controversial issues, the distinction between borrowing and CS, is explored using Treffers-Daller’s (2005) continuum model. This approach using the MLF and 4-M models and continuum models fills a gap left by other Japanese-English grammatical CS studies (Azuma 1993, Fotos 1995, Nishimura 1997), which employed earlier models. Takagi’s study (2000) employs the MLF and 4-M models but it does not focus on the continuum. The use of naturalistic data from bilingual children’s CS fills another gap because, apart from Fotos, the data in the other studies are mainly taken from interviews and elicitation. Since the data were collected from young children who were not as proficiently bilingual as adult speakers, and CS might have occurred due to lexical gaps in one of their languages. Employing young children’s data for CS analysis can be criticized as one of the study’s weaknesses. However, according to Miccio, Hammer, & Rodriguez (2009, p. 247), if children can produce utterances longer than three words, most of their code-switched utterances are grammatically correct. In fact, the use of children’s CS data can also be seen as an advantage (Müller & Cantone, 2009, p. 204) because child speech is less influenced by other external factors such as attitudes toward bilingualism or the relative status of the languages.

Theoretical Background

A Definition of Code-Switching

Of all the language contact phenomena—including transfer, borrowing, convergence, and pidginization—code-switching has perhaps most attracted linguists’ attention. The following example from the author’s corpus exemplifies a switch of language based on the intended primary recipient.

Example 1

(T comes to dinner table and talks to his mother.)

T>M: Mummy, I don’t feel very hungry.

(T turns to his father)

T>F: *Daddy, boku wa zettai onakasui-te-nai n da*
 I TOP absolutely hungry-CONN-NEG SNP COP
 {Daddy, I’m not hungry at all.}

(Namba, 2008, p. 184)

While most people can appreciate the necessity for code-switching when the addressee changes, mixing languages at the sentence level is often criticized by monolingual parents, grandparents and teachers. Early bilingualism researchers were critical of intra-sentential switching: Weinreich, (1953, p. 73) argued that “the ideal bilingual switches from one language to another according to appropriate changes in the speech situation (interlocutors, topics, etc.), but not in an unchanged speech situation and certainly not within a single sentence.” However, in contrast to Weinreich’s view, a growing number of studies have shown evidence of proficient bilingual speakers employing CS at different levels (discourse, sentence, word, and morpheme) in an unchanged setting (e.g. Poplack, 1980/2000). Example 2 shows CS at the word level, i.e. the insertion of ‘tongue’ and

‘feel’, and Example 3 shows CS at the phrase level, i.e. the insertion of ‘*nihongo de* (in Japanese)’.

Example 2

T > F : *chotto ba no shita ni tongue de ana ga feel dekiru*
 little tooth of under at with hole ACC can
 {I can feel a hole a little with my tongue under a tooth.}
 (Namba, 2008, p. 107)

Example 3

What do you call it *nihongo de*
 Japanese in
 {What do you call it in Japanese?}
 (Nishimura, 1997, p. 123)

Taking into consideration that CS can happen in a variety of forms, the present study will assume a more inclusive view than Weinreich’s ‘ideal code-switcher’. Following Bullock and Toribio (2009, p. xii), it will view code-switching as “the alternating use of two languages in the same stretch of discourse by a bilingual speaker.” This definition allows switching at various levels of linguistic element, e.g. a morpheme or sentences. In addition, it identifies CS as a bilingual speaker’s product.

A Typology of Code-Switching

As shown in Examples 1, 2 and 3, CS can take a variety of forms. Poplack (1980/2000, p. 243) classifies these forms according to whether CS occurs between or within sentences. If a switch occurs between sentences as in Example 1, it is identified as “inter-sentential CS”, whereas if a switch takes place within a sentence as in Examples 2 and 3, it is “intra-sentential CS”. The underlying grammatical constraints that affect intra-sentential CS have been the focus of a variety of research (Disciullo, Muysken, & Singh, 1986; Poplack, 1980/2000; Muysken, 2000; Myers-Scotton, 1997).

Muysken (2000) further categorizes intra-sentential CS into three types. The first type is ‘insertion’ in which a single constituent, either a single word or a multi-word item, is inserted into the base or matrix language, as is the case in Examples 2 and 3 above. The second type of intra-sentential CS is ‘alternation’. This occurs when the speaker changes languages in the middle of his or her utterance. Some patterns of inter-sentential CS, such as Example 1 above, can be categorized as this type. Furthermore, alternational CS can also occur halfway through a clause, as in the following example:

Example 4

E>F: I want to be *goorukkipaa ni nari-tai*
 goal keeper RSL become-DESID/PRES
 (Namba, 2008, p. 165)

The third type of intra-sentential CS, according to Muysken, is *congruent lexicalization*, “where the two languages share a grammatical structure which can be filled lexically with elements from either language” (Muysken, 2000, p. 6). He points out that style shifting and dialect/standard variation are similar to congruent lexicalization. These three types of process are “constrained by different structural conditions, and are operant to a different extent and in different ways in specific bilingual settings” (p. 3).

Borrowing or Code-Switching

One of the issues in the study of code-switching is the status of single-item insertion. Poplack and Meechan (1995) argue that the insertion of “lone other-language items” (p. 200) is ‘borrowing’ and should be distinguished from longer stretches of switches, which they define as code-switching. They propose that if other language items are morphosyntactically integrated into the recipient language, the phenomenon should be identified as lexical borrowing. If these items are not established loanwords in the recipient language, they should be classified as “nonce-borrowings” (Poplack & Meechan, 1998, p. 131), which means ‘one-off’ borrowings.

Other researchers (Myers-Scotton, 1997; Treffers-Daller, 2005) do not distinguish between lexical borrowing and CS as different processes. Myers-Scotton (1997) argues that borrowed forms and singly occurring CS forms go through the same ML morphosyntactic procedures (p. 206). However, “the *lexical entries* of CS and borrowed forms must be different, since borrowed forms become part of the mental lexicon of the ML, while CS forms do not” (p. 163, original emphasis).

Muysken (2000, p. 60) claims that borrowing, nonce-borrowing and CS of grammatical constituents all fall within the category of insertion. Furthermore, he shows two dimensions from which CS and borrowing can be viewed: 1) whether a particular case occurs at the above-word level or the below-word level; 2) whether a particular element is part of a memorized list or not, i.e. whether it is reproductive or creative. Muysken provides the following table in order to illustrate these dimensions.

Table 1: The distinction between borrowing and code-switching (Muysken, 2000, p. 72)

	not listed	listed
above-word level	code-switching	conventionalized CS
below-word level	nonce borrowing	established borrowing

As Table 1 shows, nonce borrowing can be placed somewhere between borrowing and CS, i.e. borrowing and CS cannot be clearly distinguished. Muysken (2000, p. 81) treats noun phrase (NP) insertions as prototypical patterns of insertion and shows a variety of levels, such as a single noun to a full Determiner Phrase (DP). Based on Muysken’s (2000) framework of insertion, Treffers-Daller (2005) proposes that “there is a continuum from borrowing to code[-]switching” (p. 500). Her study of French nominal items inserted in Brussels Dutch puts forward a continuum of insertion which starts with borrowed single-nouns, and moves through mixed compound nouns and nominal groups without determiners, before ending with full DPs.

Previous Studies of Japanese-English CS

The study of Japanese–English CS, especially from the perspective of grammatical constraints, may offer significant insights because there are typological differences between these two languages (Nishimura, 1997, p. 2); therefore, the role of each language can be easily distinguished. However, many studies on Japanese–English CS have focused on sociolinguistic aspects and, to the best of my knowledge, there have been only a handful of studies on the structural aspects of Japanese–English code-switching (Azuma, 1993, 1996; Fotos, 1995, 2001; Namba 2008; Nishimura 1997; Takagi, 2000, 2006, 2008).

Azuma (1993) conducted a study on second generation Japanese Americans in the United States and proposed his own model called ‘the frame content hypothesis’,

which is an antecedent to Myers-Scotton's MLF model and can now be viewed as being subsumed by the MLF model.

Nishimura (1997) also focused on second generation Japanese in North America. She employs the government-constraint model (Disciullo, Muysken, & Singh, 1986) which she finds too restrictive to account for her Japanese-English data. Nishimura suggested that the directionality of the head must be maintained, although its complement and adjunct can be inserted from either language (1997, p. 127). For example, an English preposition, the head of a prepositional phrase, should be followed but not preceded by either an English or Japanese NP.

Fotos' study (1995) employed spontaneous speech data recorded from two sets of participants, balanced English-Japanese bilingual children and EFL learners in Japan. She maintained that both groups show similar patterns of CS. Single items were the most frequently switched, although the balanced bilinguals' switching was more even than that of the EFL learners (p. 13).

The 4-M model and a newer version of the MLF model are applied in Takagi's (2000, 2006, 2008) study. Her participants were successive bilinguals who were born in Japan and later moved to England. Takagi asked the participants to tell stories in one language and then in the other language so they had control over the choice of language for narration. One limitation of Takagi's study is that the participants are in the monolingual language mode (Grosjean, 2001), so it does not cover CS in the bilingual language mode, a form of speech in which more patterns of CS can be found (Treffers-Daller, 1998).

The MLF Model

The author considers Myers-Scotton's MLF model (1997, 2002) an appropriate framework to account for the insertion type of CS. The unit of analysis is the complementizer projection (CP hereafter), which is an independent or dependent clause, since this is where any structural issues will arise.

In the MLF model, the status of the two participating languages is not equal. Myers-Scotton argues that in any given utterance, one language provides the grammatical frame of the bilingual clause, which is called the matrix language (ML) and the other language, known as the embedded language (EL), is inserted into it (Myers-Scotton, 1997, p. 98). Morphemes¹ in each language can be categorized into content and system morphemes. Content morphemes, such as nouns, verbs, adjectives and some prepositions, express semantic and pragmatic aspects and assign or receive thematic roles such as agent, patient or recipient. On the other hand, system morphemes, e.g. function words and inflections like '-ing', express the relation between content morphemes and do not assign or receive thematic roles.

Myers-Scotton views the ML-EL relationship as psycholinguistically motivated. "[T]he grammars of both languages must be 'on' (Myers-Scotton, 2002, p. 156), however "the ML is more activated since it projects the overall frame for the relevant CP" (Myers-Scotton & Jake, 1995, p. 1017). This notion can be accounted for in terms of the activation of what Grosjean (2001, p. 3) calls the bilingual language mode. When a bilingual interacts with another bilingual who shares the same languages, both languages are activated, whereas when the same bilingual interacts with a monolingual who shares one of the languages, s/he is in the monolingual language mode and only one language is activated.

Myers-Scotton proposes two principles which are crucial in identifying the ML—the Morpheme Order Principle and the System Morpheme Principle. The Morpheme

Order Principle states that “[i]n ML+EL constituents consisting of singly-occurring EL lexemes and any number of ML morphemes, the surface morpheme order will be that of ML” (Myers-Scotton, 1997, p. 83). The following example of a bilingual clause shows six words in English and five words in Japanese. If we look at the syntactic order, i.e. Subject + Adverbial + Inflected Main Verb + Sentence final particle, we can see that the sentence is grammatically Japanese. Therefore, the morpheme order principle indicates that the matrix language of this bilingual clause is Japanese.

Example 5

This ice cream *wa* store *de* Food City *de* *kat-ta* *no*
 TOP at at bought FP
 {(We) bought this ice cream at (the) store, at Food City}

(Nishimura, 1997, p. 98)

The System Morpheme Principle, on the other hand, states that “[i]n ML+EL constituents, all system morphemes which have grammatical relations external to their head constituent will come from the ML” (Myers-Scotton, 1997, p. 83). In Example 6, only one English word exists in an otherwise Japanese sentence. At a glance, English does not appear to be the matrix language here. However, the English copula ‘is’ is a system morpheme and its form is decided by the subject (third person singular) which exists outside of the verb phrase. Therefore, according to the System Morpheme Principle, the matrix language of this bilingual clause is English.

Example 6

E > T *Uindamu* is *warui* to *yasashii*
 PropN bad and kind
 {*Uindamu* (robot’s name) is bad and kind}

Along with single EL items, multi-word EL items can also be inserted in the ML frame, e.g. *nibongo de* [in Japanese] in Example 3. Inserted EL items are located in the frame of the ML as a whole but also work together within the grammar of the EL. Insertions of this sort are called EL islands (2002, p. 139) by Myers-Scotton. When EL multi-word items are integrated in an ML phrase, e.g. an ML determiner + an EL N’ (Adj+N) in an ML noun phrase, they are called “internal embedded language islands” (Myers-Scotton, 2002, p. 149).

The 4-M Model

Having found counter-examples, such as the occurrence of system morphemes in the ML (e.g. Nishimura, 1997), Myers-Scotton & Jake (2000) further classify system morphemes into three subcategories in their 4-M model, reflecting the different activation stages in the mental lexicon and the formulator. According to Levelt’s speech production model (1989, p. 11-12), concepts of the speaker’s message are activated in the mental lexicon² and are then sent to the formulator where concepts are encoded grammatically into sentences.

If a system morpheme is activated early at the level of the mental lexicon, it is an early system morpheme. Examples of early system morphemes in English are determiners (a, the) and plural-s. If a system morpheme is activated later at the level of formulator, it is a late system morpheme, which can be subcategorized into two types.

Bridge late system morphemes integrate content morphemes into a larger constituent, e.g. ‘of’ and the possessive marker ‘-s’. Outsider late system morphemes appear depending on information outside the immediate phrase (Myers-Scotton & Jake, 2000, p. 100). For example, the third person singular –s is an outsider late system morpheme because ‘s’ is attached to the word according to the grammatical information of the subject, which is located outside the verb phrase. The three types of system morphemes and the content morphemes can be summarized according to the following table.

Table 2: Features of the four types of morphemes (based on Myers-Scotton 2002)

	content morphemes	early system morphemes	bridge late system morphemes	outsider late system morphemes
thematic role assigner/receiver	+	–	–	–
conceptually activated	+	+	–	–
refers to information outside the immediate phrase	–	–	–	+

In order to show examples of the four morphemes, the made up sentence ‘Simon’s dog likes chasing cats’ is analyzed in Example 7.

Example 7

Simon ’s dog like -s chas -ing cat -s.
 CM BLSM CM CM OLSM CM ESM CM ESM

CM = content morpheme
 ESM = early system morpheme
 BLSM = bridge late system morpheme
 OLSM = outsider late system morpheme

The nouns and lexical verbs are content morphemes which receive or assign thematic roles. The gerund suffix ‘-ing’ and the plural suffix ‘-s’ flesh out the meaning of the verb ‘chase’ and the noun ‘cat’ respectively; therefore, they are early system morphemes. The ‘s’ attached to ‘Simon’ is a possessive marker which connects two content morphemes, ‘Simon’ and ‘cat’, making them into an NP. This is a bridge late system morpheme. The other ‘s’ after the verb ‘like’ is the third person singular ‘s’. Its form depends on information outside its immediate phrase, i.e. the subject of the sentence. Therefore, this is an outsider late system morpheme.

Myers-Scotton (2002, p. 302) revises the System Morpheme Principle and proposes that only the outsider late system morphemes must come from the ML. That means occurrences of EL early system morphemes or bridge late system morphemes in an ML frame are allowed.

Research Questions

In order to build on the above studies into the grammatical aspects of code-switching, the following research questions will be explored in this paper.

- 1) Can instances of single nominal item insertion be reliably classified as lexical borrowing or code-switching?
- 2) Is there a continuum from borrowing to code-switching and from single noun insertion to full NP insertion?
- 3) Can the matrix language of nominal insertion patterns be effectively and consistently identified using the System Morpheme Principle and the Morpheme Order Principle?

Methodology

The Participants

The data in this study are taken from a longitudinal case study of two bilingual, bicultural children: T, the first child of a Japanese father and a British mother and E, the family's second child. T's and E's parents decided to raise their children bilingually and adopted the 'one parent-one language' strategy (Döpke, 1992), in which each parent always talked to the child in his or her native language, i.e. Japanese and English respectively.

Data

The data consist of two types of material. One is extensive audio-recordings of T's and E's spontaneous speech in naturalistic settings. Considering that the participants are children aged three to nine, it would not be appropriate to conduct experiments or interviews to elicit code-switched sentences. Recordings were made at frequent but irregular intervals, usually when the boys were involved in some activity such as playing with toys or discussing what was happening on TV. The other data type is a journal and notebooks (both paper and electronic), kept by both parents since T's birth. New features or deviant forms were noted in these journals as they appeared in the boys' speech.

The data selected for the present analysis were obtained when T was 5;9-9;3 and E was 3;3-6;9. There are several reasons for this selection. Firstly, T and E started playing by themselves for extended periods of time around this age. Therefore, it was reasonable to expect that interaction between them would occur. Secondly, prior to this period the family lived in Britain for one year and English was their dominant language of communication, which made observations of CS difficult. Finally, after this period, E entered the same international school as T, where English was the medium of education and once again English became the dominant language in their interaction.

For this period there are approximately 70 hours of recorded data. All the audio data were examined extensively in order to detect utterances that included code-switching. When code-switching was found, the discourse including the code-switched utterance was marked and transcribed. The length of the recording was determined so that contextual information could be obtained. There were 500 bilingual clauses and 291 of them entailed insertional CS.³ The most frequently observed pattern, insertion of Japanese nominal items (nouns and NPs) into English frames (132 tokens) has been singled out for analysis in this study.

Data Analysis

Japanese Noun Insertion in the English Noun Slot

There are 59 examples of Japanese noun insertion in the English ML, which can be subcategorized into two types (see Table 3). The first is a pattern in which EL (=Japanese) nouns appear in the ML noun slot (33 tokens) and the second is where EL nouns appear in the ML noun phrase slot (26 tokens). The first type will be investigated in this section and the second will be looked at in the next section.

Table 3: Noun insertion in Noun or NP

	ML noun slot	ML NP slot	Total
EL nouns	33 (55.9%)	26 (44.1%)	59

The Japanese language does not have articles and the determiner is not an essential element of an NP.⁴ Therefore if an EL noun occurs with an ML determiner it can be taken as evidence that the EL noun is well integrated into the ML (English) frame. Table 4 shows the patterns of EL nouns following ML determiners in NPs.

Table 4: Patterns of ML Determiner + EL Nouns

Pattern	N	Example
definite article 'the' + EL Noun	13	the <i>taiyo</i> sun
indefinite article 'a/an' + EL Noun	10	an <i>ana</i> hole
indefinite article 'some' + EL Noun	2	some <i>otona</i> adult
possessive determiner + EL Noun	4	his <i>sensei</i> teacher
determiner + EL noun + plural suffix 's'	4	<i>kaiju</i> -s monster

All the EL nouns that follow these patterns show good morphosyntactic integration into the ML frame. The pattern of 'indefinite article a/an + EL Noun' is exemplified in Example 8. In this conversation, the two siblings are talking about the size of doors and speculating about the possible existence of very small doors for ants. T says that a hole could be a door for ants.

Example 8

T > E : But E, everything has an *ana*
(Name) hole
{But E, everything has a hole}

If we look at this bilingual clause using the MLF model, the matrix language can be identified through the Morpheme Order and System Morpheme Principles. The morpheme order is English, i.e. subject + verb + object. Both the system morphemes, the indefinite article 'an' and the present tense main verb 'has',⁵ come from the ML. The

morphemes which flesh out the meaning of the content morpheme, i.e. ‘*Shitappa*’. This example shows that EL is highly integrated into the ML frame.

Japanese Multi-morphemic Noun Insertion in the English noun slot

Having looked at single-item insertion in which EL nouns are well integrated into the ML noun or NP slot, next we will move on to explore a more complex phenomenon, namely multi-item insertion, or EL islands. In this study, we will differentiate between the terms ‘multi-item’ and ‘multi-word’. A single EL word can include EL affixes. We will treat this phenomenon as a multi-item insertion because EL grammar is operating in order to connect the affixes and the word.

First we will examine insertion of EL nouns consisting of multi-items, namely multi-morphemic nouns (hereafter MMN). As Table 5 shows, five tokens of EL MMN occur in the noun slot, i.e. they occur after ML determiners.

Table 5: Patterns of ML determiner + EL MMNs

Pattern	N	Example
definite article ‘the’ + EL noun	2	the <i>ichi-ban</i> first-place
numeral ‘one’ + EL noun	1	one <i>o-banashi</i> HON-story
possessive determiner ‘your’ + EL noun	1	your <i>o-kane</i> HON-money
quantifier ‘more’ + EL Noun	1	more <i>o-kane</i> HON-money

In the last three examples the Japanese prefix *o* changes the noun into honorific form. The following sentence shows how a Japanese multi-morphemic noun *o-banashi* is inserted into the noun slot of the ML.

Example 13

T>E : in one *o-banashi* demontor is like this
HON-story
{in one story the demontor¹⁰ is like this}

The combination of the two morphemes *o* and *banashi* is an EL island¹¹ which is made under an EL morphosyntactic rule. The common noun, *banashi* (story) is given a thematic role; therefore, it is a content morpheme. The honorific prefix *o*¹² has a pragmatic meaning which is conceptually activated. Therefore, it is classified as an early system morpheme. Occurrences of EL early system morphemes with EL content morphemes comply with the System Morpheme Principle which denies the occurrence of stand-alone outsider late system morphemes. These findings are in accord with the MFL model.

eight in the N' (NP without the determiner) slot. We will look at examples of EL noun phrases in the ML N' slot first. The patterns in which they are found are shown in Table 7.

Table 7: Patterns of EL noun phrases in the ML frame

ML frame	N	Constituents of the EL noun phrases
definite article 'the' + EL noun phrase	5	ADJ+N N+GEN+N N + particle + verbal noun (2) (2) (1)
demonstrative determiner + EL noun phrase	1	PropN + GEN + N
quantifier + EL noun phrase	1	N + ACC
adjective + EL noun phrase	1	PropN + GEN+ N

Here, we will look at an example of an ML determiner 'the' + an EL N' item, adjective + noun, in the corpus.

Example 16

T>E : Now all the *yasashii kaijū* did *gattai*?
 good monster joining
 {Have all the good monsters joined together now?}

The subject NP 'all the *yasashii kaijū*' (all the kind monsters) consists of the English determiners 'all the' and the Japanese N' item *yasashii kaijū* (kind monster). Both the adjective *yasashii* and the noun *kaijū* are content morphemes. This construction has characteristics of both single-item insertion and the EL island. The EL items follow ML determiners, which indicates that they are well integrated into the ML frame—a feature of single-item insertion. If it were a single-item insertion, it would look like the following made-up example.

Example 17 (made-up)

Now all the good *kaijū-s* did *gattai*?
 Monster joining
 {Now all the good monsters joined together?}

The EL noun would be inflected with the ML plural form '-s' and the whole NP would show fuller integration of the EL noun *kaijū*. On the other hand, another made-up version (Example 18) shows the whole NP consisting of EL only, a clear case of an EL island proper.

Example 18 (made-up)

Now *subete -no yasashii kaijū* did *gattai*?
 all GEN good monster joining
 {Now all the good monsters joined together?}

With the EL N' item (Example 16), the EL grammar is not operating as fully in the EL island as it is in the subject NP of Example 18. However, the EL grammar is operating

more in an EL N' item than in a single-item insertion such as that shown in Example 17. This EL N' insertion pattern is termed an internal EL island (Myers-Scotton, 2002, p. 149). The examples of EL multi-morphemic nouns occurring after ML determiners that we examined in the last section can also be defined as one type of internal EL island since they also have characteristics of both single insertion and EL islands. The other examples shown in Table 6 are also internal EL islands. Having integrated into the ML frame as a whole, they all comply with the MLF model.

Japanese NP Insertion in the English NP

Having looked at NP insertion in the N' slot, this section goes on to explore NP insertion in the NP slot—the EL island proper. As can be seen in Table 8, in general the structure of this pattern is either 'modifier + noun' or 'noun+ particle'.

Table 8: Patterns of EL noun phrases in the ML NP frame

EL modifiers	N	Examples
attributive noun + noun	14	<i>kaeru suutsu</i> frog suit
adjective + noun	6	<i>warui yatsu</i> bad guy
demonstrative determiner + noun	2	<i>sonna gattai</i> such combination
noun + conjunctive particle <i>toka</i>	1	<i>Eesu robotto toka</i> Prop N conjunctive particle
noun/NP+ pronoun	3	<i>ni-ban-me no</i> two-order-OS one
noun + GEN <i>no</i> + noun	5	<i>ni-goo no yatsu</i> no.2 GEN thing
noun + CONJ <i>to</i> + noun	3	<i>ue to maru</i> up CONJ circle
NP +VN	1	<i>faito deeta ni maru</i> fight data DAT VN (putting a circle)
relative clause + noun	1	<i>Gatanozooa o taoshi-ta kasutamu</i> PropN ACC beat-PAST custom-made (monster) weapon

The following example shows an adjective modified by a quantifier.

Example 19

E >T : Look, I made (.) *motto atarashii Tenrai-senpuujin*
more new PropN
{ Look, I made a newer *Tenrai-senpuujin* (robot).}

This is an NP insertion rather than N' insertion since an ML determiner does not occur. If this was a Japanese monolingual clause, the NP would most likely include the accusative case particle *o*, i.e. *motto* (more) + *atarashii* (new) + *Tenraisenpuujin* (PropN) + *o*

(ACC). The accusative case *o* is an outsider late system morpheme. The Japanese part would look like the ML with the accusative marker *o* and it would be difficult to decide which language is the ML. The current example consists of two types of morphemes: the adjective *atarashii* and the proper noun *Tenraisenpuujinn* are content morphemes and the quantifier *motto* is an early system morpheme which fleshes out the meaning of another content morpheme, ie. *atarashii*.

An NP can be a long stretch of words, e.g. when it entails a relative clause as a post-modifier (see Example 20).

Example 20

T>E: it's *Gatanozooa o taoshi -ta kasutamu*
 PropN ACC beat PAST custom-made weapon
 { It's the custom-made weapon which beat *Gatanozooa* (a monster). }

Example 20 shows the Japanese relative clause *Gatanozooa o taoshi-ta* ('which beat *Gatanozooa*') which premodifies¹⁴ the head noun *kasutamu* (a custom-made weapon). It is difficult to decide the ML of this bilingual clause through the System Morpheme Principle alone because the relative clause itself contains an outsider late system morpheme, the accusative case particle *o*. On the other hand there is evidence that English is the ML because of the morpheme order of the whole clause, i.e. the subject + verb + predicate and the presence of the outsider system morpheme '-s' (copula).

Myers-Scotton (2002, p. 54) proposes that the unit of analysis should be the sort of dependent clause she terms the Complementizer Projection, meaning the principles can apply only to phenomena inside the CP. Here the relative clause itself, *Gatanozooa o taoshita* is a Japanese monolingual CP. Therefore, the ML of this CP is Japanese and it is natural that an outsider late system morpheme from the ML should occur there. One explanation is that the ML switches between the English copula '-s' and the Japanese proper noun *Gatanozooa*, which suggests that this code-switching should be accounted for within the framework of alternational CS.

On the other hand, this CP plays the role of the pre-modifier of the head noun *kasutamu* in the NP. The NP *Gatanozooa o taoshi-ta kasutamu* fits in the predicative slot of the English ML frame, i.e. it's []. Therefore, I would argue that the ML of Example 20 is English because the morpheme order as a whole follows English syntax and the main verb of the whole clause, the copula '-s' is, an outsider late system morpheme. The Japanese part is an EL island where the EL grammar is fully operating, so that even an outsider late system morpheme can occur. However, the island itself, the NP, is integrated in the English clause as the predicative.

This example can be a counter-example to the MLF model because it doesn't comply with the System Morpheme Principle.

Discussion

In this section, we will look at the data from a different perspective. Insertion of nominal items will be analyzed from the perspective of EL activation, i.e. how much each inserted item is constrained by the EL grammar. The purpose of these discussions is to try to answer the question of whether activation is best conceptualized as an absolute, or whether it consists of gradations located on a continuum, in a way similar to that proposed by Treffers-Daller (2005). According to the continuum model, lexical

borrowing and single-item insertion can be explained as being the same process, but subject to different activation levels. Similarly, it would allow one process to explain single and multi-item insertion. Since these issues are central to answering our research questions, some attention will be paid to the plausibility of the continuum model for these data.

In order to grasp the big picture, some examples already analyzed in the previous sections have been selected (see Table 9).

Table 9: Japanese EL nominal items in English ML noun phrases by EL activation level

Example [NP]	Grammatical structure of NP	activation	
		ML	EL
(21) MU: I killed [some <i>pokémon</i> -s] right? {I killed some <i>pokemons</i> right?}	ML DET + EL noun + ML plural	5	0
(12) T>E: I killed [some <i>Shitappaa</i> -s] right? PropN {I killed some <i>shitappa-s</i> (<i>underlinks</i>) right?}	ML DET + EL noun + ML plural	5	0
(10) T>E: but a <i>ningen</i> stay quite far from [the <i>taiyoo</i>] right? human sun {but a human stays quite far from the sun, right?}	ML DET+ EL noun	4	1
(13) T>E: in [one <i>o- hanashi</i>] dementor is like this HON- Story {in one story dementor is like this}	ML DET+ EL MMN	3	2
(11) T>E: and then [<i>taiyoo</i>] is there sun {and then the sun is there}	EL noun without ML DET	3	2
(14) E>T: it's gonna be up to [<i>go -ko</i>] five piece {It's gonna be up to five pieces?}	EL MMN without ML DET	3	2
(16) T>E: Now [all the <i>yasashii kaijūn</i>] did <i>gattai</i> ? good monster combination { Now all the good monsters combined?}	ML DET+ EL N' (ADJ+ N)	2	3
(19) E>T: Look, I made [<i>motto atarashii Tenraisenpuujin</i>] more new PropN { Look, I made a newer <i>Tenraisenpuujin</i> (robot).}	EL NP (QF + ADJ+ N)	2	3
(20) T>E: it's [<i>Gatanozōoa o taoshi -ta kasutamu</i>] PropN ACC beat PAST custom { It's the custom-made weapon which beat <i>Gatanozōoa</i> (a monster).}	EL NP (CP + N)	1	4
(22) MU: it's [<i>Gatanozōoa o taoshi -ta kasutamu da</i>] PropN ACC beat PAST custom COP {It's the custom-made weapon which beat <i>Gatanozōoa</i> (a monster).}	EL VP	0	5

They have been placed according to the balance of activation in ML and EL so that one can identify whether there is a continuum in the activation level. In order to contrast

them with items which are not identified as products of insertional CS, Example 21 and 22 were made up by the author. The entries in the table are ordered according to the activation levels of the ML and EL. Myers-Scotton (2005) suggests that the ML has a higher level of activation than the EL and that the activation level of EL islands is higher than that of singly occurring forms (p. 329).

There is no tool to measure actual activation in one's mental lexicon. A subjective, impressionistic judgment has been made by the author. Here activation means how much an item is constrained by the ML or EL grammar. When an EL item is well integrated into the ML frame, the ML activation is high and the EL activation is low. On the other hand, when EL items show EL grammar operation such as EL islands, ML activation is low and EL activation is high. The judgment was made based on a five point scale and when there did not seem to be any activation, a score of 0 was assigned.

Example 12 'the *Shitappaa-s*' can be identified as one of the most integrated EL nouns into the ML noun phrase frame because it not only occurs with the ML determiner 'some' but is also pluralized with the ML suffix. For that reason it is placed above (10) 'the *taiyo*' which also features an ML determiner but, of course, is not pluralized because it is singular. From a morphosyntactic point of view, it is difficult to decide whether this example is a product of borrowing or code-switching since it is fully integrated into the ML morphosyntactic frame. The phonology does not give an indication either way in this case. Diachronic distinction, i.e. whether or not it is already established in the recipient language, can be the key feature here. If the proper noun *Shitappaa* is an established loanword (Poplak & Meechan, 1995, p. 200) in English such as *pokémon* (see made up example), it would be counted as borrowing. However, it is not established therefore the example has been identified as CS. From the point of view of morphosyntactic activation, the borrowing and CS forms appear to be the same here.

Example 13 'one *o-banashi*' has a similar structure to (10) 'the *taiyo*', i.e. a ML determiner + EL noun. However, due to its honorific prefix, *o-banashi* is multi-morphemic, which shows some activation of EL, thus (13) has been placed below (10).

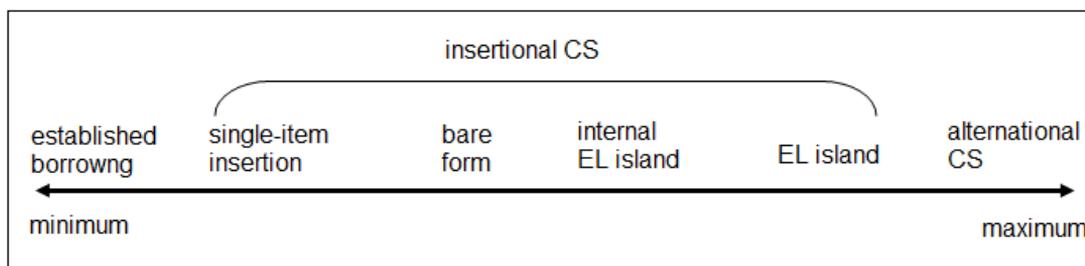
Examples 11 and 14 represent 'bare forms' which do not show an ML determiner, probably because a Japanese noun phrase normally does not take a determiner. These bare forms show less activation of the ML frame than the examples above: compare, for instance, (10) 'the *taiyo*' and (11) *taiyo*. Example 14 *go-ko* is multi-morphemic; therefore, EL activation is higher than in (11). In addition, it is a bare form, thus more activated than (13) which is multi-morphemic but occurs with the ML determiner. Multi-morphemic nouns, e.g. (13) or (14), show EL activation at the morphological level.

Another multi-item insertion (16) *yasashii kaijuu* shows EL activation at the syntactic level. Example 19, *motto atarashii Tenraisenpuujin*, also shows multi-item insertion at the syntactic level. Example 16 shows the ML determiners 'all the' before the EL N', i.e. an internal EL island. On the other hand, Example 19 does not show any ML items in the NP. Therefore, the ML is more activated in (16) than (19), and as a result the EL is more activated in (19).

Example 20 might be one of those in which the EL is activated to the highest level. It contains a Japanese relative clause, i.e. CP, which has the accusative case *o*, an outsider late system morpheme. EL grammar is fully operating. As the made up Example 22 shows, if the Japanese copula *da* occurred at the end making it a Japanese VP, the entire Japanese insertion would lose the status of an EL and gain that of a ML. Therefore, it would not be explained in the framework of insertional CS but would be explained as a case of alternational CS. Examples 20 and 22 show the continuum between insertion and alternation.

We can see that there is a continuum from the minimum activation end to the full activation end of the EL, i.e. the continuum starts with established borrowing forms in English, followed by the single-item insertion well integrated into the ML frame and then come the bare forms which lack ML determiners, followed by the internal EL island and then the EL island with a CP and finishing with alternational CS (see Figure 1).

Figure 1: The Continuum of EL activation (based on Treffers-Daller, 2005)



The order shown here is based on a subjective judgment, not an absolute order. Nevertheless it appears that borrowing, single-item insertion, multi-item insertion and alternation can be seen as a continuum. This approach is useful in explaining why CS does not always take the same form: essentially, the model proposed here is that there is a finite amount of activation that must be shared between the two languages, and the form will depend on that balance. The MLF model can account for only part of the continuum. It works well when the activation level of the EL is low; however, when the EL activation is at its maximum the System Morpheme Principle does not apply. This can be seen as a challenge to the MLF and the 4-M model. The current data analysis is done on the specific part of the insertional CS patterns which are expected to comply with the MLF model.

Conclusion

This study has considered the insertion of Japanese nominal items in English ML frames in two siblings' code-switching data within the framework of Myers-Scotton's MLF model. With regard to research questions 1 and 2, if the data are viewed from the perspective of EL activation, a continuum can be identified: from borrowing to single-item insertion, and from single-item insertion to multi-item insertion. In addition, we have found that this continuum extends to alternational CS. Therefore, in contrast to Poplack and Meechan (1995), no formal distinction has been made here between borrowing and insertion: there is no need to draw a line between them, if they are on a continuum. Regarding research question 3, single-item insertion can be explained using the MLF model and the 4-M model. The combination of the System Morpheme and the Morpheme Order Principles works well when the EL activation level is low. However, the System Morpheme Principle does not work in cases where the EL is fully activated. Based on this evidence I believe that the MLF model can be subsumed under the continuum model.

This study only dealt with a specific area of the corpus and cannot be used as a generalization for the whole data set. The areas that need further exploration are the insertion of English nominal items in the Japanese ML, and the insertion of other grammatical items, e.g. verbs, and patterns which cannot be explained within the

framework of insertion. In addition, the data refer to children's CS which may not be the same as that of adults.

Acknowledgements

This project has been completed with the assistance of Kyoto Sangyo University Research Grants. I would like to express my gratitude to Professor Alison Wray at Cardiff University who steered me in the right direction in my PhD study, Professor Jeanine Treffers-Daller at University of the West of England who gave insightful comments on an earlier version of this paper. I would also like to thank the editor, Dr. Tim Greer, and two anonymous reviewers for their comments, suggestions and support.

References

- Azuma, S. (1993). The frame-content hypothesis in speech production: Evidence from intrasentential code switching. *Linguistics*, 31, 1071-1093.
- Azuma, S. (1996). Speech production units among bilinguals. *Journal of Psycholinguistic Research*, 25 (3), 397-416.
- Baker, C. and Jones, S. P. (1998). *Encyclopedia of bilingualism and bilingual education*. Clevedon: Multilingual Matters.
- Bullock, B. E. & Toribio, A. J. (2009). Aims and content. In B. E. Bullock & A. J. Toribio (Eds.), *The Cambridge handbook of linguistic code-switching*. (pp. xii-xiii). Cambridge: Cambridge University Press.
- Disciullo, A.M., Muysken, P., & Singh, R. (1986). Government and code-mixing. *Journal of Linguistics*, 22, 1-24.
- Döpke, S. (1992). One parent one language: An interactional approach. Amsterdam: John Benjamins.
- Fotos, S. (1995). Japanese-English conversational codeswitching in balanced and limited proficiency bilinguals. *Japan Journal of Multilingualism Multiculturalism*, 1 (1), 2-15.
- Fotos, S. (2001). Codeswitching by Japan's unrecognised bilinguals: Japanese university students' use of their native language as a learning strategy. In M.G. Noguchi & S. Fotos (Eds.), *Studies in Japanese bilingualism* (pp. 329-352). Clevedon: Multilingual Matters.
- Grosjean, F. (2001). Bilingual language mode. In J.L. Nicole (Ed.), *One mind, two languages: Bilingual language processing* (pp. 1-22). Oxford: Blackwell.
- Huddleston, R. & Pullum, G. K. (2002). *The Cambridge grammar of the English language*. Cambridge: Cambridge University Press.
- Levelt, W.J.M. (1989). *Speaking: From intention to articulation*. MA: MIT Press.
- Miccio, A.W., Hammer, C.S., & Rodriguez (2009). Code-switching and language disorders in bilingual children. In B.E. Bullock & A.J. Toribio (Eds.), *The Cambridge handbook of linguistic code-switching*. Cambridge: Cambridge University Press.
- Müller, N. & Cantone, K.F. (2009). Language mixing in bilingual children: Code-switching? In B.E. Bullock & A.J. Toribio (Eds.), *The Cambridge handbook of linguistic code-switching*. Cambridge: Cambridge University Press.

- Muysken, P. (2000). *Bilingual speech: A typology of code-mixing*. Cambridge: Cambridge University Press.
- Myers-Scotton, C. (1997). *Dueling languages: Grammatical structure in codeswitching*. Paperback edition with a new afterword. Oxford: Oxford University Press.
- Myers-Scotton, C. (2002). *Contact linguistics*. Oxford: Oxford University Press.
- Myers-Scotton, C. (2005). Supporting a differential access hypothesis: Codeswitching and other contact data In J. Kroll and A. De Groot (Eds.), *Handbook of Bilingualism: Psycholinguistic Approaches* (pp. 326-348). New York: Oxford University Press.
- Myers-Scotton, C. (2006). *Multiple voices: An introduction to bilingualism*. Oxford: Blackwell.
- Myers-Scotton, C. & Jake, J.L. (1995). Matching lemmas in a bilingual language competence and production model: Evidence from intrasentential codeswitching. *Linguistics*, 33, 981-1024.
- Myers-Scotton, C. & Jake, J.L. (2000). Testing a model of morpheme classification with language contact data. *International Journal of Bilingualism*, 4 (1), 1-8.
- Namba, K. (2008). English Japanese bilingual children's code-switching: A structural approach with emphasis on formulaic language. PhD Thesis, Centre for Language and Communication Research, Cardiff University.
- Nishimura, M. (1997). *Japanese/English code-switching: Syntax and pragmatics*. New York: Peter Lang.
- Park, H-S. (2006). Structural characteristics of proper nouns in Korean-Swedish discourse. *International Journal of Bilingualism*, 10 (1), 17-36.
- Poplack, S. (1980/2000). Sometimes I'll start a sentence in Spanish *y termino en español*. *Linguistics*, 18, 581-618. Reprinted in: Li Wei. (Ed.) (2000). *The bilingualism reader* (pp. 221-256). London: Routledge
- Poplack, S. & Meechan, M. (1995). Patterns of language mixture: Nominal structure in Wolof-French and Fongbe-French bilingual discourse. In L. Milroy & P. Muysken (Eds.). *One speaker, two languages: Cross-disciplinary perspectives on code-switching* (pp. 199-232). Cambridge: Cambridge University Press.
- Shibatani, M. (1990). *The languages of Japan*. Cambridge: Cambridge University Press.
- Takagi, M. (2000). Variability and regularity in code-switching patterns of Japanese/English bilingual children. PhD thesis, University of Newcastle upon Tyne.
- Takagi, M. (2006). Code-switching and L1 development in Japanese-speaking children living in an L2 dominant environment. *Journal of Inquiry and Research*. 84, 19-37. Kansai Gaidai University. Japan
- Takagi, M. (2008). Japanese morpheme classification using the 4-M model. *Journal of Inquiry and Research*, 88, 1-19. Kansai Gaidai University. Japan
- Treffers-Daller, J. (1998). Variability in code-switching styles: Turkish-German code-switching patterns. In R. Jacobson (Ed.) *Codeswitching Worldwide*. Berlin: Mouton de Gruyter, 177-198.

Treffers-Daller, J. (2005). Evidence for insertional codemixing: Mixed compounds and French nominal groups in Brussels Dutch. *International Journal of Bilingualism*, 9 (3&4), 477-508.

Tsujimura, N. (1996). *An introduction to Japanese linguistics*. Oxford: Blackwell.

Weinreich, U. (1953). *Languages in contact*. The Hague: Mouton.

Appendix

Transcription Key

ACC:	accusative case particle
ADJ:	adjective
CONJ:	conjunctive
CONN:	connective particle
DAT:	dative case particle
DET:	determiner
FP:	sentence final particle
GEN:	genitive case particle
HON:	honorific marker
MMN:	multi-morphemic noun
N:	noun (in text)
N:	number of examples (in tables)
N':	NP without a determiner
NEG	negation
NP:	noun phrase
OS:	ordinal suffix
PAST:	past tense marker
PropN:	proper noun
QF:	quantifier
SNP	sentence nominalizing particle
TOP	Topic marker
VN:	Verbal noun
(A)>(B):	(A)is talking to(B)
Italics:	Japanese, to distinguish it from English
Line 2:	English translation (word level)
Line 3:	(text in curly brackets): English translation (text level)

Notes

¹ Myers-Scotton argues that the use of the term ‘morpheme’ is better because “it is a surface realization supported by a lemma entry in the mental lexicon”(2002, p. 71).

² The mental lexicon is the place in which content morphemes occur.

³ This paper only deals with the insertional type of CS. The other patterns are analyzed (Namba, 2008) and identified as alternation (Muysken, 2000) and composite CS (Myers-Scotton, 2002).

⁴ The article does not exist in the Japanese language. However, the possessive determiner and the demonstrative determiner do exist.

⁵ The third person singular form is an outsider late system morpheme because its form is decided depending on the information outside its maximal projection.

⁶ The word *shitappa* (下っ端) literally means “underling”. However, here the boys are referring to a character from a video game, or in fact a group of characters, who are known collectively as Shitappaa.

Note that the final vowel sound is extended, which makes it possible to determine that this is the name of the character rather than the common noun.

⁷ Park (2006, p. 32) argues that proper nouns, which are generally assumed to be the most typical borrowings in the code-switching literature, undergo the same (or at least related) morphosyntactic processes and that they are not different from code-switching.

⁸ One significant feature of the difference between the proper noun and the common noun is its prosodic pattern. The common noun *shitappa* has a level pattern “_ _ _” (the line shows relative height of each syllable and the blank in the middle indicates the glottal stop). Whereas the proper noun *Shitappaa* can be depicted as “- - _ _” which has a prominence at “*ta*” and the final vowel part is prolonged.

⁹ Treffers-Daller (2005) shows that in Dutch-French CS there are a few examples in which a Dutch plural-s is attached to a French inserted noun.

¹⁰ A dementor is a creature appearing in the fantasy novel ‘Harry Potter and the Prisoner of Azkaban’.

¹¹ This is termed an ‘Internal Embedded Language Island’. The combination of the two EL items is part of a larger constituent in which “they constitute a sister to Matrix Language element under N-bar (in X-bar theory) with the entire constituent projected under NP” (Myers-Scotton, 2002, p. 150).

¹² Shibatani (1990, p. 356) defines this usage of ‘*o*’ as beautification, which adds politeness and a feminine feeling. It is frequently observed in mother talk, which is why small children tend to use it.

¹³ There is another structure, i.e. a noun + the accusative case particle *o* + a numeral + a classifier which is the product of ‘Quantifier Floating’ (Tsujimura, 1996, p. 193).

¹⁴ Japanese does not have relative pronouns (Tsujimura, 1996).