# Word Order Incongruence in Japanese-Chinese Code Switching:
## Evidence from the use of negation and copula by a bilingual infant

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This study concerns the issue of congruence in the grammatical constraints of bilingual code switching. Japanese and Chinese, a typologically distant language pair, show a lack of congruence in many aspects. The word order incongruence in both negation and copula construction are the focus of the present study. Based on transcriptions of an infant's speech audio-recorded between the ages of 2;1 and 3;0, the study concludes that the word order and categorial incongruence can be accounted for by the process of insertion from the Embedded Language into a Matrix Language Frame. The analysis of the data is to a large extent compatible with the MLF model (Myers-Scotton, (1993, 2002), providing the model with empirical support.

本稿は日本語と中国語という類型的に異なる言語ペアにおけるバイリンガルコードスイッチング(CS)の文法的制約に関する考察で、特に否定文とコピュラ文における語順の不適合に焦点を絞って考察を行い、日中バイリンガル幼児がどのようにこれらの構文を CS の中で処理しているのかを明らかにする。対象幼児が 2 歳から 3 歳までの発話に基づき分析を行った結果、語順と文法範疇における不適合は埋め込み言語(EL)から母体言語(ML)フレームへの挿入という枠組によって解決できることから、Myers-Scotton (1993, 2002)の MLF モデルが支持される。

## Introduction

Children who acquire two or more languages simultaneously from an early age are often reported to use their languages alternately within a single utterance or the same conversation (Genesee Nicoladis & Paradis, 1995; Deuchar & Quay, 2000; Cantone, 2007). This phenomenon is known as code switching. In spite of the seemingly random distribution of intra-sentential code switching (hereafter CS), it has been found that some underlying morphosyntactic constraints restrict certain switch points or the switchability of different categories in CS framing (Poplack, 1980; Joshi, 1985; Myers-Scotton, 1993; Muysken, 1995). Over the years, case studies involving a wide variety of language pairs, social settings and speaker types [1] have been carried out to explore the general morphosyntactic constraints of CS utterances. However, little agreement has been reached on the nature of such constraints. Furthermore, so far few studies have looked at CS between Japanese and Chinese. The present case study of a Chinese infant, who had been attending a nursery school in Japan, investigates the grammatical constraints on


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Japanese-Chinese CS, with a focus on word order incongruence between the two languages.

## Theoretical preliminaries on congruence in code switching

Weinreich (1953) pointed out that "it stands very much to reason that the transfer of morphemes is facilitated between highly congruent structures" (p. 33). His notion of 'transfer' covered both borrowings and CS, but the importance of his observations on congruence for CS were not realized until the 1980s.

The term 'congruence' is generally used to refer to "a notion of equivalence between the grammatical categories or word classes of different languages" (Deuchar, 2005, p. 256). Deucher (2005) further viewed this concept from both paradigmatic and syntagmatic perspectives. Paradigmatic congruence is defined as similarity or equivalence between the grammatical categories of two languages, whereas syntagmatic congruence is defined in terms of similarity of word order. Sometimes, language congruence involves both categorial and linear word order similarity. In the present paper, 'congruence' and 'equivalence' will be used alternatively for consistent meaning.

In the following section, a brief review will be given on two influential hypotheses in the previous literature, concerning the notion of congruence, especially word order equivalence in the studies of grammatical constraints on CS structure.

### Poplack's Equivalence Constraint

A typological approach toward the morpho-syntactic constraints on CS was first put forward by Poplack (1980), based on her Spanish-English bilingual corpus. She proposed the Equivalence Constraint, predicting that code switching will tend to occur at points where the surface structures of the two languages map onto each other.

This constraint can be illustrated by the following example of a Spanish-English code switched sentence (Figure 1).

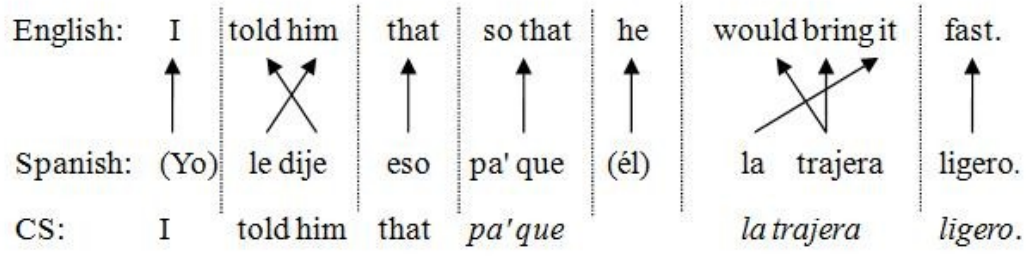


**Figure 1**. Permissible code switching points (Poplack, 1980, p. 228)

According to this constraint, code switching is most likely to occur at the points marked by the dotted lines. Incompatibilities will arise at any site where a switch involves any two adjacent constituents, which are ordered differently in the two languages concerned. Switches tend to be avoided at such sites. In Figure 1, switching between a transitive verb and a clitic object, will cause an ungrammatical form of code switching, as in * '*le* told' (told him).

The Equivalence Constraint may be able to account for CS in some Indo-European language pairs which are typologically similar. However, Bentahila and Davies (1983) pointed out that it cannot apply to their Arabic-French CS data. They further

indicated that in cases of structural non-equivalence, CS may occur within constituents exhibiting the surface structure of one language but not that of the other.

An example of Japanese-English CS may help in understanding the limitations of Poplack's Equivalence Constraint.

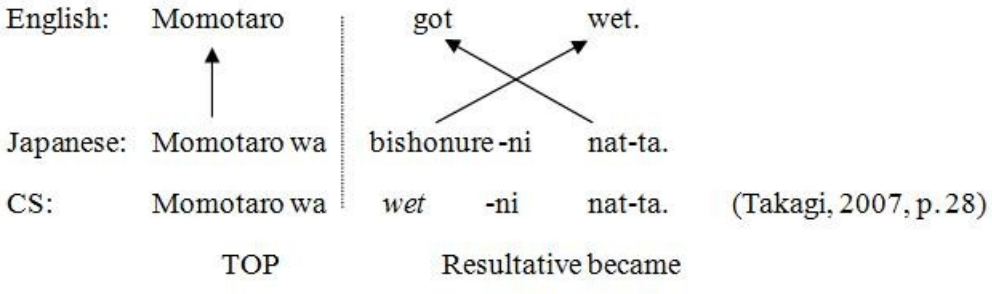


**Figure 2**. Permissible code switching points?

According to the Equivalence Constraint, the surface order of the predicate construction in English and Japanese in Figure 2 do not map onto each other, thus CS is not assumed to occur within the predicate construction. However, this sentence did occur in the natural speech of an English/Japanese bilingual person. Apparently, the bilingual participant nominalized the English adjective *wet*, and inserted it into a Japanese-based sentence. Like Japanese and English, Japanese and Chinese are also typologically divergent language pairs, so it can be assumed that the Equivalence Constraint postulated by Poplack (1980) is not sufficient to explain Japanese-Chinese code switching, such as the examples that we will focus on in this paper.

## Myers-Scotton's Matrix Language Frame (MLF) model

Assuming that typological distinctions are basically irrelevant for permissible intraword switching sites, Myers-Scotton proposed one of the most integrated and comprehensive theoretical frameworks to account for universal CS constraints, i.e. the Matrix Language Frame (MLF) model (Myers-Scotton, 1993), which was later augmented by the 4-M model of morpheme classification (Myers-Scotton, 2002; Myers-Scotton and Jake, 2009). The central issue of the MLF model is the asymmetry of the bilingual's two languages in CS framing. Within this model, the Matrix Language (ML) provides a grammatical frame for the bilingual utterance, while the Embedded Language (EL) may supply content morphemes to be inserted into this frame.

The Morpheme Order Principle (MOP) in the MLF model (Myers-Scotton, 1993, p. 83; 2002, p. 59) deals with the problem of word order by claiming that:

> In ML+EL constituents consisting of singly-occurring EL lexemes and any number of ML morphemes, surface morpheme order (reflecting surface syntactic relations) will be that of ML.

However, in order for the insertion of EL elements into the ML frame to be complemented smoothly, the EL elements must be checked for "sufficient congruence with their ML counterparts" (Myers-Scotton, 2002, p. 20). The MLF model intends to interpret the nature of congruence in CS as "a match between the ML and the EL at the lemma level with respect to linguistically relevant features" (Myers-Scotton and Jake, 1995, p. 985). According to the Abstract Level model (Myers-Scotton, 2002), the

checking occurs in the mental lexicon at the lemma level, including three levels of abstraction: lexical-conceptual structure, predicate-argument structure and morphological realization patterns. Two possibilities arise from the process of checking. The first is a total lack of congruence between the counterparts. Thus the EL morpheme insertion will be "blocked", as predicted in the Blocking Hypothesis (Myers-Scotton, 1993, p. 120):

> In ML+EL constituents, a blocking filter blocks any EL content morpheme which is not congruent with the ML with respect to three levels of abstraction regarding subcategorization.

The second possibility is that some compromise strategies are promoted in order to achieve "sufficient congruence", and realize the smooth insertion. Three main strategies are introduced in the MLF model (Myers-Scotton, 2002, p. 21).

i) EL Islands: Well formed constituents entirely in the EL, which are embedded in the larger clause (CP) and are under overall ML control in various ways.

(1) It's gonna be up to *go-ko*. (ML: English) (Namba, 2009, p. 30)
five pieces
{It's gonna be up to five pieces.}

An EL island is claimed to be the radical solution to a mismatch between the two languages. In some cases, the island can occur as an "internal EL island" (Myers-Scotton, 2002, p. 149).

(2) Now all the *yasashii kaijuu* did *gattai*? (ML: English) (Namba, 2009, p. 31)
good monster joining
{Have all the good monsters joined together now?}

ii) Bare forms: EL content morphemes may occur without the requisite ML system morphemes, such as articles, which make them well-formed in an ML frame.

(3) And then *taiyoo* is there. (ML: English) (Namba, 2009, p. 28)
sun
{And then the sun is there.}

iii) 'Do' constructions: ML encoding 'do' instead of EL verbs with ML inflections.

(4) Māma, *nenne dame,* zuò *-shi-te*! (ML: Japanese) (20-08-2007) [2]
mom sleep no sit do-Imperative
{Mom, don't sleep, sit up!}

Myers-Scotton (2002, p. 20) indicated that "the reason congruence is worth exploring is that it seems that lack of sufficient congruence may explain why certain structures are avoided or impossible in switching between specific language pairs". Furthermore, lack of sufficient congruence is what promotes speakers to use certain compromise strategies in code switching, as illustrated above. Hence, language congruence is more and more regarded as a major issue in clarifying the nature of CS grammatical constraints.

To sum up, the validity of Poplack's (1980) Equivalence Constraint remains in doubt, at least with regard to the present Japanese-Chinese CS data. That being the case, this study attempts to explore the nature of congruence in Japanese-Chinese code switching in light of the MLF model, with evidence based on examples of word order incongruence in negation and copula constructions.

## Word Order Incongruence in Japanese and Chinese

Most previous morpho-syntactic studies on CS constraints have been based on bilingual corpora of Indo-European languages, but the two Asian languages in this study are typologically different. Neither of them has articles, and no gender, number or agreement is marked. In spite of these similarities between the two languages, however, Japanese (an agglutinative language) differs from Chinese (an isolating type) in many morpho-syntactic aspects, as shown in Table 1.

**Table 1.** Typological Differences between Japanese and Chinese Language

| Items | Japanese | Chinese |
|---|---|---|
| Word order | SOV | SVO |
| Case marking | yes [*-ga* (NOM), *-o* (ACC)] | none |
| Adpositions | postposition [*-de* (LOC)] | preposition [*zài-* (LOC)] |
| Inflections | yes [*-ta* (PAST)] | none |

Taking into account some of the factors in child language acquisition, in the present study we will focus on word order incongruence in Japanese-Chinese CS utterances, specifically that related to negation and copula constructions which occurred. Table 2 shows the various patterns of negation and copula constructions in Japanese and Chinese.

**Table 2.** Negation and Copula Incongruence between Japanese and Chinese

| | Japanese<br>Contentive + Negator / Copula | Chinese<br>Negator* / Copula + Contentive |
|---|---|---|
| Negation | a) NP + '-nai' (adj.)<br>b) NP + 'i-nai' (v.-suffix)<br>c) Adj. + '-nai' (suffix)<br>d) V. + '(-a)-nai' (suffix) | e) 'bu-' (prefix) + N./V./Adj./Adv.<br>f) V. + '-bu-' (infix) + Complement<br>g) 'méi (yǒu)' (v.) + NP<br>h) 'méi (yǒu)' (adv.) + VP |
| Copula | NP/Adj.-N.** + '-da' (clitic/suffix) | 'shì-' + NP |
| Combined Form | Copula + Negator<br>NP/Adj.-N.+ '-ja-nai' (clitic/suffix) | Negator + Copula<br>'bú-shì-' + NP |

* The difference between the two negators *bu-* and *méi* (*yǒu*)- is purely functional; *bu-* provides a "neutral negation", and *méi* (*yǒu*)- negates the "completion of an event." (Li & Thompson, 1981, p. 421).

** Adj.-N., known as *na*-adjective, is a noun that functions as an adjective. It can be followed by copula *-da* or its negative form *-ja-nai*.

Copulas in Japanese, whether negative or affirmative, are sentence final, while those in Chinese precede their complements. Therefore, the linear word order of the two languages is opposite. Furthermore, the categorial features of the negative particles and copula, as well as their complements, are not equivalent either. How can bilinguals process the two languages with such different structures within one CS utterance? To realize a harmonious juxtaposition, bilinguals must follow some abstract principle or adopt a compromise strategy to achieve sufficient congruence between the two languages. The present study aims to shed light on the issue of categorial congruence in the research of CS grammatical constraints. For this purpose, the following research questions will be discussed in this paper:

1. What are the quantitative features of CS utterances involving either the negation or copula constructions in the current data?
2. Does the occurrence of these CS utterances satisfy the condition of sufficient congruence? If not, have they been blocked or have any other compromise strategies been adopted?
3. Can Myers-Scotton's MLF model (Myers-Scotton, 1993, 2002) account for word order incongruence in Japanese-Chinese CS processing?

## Methodology

### The Participant

The focal participant in the present study is a three-year-old infant 'Xin', who was born in Beijing, and came to Japan with her Chinese parents at the age of 0;11. At home, she was addressed by her parents in Chinese only. She attended a Japanese nursery school from the age of 1;4, and therefore spent approximately 40 hours per week in a monolingual Japanese environment. In other words, from an early stage of her language acquisition, Xin had been exposed to two languages and CS utterances were regularly observed in her speech.

### Data Collection and Transcription

The spontaneous conversations were audio-recorded across a time span of twelve months when Xin was aged between 2;1 and 3;0. A total of 128:55:01 hours of data were accumulated throughout that year. The time and duration of the recordings were not fixed in order to get as much natural utterances as possible. The recordings were generally made during activities such as reading, playing with toys, and conversing during meals, and they mainly consist of interaction between Xin and her mother (the first author). Sometimes, Xin's father also participated, and occasionally Xin's grandparents in China were involved when Skype chats were recorded via the Internet. For this reason, Chinese is the dominant language in the recordings.

Of all the recordings, a total segmental set of 12:05:09 hours (i.e., one hour per month on average) was selected,[3] as shown in Table 3. CHILDES (MacWhinney, 2000) was used for the transcription of the recordings into CHAT format files.

**Table 3**. Recording Time / Age

| Age | 2;1 | 2;2 | 2;3 | 2;4 | 2;5 | 2;6 | 2;7 | 2;8 | 2;9 | 2;10 | 2;11 | 3;0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time(Min.) | 84 | 55 | 53 | 51 | 84 | 53 | 46 | 51 | 43 | 72 | 68 | 65 |

### Unit of Analysis

The principle unit of coding in the CHAT file is one *utterance*, which occupies one tier, usually one line in the file. An utterance, i.e. "a word or a group of words with a single intonation contour" (Lanza, 1992, p. 638), will be the basic unit for the quantitative analysis in the following statistical work. However, with regard to the issue of congruence in CS utterances involving negation and copula constructions, these constructions will be adopted as the unit of analysis, instead of the whole CS utterance. Meanwhile, for qualitative claims, only statistics in types are analyzed, not in tokens.[4]

## Results and Discussion

### Large Numbers of CS Utterances

Within the 12 hours of Chinese-dominant conversations to be analyzed, the participant's output consisted of three types of utterance: Chinese utterances, intra-sentential CS and Japanese utterances (inter-sentential CS).[5] The occurrences of intra-sentential CS and inter-sentential CS were high in ratio, i.e. 30.3% and 29.0% respectively, as shown in Table 4.

**Table 4.** *Output Utterances and Percentages*

| Output Utterances | Number of Occurrences | Percentage |
|---|---|---|
| Chinese | 1402 | 40.7% |
| CS (Intra-sentential) | 1044 | 30.3% |
| Japanese (Inter-sentential CS) | 1001 | 29.0% |
| Total | 3447 | 100% |

### CS Involving Negation Constructions

Within the 1044 tokens of CS utterances, we counted the number of CS involving negation constructions, expressed by *bu-* or *méi* (*yǒu*)- in Chinese and *-nai* in Japanese. The total number of types and the number of incongruent types are summarized in Table 5.

**Table 5.** *Incongruence in CS with Japanese Negation*

| Negation Pattern | Types | Incongruent Types | Examples |
|---|---|---|---|
| a) NP + '-nai' (adj.) | 2 | 0 | (5) |
| b) NP + 'i-nai' (v.-suffix) | 4 | 2 | (6-7) |
| c) Adj. (-i) + '-nai' (suffix) | 0 | 0 | |
| d) V. + '(-a)-nai' (suffix) | 1 | 0 | |
| SUM | 7 | 2 | |

The following examples taken from the data are marked accordingly in Table 5 and will be discussed in further detail below.

(5) Jīdàn *nai* *-yo*. (08033101) [6]
egg no SFP
{There is no egg.}

(6) Tiānxiànbǎobao bàba māma *i-nai.* (07080100)
Teletubbies dad mom be not
{Teletubbies' dad and mom are not there.}

(7) Xiǎo-xióng *-to* ní-wáwa *i-nai.* (08021200)
little bear and doll be not
{The little bear and the doll are not there.}

Although the juxtaposition of a Chinese noun and a Japanese negator in example (5) involves the problem of non-equivalent linear word order, the Morpheme Order Principle (MOP) in Myers-Scotton's MLF model convincingly accounts for this problem. According to the MOP, Japanese is identified as the Matrix Language for the negation construction. Japanese ML projects the surface word order of this construction, whereas the Chinese singly-occurring noun is inserted from the Embedded Language to the Japanese matrix frame. Thus the linear word order incongruence is solved by the paradigmatic congruence of a noun insertion from the EL into the MLF.

Out of the seven types of CS with Japanese negation constructions in Table 5, only two types are identified as incongruent in pattern (b). In (6), there is more than one Chinese morpheme inserted into a Japanese matrix frame. It may be appropriate to assume that the insertion of the Chinese EL island *Tiānxiànbǎobao bàba māma* was chosen as a compromise strategy to achieve sufficient congruence. On the other hand, in (7), the Chinese EL island *xiǎo-xióng -to ní-wáwa* can be considered as an internal EL island, with the Japanese particle *-to* connecting two Chinese nouns. The whole internal EL island is then inserted into a Japanese ML projection of the negation construction.

In the present data, no CS has been found incongruent regarding patterns (c) and (d). This can be ascribed to the morphological feature of the negative particle *-nai* as a suffix, which is highly dependent on its stem. Hence the insertion of any embedded element has been blocked, as predicted by the Blocking Hypothesis in the MLF model.

Table 6 summarizes the types of CS with Chinese negation constructions, and the types that involve word order and categorial incongruence.

**Table 6.** *Incongruence in CS with Chinese Negation*

| Negation Pattern | Types | Incongruent Types | Examples |
|---|---|---|---|
| e) 'bu-' (prefix) + N./V./Adj./Adv. | 9 | 0 | (8) |
| f) V. + '-bu-' (infix) + Comp. | 3 | 0 | (9) |
| g) 'méi (yǒu)' (v.) + (NP) | 8 | 0 | (10) |
| h) 'méi (yǒu)' (adv.)+VP+(Comp.) | 12 | 6 | (11-12) |
| SUM | 32 | 6 | |

Again, the following examples listed on Table 6 will be discussed in detail below.

(8) *Kore* bù- xǐhuān. (08011900)
this not like
{(I) do not like this.}

(9) Kàn-bú-jiàn rén -le *-ne*. (07061700)
look-not-see people ASP SFP
{(I) could not see anybody.}

(10) Méiyǒu *o-futon*. (07112800)
no Hon. futon
{There is no futon.}

Chinese is designated as the ML for all the CS negation constructions involved in the 32 types of CS in Table 6, since all the surface word order patterns follow those of Chinese. In patterns (e) and (f), insertion of the Japanese embedded elements inside the negation construction with the Chinese negative affix *bu-* was not attested as in (8) and (9).[7] Therefore, there is no incongruence in these types of CS. As for pattern (g), sufficient congruence is achieved by insertion of the Japanese noun *o-futon* into a Chinese MLF in (10).

However, pattern (h) exhibits six types of CS lacking in congruence as shown in examples (11) and (12).

(11) Māma méiyǒu *kowai-yo*. (07081300)
mom not scared-SFP
{Mom was not scared.}

(12) Miāomiāo wāngwāng méiyǒu *hait-te*. (07081901)
kitten doggie not enter-Conjunctive particle
{Kitten and doggie did not enter.}

In example (11), the Japanese adjective *kowai* is negated by the Chinese negative adverb *méiyǒu*. The negative form of *kowai* should be *kowaku-nai* in Japanese, but the adjective is inserted into the Chinese matrix frame of the negation construction, which is again compatible with the MLF model.

In (12), the Japanese verb phrase *hait-te* is considered to be an EL island, inserted into a Chinese ML frame.

## CS involving Copula Constructions

Like negation constructions, the word order of copula constructions in Japanese and Chinese is also opposite. Table 7 shows a statistical summary of the types of incongruence in CS with Japanese copula constructions.

**Table 7.** *Incongruence in CS with Japanese Copula*

| Copula | Types | Incongruent Types | Example |
|---|---|---|---|
| -da | 10 | 0 | |
| -dat-ta (past form) | 1 | 0 | |
| -desu (Hon. Form) | 5 | 0 | |
| Clitic/discourse marker derived from copula | Types | Incongruent Types | Examples |
| -na-no | 2 | 0 | |
| -na-nda | 2 | 1 | (13) |
| -dat-te | 8 | 4 | (14) |
| -da-yo | 22 | 8 | (15) |
| -deshoo | 8 | 8 | (16) |
| SUM | 58 | 21 | |

The Japanese copula *-da* and its past form *-dat-ta*, as well as its honorific form *-desu*, preceded by a Chinese noun, are not considered to lack congruence, because this can be simply accounted for by the MOP in the MLF model, with Japanese as the ML for projecting CS. As indicated in Table 7, we found no incongruent examples for the three copula forms, which also suggests that all incongruence has been blocked.

(13) Xiǎo-yǘ *-to* xiǎo-huángguā, hái yǒu xiǎo-jīdàn,
Dim.-fish and Dim.-cucumber and exist Dim.-egg
hái yǒu xiǎo-xiāngcháng, hái yǒu zhè-ge *-nan-da.* (08042800)
and exist Dim.-sausage and exist this emphatic copula
{There are fish, cucumber, egg, sausage and this!}

(14) *Xin-chan-wa* késòu-le *-dat-te.* (08033101)
(name)-TOP cough-ASP emphatic copula
{It is that I got a cough!}

(15) Pútao Bǎobao hǎo duō *-da-yo.* (07070802)
grape (nick-name) very many emphatic copula
{I have a lot of grapes!}

(16) Zhēn bàng *-deshoo*? (08033101)
very well tag question
{(I did) very well, didn't I?}

In examples (13) to (16), all the CS utterances end with a Japanese clitic-like particle which has been derived from the copula *-da*. However, their grammatical properties have changed from copula to discourse markers or tag-like particles, especially *-deshoo*. Their pragmatic function is an emphasis or a reminding of the content of the constituent that precedes them. In this sense, they stand independent syntactically and semantically from the preceding Chinese elements. The parts of speech of the Chinese phrases followed by

Japanese copulas vary. If it is a single noun, we count it as a case of sufficient congruence. If it is a NP, VP, or AP, or even a clause, we have counted them as a case of incongruence. However, with the grammaticalization of those Japanese copula forms to complementizers as discourse markers, a total of 21 types of incongruence are accounted for by a simple assumption that Chinese (sentential) EL islands are inserted into a Japanese ML frame with complementizers derived from a copula.

Four types of CS involving the Chinese copula *shì* have been identified. All of them satisfy the criteria for sufficient congruence, due to the identification of Chinese as the ML projecting all CS with Chinese copula constructions. One interesting phenomenon is that *shì* never occurs independently. It is always accompanied by an adverb, like *dōu* 'all', or in its negative form as shown in Table 8.

**Table 8.** *Incongruence in CS with Negation combined with Copula*

| | Negation + Copula | Types | Incongruent Types | Example |
|---|---|---|---|---|
| Chinese | bú-shì- + NP | 3 | 0 | |
| Japanese | NP + -ja-nai | 3 | 2 | (17) |

All the three types of CS with Chinese negation combined with a copula are found to be sufficiently congruent with Chinese ML projecting. Two instances of CS with the Japanese negator combined with a copula were classified as incongruent, e.g. (17).

(17) Xiǎo-dòngwù shuìjiào-le *-ja* *-nai* *-yo.* (07081901)
Dim.-animal sleep-ASP be not SFP
{It is not that the little animals slept.}

However, as in examples (13) to (16), the Chinese clause *xiǎo-dòngwù shuìjiào-le* can be regarded as an EL island, inserted into the Japanese ML frame.

## Summary of CS with Negation and Copula Constructions

Table 9 summarizes the types of CS with negation and copula constructions in both Japanese and Chinese.

**Table 9.** *A Summary of CS Types with Negation and Copula Constructions*

| | Negation | Copula | Combination | Total | Percentage |
|---|---|---|---|---|---|
| Japanese | 7 | 58 | 4 | 69 | 64.5% (Japanese: ML) |
| Chinese | 32 | 3 | 3 | 38 | 35.5% (Chinese: ML) |
| Total | 39 | 61 | 7 | 107 | 100% |

In spite of the linear word order incongruence between the two constructions in Japanese and Chinese, a total of 107 types of CS utterances were observed involving the construction. However, compared with the total number of 1044 intra-sentential CS found in our data (see Table 4), this is not a big portion (only approximately 10.3%).

Most of the instances of CS we observed can be accounted for by the identification of a Matrix Language Frame (Myers-Scotton, 1993, 2002). In sum, 69

(64.5%) types of CS were projected by a Japanese MLF, and 38 (35.5%) by a Chinese MLF.[8]

Within the 107 types of CS involving either negation or copula construction, some are completely blocked for total incongruence, as predicted by the MLF model's Blocking Hypothesis, such as the negation patterns (c) and (d) in Table 5, patterns (e) and (f) in Table 6, and all instances of CS with the Chinese copula *shì*. These add up to a total of 24 types of blocking. Meanwhile, 52 out of the total 107 types of CS involved singly-occurring inserted elements. We did not regard them as instances of incongruence, since they can be fully accounted for by the Morpheme Order Principle (MOP) premised in the MLF model.

In addition, another total of 31 types of CS were identified as lacking sufficient congruence, as shown in Table 10. However, the incongruence can be explained by the promotion of a compromise strategy called the Embedded Language island, including Internal EL islands, as proposed in the MLF model.

**Table 10.** *CS Types of Incongruence with Negation and Copula Constructions*

| | Negation | Copula | Combination | Total | Percentage |
|---|---|---|---|---|---|
| Japanese | 2 | 21 | 0 | 23 | 74.2% |
| Chinese | 6 | 0 | 2 | 8 | 25.8% |
| Total | 8 | 21 | 2 | 31 | 100% |

In sum, Figure 3 illustrates the composition of the total 107 types of CS with negation and copula constructions, compatible with the MLF model. As shown in figure 3, 24 types (22.4%) are blocked according to the Blocking Hypothesis, 52 types (48.6%) follow the MOP, and the remaining 31 types (29.0%) achieve sufficient congruence by the compromise strategy of EL Islands.

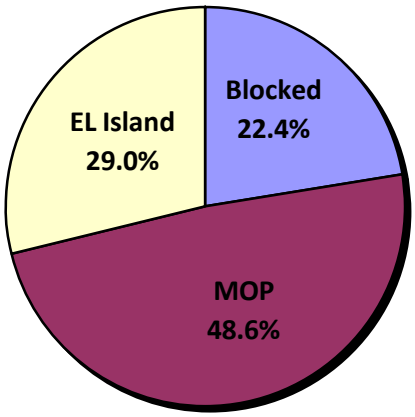


**Figure 3**. Three Components of CS with Negation and Copula Constructions

## Conclusion

This case study of a Japanese-Chinese bilingual infant investigated morpho-syntactic constraints on the framing of bilingual code switching. The current CS data involving a typologically different language pair provides some promising evidence to clarify the

notion of congruence or categorial equivalence. It has become a major issue in the study of grammatical constraints on CS processing, for the identification of categorial or structural congruence between two different languages can make certain predictions on the occurrence of code switching.

Two previous approaches to the issue of congruence, especially word order equivalence were reviewed, including the Equivalence Constraint (Poplack, 1980), and the MLF model (Myers-Scotton, 1993, 2002). Due to the limitation of the Equivalence Constraint, we adopted Myers-Scotton's MLF model as the theoretical framework for the present case study. In order to test the validity of the MLF model, we focused on two typical constructions that best reflect the word order differences between the Japanese and Chinese languages: negation and copula constructions.

In addressing the three research questions the study has found:

1. Within the present database, a large number of CS utterances (1044 tokens) have been found. Of those, 107 instances of CS with negation and copula constructions were identified.
2. As shown in Figure 3, within the 107 types of CS involving the two constructions, 24 (22.4%) have been 'blocked' due to complete incongruence; 52 (48.6%) follow the Morpheme Order Principle, as outlined in the MLF model; and 31 (29.0%) promote the compromise strategy of EL island or Internal EL island.
3. All those are compatible with the premises of the MLF model. Hence, the MLF model can adequately account for word order incongruence in Japanese-Chinese code switching processing.

In conclusion, the present study on word order incongruence of Japanese Chinese code switching provides empirical support for the MLF model. The linear word order congruence can be realized by a hierarchical processing of insertion, which proves the identification of a matrix language frame to be necessary. However, since this study was only based on a specific area of the database, it cannot imply a generalization for the whole data set. For a comprehensive study on the nature of congruence in Japanese and Chinese code switching, we need to carry out more detailed analyses to obtain more varied empirical evidence, such as certain categorial congruence, like particles and other function words. These will be left for further research. In addition, the present study mainly focused on the syntagmatic congruence viewed from word order, suggesting that the notion of congruence must be viewed both syntagmatically and paradigmatically in order to clarify how categorial congruence can contribute to the study of grammatical constraints on code switching, as well as bilingual language processing.

## References

Bantahila, Abdelâli and Davies, E. E. (1983). The syntax of Arabic-French code-switching. *Lingua 59*: 301-30.

Cantone, K. F. (2007). *Code-switching in bilingual children*. Dordrecht: Springer.

De Houwer, A. (1990). *The acquisition of two languages from birth: A case study*. Cambridge: Cambridge University Press.

Deuchar, M and Quay, S. (2000). *Bilingual acquisition: Theoretical implication of a case study*. Oxford: Oxford University Press.

Deuchar, M. (2005). Congruence and code-switching in Welsh. *Bilingualism: Language and Cognition,* 8:3, 1-15.

Genesee, F. (2001). Bilingual first language acquisition: Exploring the limits of the language faculty. In M. McGroarty (Ed.), *21st Annual Review of Applied Linguistics*.

(pp. 153-168). Cambridge: Cambridge University Press.
Genesee, F., Nicoladis, E., & Paradis, J. (1995). Language differentiation in early bilingual development. *Journal of Child Language*, 22, 611-631.
Joshi, A. (1985). Processing of sentences with intrasentential code switching. In D. Dowty, L. Karttunen and A. Zwicky (Eds.), *Natural language parsing*. (pp. 190-205). Cambridge: Cambridge University Press.
Lanza, E. (1992). Can bilingual two-year-olds code-switch? *Journal of Child Language*. 19:3, 633-658.
Lanza, E. (1997). *Language mixing in infant bilingualism: A sociolinguistic perspective*. Oxford: Clarendon Press.
Li, C. N. and Thompson, S. A. (1981). *Mandarin Chinese: A functional reference grammar*. Berkeley: University of California Press.
MacWhinney, B. (2000). *The CHILDES project: Tools for analyzing talk*. 3rd Edition. Mahwah, NJ: Lawrence Erlbaum Associates.
Meng, H. R. and Miyamoto, T. (2009). Code switching in a Japanese-Chinese bilingual infant: A study on language dominance. *Proceedings in the 138th Conference of the Linguistic Society of Japan*. June 20-21, 2009. Chiba, Tokyo.
Muysken, P. (1995). Code-switching and grammatical theory. In L. Milroy and P. Muysken (Eds.), *One speaker, two languages: Cross-disciplinary perspectives on code-switching*. (pp. 177-198). Cambridge: Cambridge University Press.
Muysken, P. (2000). *Bilingual speech: A typology of code-mixing*. Cambridge: Cambridge University Press.
Müller, N. and Cantone, K. F. (2009). Language miXing in bilingual children: Code-switching? In B. E. Bullock and A. J. Toribio (Eds.), *The Cambridge handbook of linguistic code-switching*. (pp. 199-220). Cambridge: Cambridge University Press.
Myers-Scotton, C. (1993). *Duelling languages: Grammatical structure in codeswitching*. Oxford: Oxford University Press.
Myers-Scotton, C. (2002). *Contact linguistics: Bilingual encounters and grammatical outcomes*. Oxford: Oxford University Press.
Myers-Scotton, C. and 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. and Jake, J.L. (2009). A universal model of code-switching and bilingual language processing and production. In B. E. Bullock and A. J. Toribio (Eds.), *The Cambridge handbook of linguistic code-switching*. (pp. 336-357). Cambridge: Cambridge University Press.
Namba, K. (2009). A continuum-based model for insertional code-switching: Japanese nominal insertions in English matrix language frames. *Japan Journal of Multilingualism and Multiculturalism*. Vol. 15: 18-40.
Poplack, S. (1980). 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.
Takagi, M. (2007). Grammatical congruence in Japanese-English insertional code-switching. *Journal of Inquiry and Research,* No. 85, 19-35. Kansai Gaidai University.
Weinreich, U. (1953). *Language in contact: Findings and problems*. New York: Publications of the Linguistic Circle of New York. No. 1.

## Appendix

*Abbreviations:*

ACC accusative case
ASP aspect
Adj. adjective
Adv. adverb
CS Code Switching

Comp. complement
Dim. Diminutive
EL Embedded Language
Hon. honorific form
LOC locative
ML Matrix Language
MLF Matrix Language Frame
MOP Morpheme Order Principle
NOM nominal case
NP noun phrase
SFP sentence final particle
TOP topic marker
V verb

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[1] In the present paper, code switching in children is considered to follow the same grammatical constraints as that of adults, following De Houwer (1990), Lanza (1997), Genesee (2001) and Cantone (2007). In fact, child speech is less influenced by external factors than adult speech. Hence, "what children utter reflects what is possible in CS in the most unfiltered way" (Müller & Cantone, 2009, p. 204).

[2] This is a Japanese-Chinese CS utterance taken from diary data kept by the researcher. The number represents the date when the utterance occurred. However, the diary data has not been used for the present analyses in this paper.

[3] The selection of data for transcription follows two principles. One is to make the time distribution average roughly one hour per month. The other is an intention to select those with comparatively better quality and quantitatively more utterances from the target child.

[4] The number of types represents the time of occurrence for each pattern of the negation or copula construction, while the number of token may include the times for the same pattern that occurred repeatedly.

[5] Since the input environment is Chinese-dominant led by the parents, the base language for all the recordings is regarded as Chinese. Hence any Japanese utterances will be considered inter-sentential code switching.

[6] The series of number that appears after every example corresponds to the name of the recording file, indicating the recording date.

[7] Up to this point, we have not talked about the identification of the ML for the whole CS utterance beyond the negation construction, because this question concerns the interpretation of the feature of Japanese sentence final particles, such as *-ne* in example (9). Is it an 'outsider late system morpheme' or 'content morpheme' according to the 4-M model (Myers-Scotton, 2002), or should it be interpreted as an alternation type of CS, under the typology of CS proposed by Muysken (1995, 2000)? This question is not the focus of the present discussion, although the number of code switches involving these sentence final particles is high in our data. This topic will be left for further research.

[8] The MLF model predicts an asymmetry between the two languages involved in CS framing. However, from our data of CS with negation and copula constructions, the asymmetry is not obviously identified. But in one of our previous studies on language dominance (Meng and Miyamoto, 2009), Japanese did play a more dominant role in CS projecting. Further studies need to be carried out concerning the issue of asymmetry in CS constraints.