

# Grammatical structures in code-switching among second generation Chinese-Australian students

LIN ZHENG  
DEAKIN UNIVERSITY

*This paper is based on an analysis of audio-recordings of interviews conducted at three primary schools in Victoria. The syntactic convergence or transference, which accompanies switching takes place at three levels: typological, structural, and classificatory. The Matrix Language Frame Model (Myers-Scotton 1993b, 1997a), revised to include the Composite Matrix Language (Bolonyai 1998), successfully deals with all forms of switching in my corpus. However, it is highly doubtful if grammatical constraints (Clyne 1987) as such exist in switching between Chinese and English. My data rather supports the existence of facilitators or tendencies.*

## 1. Introduction

In this paper, the role of grammatical structures in code-switching among Chinese-Australian bilingual children will be discussed at three levels: typological, structural and classificatory. Particular regard will be paid as to whether there is evidence of structural facilitators or constraints on code-switching between Chinese and English.

The data for this paper comes from an intensive examination of speech behaviours from thirty subjects at three schools in Victoria. The subjects were divided into six groups by sex and age: 10-11 year-olds, 8-9 year-olds and 6-7 year-olds. There were five subjects in each of the six groups. All were native speakers of Mandarin Chinese. School A taught Chinese, and School B taught Spanish, whereas School C did not teach any languages other than English.

After introducing a contrast between Chinese and English syntax, the paper explores the relationship between code-switching and how it is facilitated or constrained by similarity of grammatical systems, word order and grammatical classes. I then review other structural constraints on code switching, notably, so called 'phrase boundaries (as code-switching points)' (Clyne 1987), 'sentence insertion' (Kachru 1978), 'free morpheme constraint' (Sankoff and Poplack 1979), 'semantic constraint' (Pfaff 1979) and document various violations of 'government constraint' (Di Sciullo *et al.* 1986). I conclude with interpretations of code-switching using the Matrix Language Frame Model (Myers-Scotton 1993, 1997) revised to include the 'Composite Matrix Language' (Bolonyai 1998).

## 2. Chinese and English syntax

Chinese and English have a similar SVO (Subject + Verb + Object) sentence structure and share some other grammatical rules, such as Adjective + N, which is generally not a characteristic of SVO languages (Greenberg *et al.* 1978; Lehmann 1977; Comrie 1981; Clyne 1991:176). The position of adverbials in English, however, is much more flexible than in Chinese. There are three basic positions for adverbials in English depending on pragmatic emphasis, for instance, (a) at the beginning of a sentence; (b) at the end of a sentence; or (c) following the verb 'to be', auxiliary verbs and modal verbs, and preceding other verbs. Consider the following examples:

- (a) Usually I do the washing myself. [Adverb at the beginning in English]
- (b) I do the washing myself, usually. [Adverb at the end in English, only under specific circumstances]
- (c) I usually do the washing myself. [Adverb preceding verb 'do' in English]

In sentence (a), the habitual activity is emphasised. Sentence (b) occurs only under specific circumstances. In (c) the adverbial *usually* means 'usually' not necessarily 'always'. However, in Chinese, adverbial adjuncts must precede, not follow, the items that they modify or restrict, as follows:

- (d) wǒ tōngcháng zìjǐ xǐ yīfu.  
I USUALLY myself do the washing.  
[Adverb preceding verb in Chinese]

Nevertheless, sentence (d) in Chinese does not have the functions of sentence (a), (b) and (c) in English. These different functions are expressed by different system morphemes in Chinese rather than by different positions of an adverb in a sentence as in English. However, in sentence (c) and (d) the positions of the adverb *usually* preceding the verb *do* are the same in English and Chinese.

Whereas English has a less complex system of grammatical inflections than other Indo-European languages, Chinese has no inflections at all. Chinese has a morphological category of aspect, but most of its items have a single form, which does not change according to number, case, gender, tense, mood or any of the other inflectional categories familiar in inflected languages.

### 3. Syntactic convergence and code-switching

Code-switching is often accompanied by syntactic convergence (Gumperz 1964; Clyne 1987, 1991; Appel and Muysken 1987; Romaine 1989). The Chinese-Australian children on whom this study is based sometimes appear to map out the sentences according to English patterns while they switch from Chinese to English.

I have found in my corpus that code-switching is sometimes accompanied by syntactic convergence, but not always. This section will describe syntactic convergence accompanying code-switching at three levels of grammar: (1) the grammatical systems; (2) grammatical structures; and (3) grammatical classes.

#### 3.1 Grammatical systems

"Not only do different languages have different inflectional categories, but the same category may function differently in one language from the way it does in the other, so that the function of number, case, person and tense is different in each language" (Mackey 1965:89). The areas where Chinese and English show syntactical convergence are the invariable nature of most Chinese words and some English inflectional categories.

The four main syntactic facilitators of code-switching are as follows: (1) the absence of case morphology in Chinese; (2) the lack of inflectional morphology marking gender, plurality, aspect and tense in Chinese; (3) the absence in Chinese of overt markers on the verbs; and (4) Chinese coverbs.

In Chinese, the only way to tell who did what to whom is by word order. Thus, in Givón's (1979) terms, Chinese has an even less pragmatic word order than English. Ordinarily, the noun phrase before the verb is the experiencer and the noun phrase after the verb experiencee, much as in English. Generally in natural discourse it is usually clear who is who. But when Chinese and English mapping diverges, switching may occur. For instance:

- (1) [Question in Chn.(Lin): hái yǒu shuí? 'Is there any one else?']  
SO IS GRANDPA, yǒu yī gè yéye...  
so is grandpa, there is a -cl grandpa

'So is grandpa, there is a grandpa.'

(2-4, SC1)

Stand. Chn.: HAI YOU YI GE YEYE, ...  
there is also a grandpa, ...

The English expression, *so is grandpa*, is in inverted word order relative to Chinese, which is declarative. The subject is *grandpa* and the predicate is *so is*. Standard Chinese omits the subject while the verb is HAI YOU 'there is also' and the object is YI GE YEYE 'a grandpa'. Here code-switching from Chinese to English is facilitated by the absence of case morphology in Chinese and also the absence of inflectional morphology of gender, plurality and tense in Chinese.

Because there is no inflectional morphology in Chinese, gender, plurality, aspect and tense are either indicated by lexical choice or not at all. The absence of morphological markers in Chinese (compared with English) is similar to the existence of a particular English lexical item that does not have an exact equivalent in Chinese. The children may switch from Chinese to English at a verb if they want to mark any of these features explicitly. Consider, for instance, the following example:

(2) yī gè rén IS CARRYING THE BIRTHDAY CAKE.

a-cl man is carrying the birthday cake

'A man is carrying the birthday cake.'

(2-4, SB3)

Stand. Chn.: yī gè rén ZAI NA ZHE YI GE SHENGRI DANGAO.

In this case, the child may switch to the English singular form of the third person of present progressive tense because Chinese has no (exact) equivalent. A switch to English grammar is opposed to Chinese, wherein tense may be shown by a time adverbial or in the discourse context. This is an instance of code-switching to an English verb phrase of the present progressive which is accompanied by syntactic convergence.

In my corpus there are two instances of code-switching to English verb phrases of the present progressive which are accompanied by syntactic convergence, and fourteen cases of code-switching to English present particle phrases accompanied by syntactic convergence towards the English present progressive.

The data analysis shows three kinds of code-switching phenomena from Chinese to English triggered by the absence of overt-verb markers in Chinese: (1) switches of the 'Bare Form' (Myers-Scotton 1993:112); (2) 'EL (embedded language) islands' (Myers-Scotton 1993:3); and (3) Chinese auxiliary + English verb.

Myers-Scotton (1993) refers to an EL morpheme without inflections (or modifying function words from either ML (matrix language) or EL) as the 'bare form of the verb'. The languages with 'bare forms' include those that are more inflected than English and far more so than Chinese. The use of 'bare forms' is a common strategy among bilinguals or multilinguals to avoid conflict between ML and EL morpheme order. The following sentence contains an example of code-switching to an English verb phrase with a 'bare form':

(3) kàn tā yī fēnzhōng SWING duōshǎo cì.

watch it one minute swing how many time

'Watch how many times it swings in one minute.'

(2-5, SD2)

Stand. Chn.: kàn tā yī fēnzhōng BAIDONG duōshǎo cì.

Notice that in (3) the verb *swing* is the predicate of the objective clause in this present-indefinite-tense sentence. In English grammar, the form of the verb *swing* must agree with its subject TA 'it', so that the correct form should be 'swings'. Since Chinese verbs are not inflected, the child switches to the English 'bare form verb' *swing* with grammatical transference from Chinese in order to avoid a clash of the two morphemes. In my corpus, six examples contain code-switching to the 'bare form' of the English verb.

Myers-Scotton (1993:120-61) suggests that obligatory 'EL islands' are the result of EL morphemes prohibited under either the 'ML hypothesis' or the 'blocking hypothesis'. In my corpus, there are five examples of code-switching to English present participle (phrase) which functions as an adverbial that forms an 'EL island'. Here the children tend to select English vocabulary from the mental lexicon and activate only English morphosyntactic patterns and lexemes. Here is an example of code-switching to an English 'EL island'.

- (4) [Question in Chn.(Lin): nǐ kàn, zhè zhī xióngmāo zài zuò shénme? 'Look, what is the panda doing?']  
zài zǒulù, LOOKING FOR SOMETHING TO EAT  
dur- walk looking for something to eat  
'[The panda] is walking, looking for something to eat.'  
(4-2, SC2)  
Stand. Chn.: (zhè zhī xióngmāo YIBIAN) zài zǒulù, (YIBIAN) ZAI XUNZHAO DONGXI CHI.

In this sentence, the present participle phrase *looking for something to eat* plays the role of an accompanying adverbial. Chinese does not form a present participle. In order to express that someone is 'simultaneously' doing two things, one must employ a coordinate complex sentence structure such as ...YI BIAN..., YI BIAN... . There are four instances of EL islands in my corpus.

There are three cases of code-switching between a Chinese auxiliary and an English verb (verb phrase). For instance:

- (5) xǐhuan, kěyi FIND SOMETHING  
like, can find something  
'[I] like [going because I] can find something [there].'  
(3-2, SD3)  
Stand. Chn.: xǐhuan, kěyi FAXIAN YIXIE DONGXI.

This sentence contains a switch between the Chinese auxiliary verb KEYI 'can' and an English verb phrase *find something*. In Chinese grammar, auxiliary verbs often perform the functions of adverbials before verbs and adjectives. The child may have confused the role of an auxiliary verb in Chinese and English. So he switches to the English verb phrase.

Chinese coverbs are part verb and part preposition. This mixed status permits them to be used as verbs or prepositions where the meaning is similar. Sentences containing coverbs may be viewed as a type of serial verb construction. However, in my corpus, there is only one switch from Chinese to English that may be triggered by the serial verb construction. It is similar to code-switching due to the absence of overt markers among verbs in Chinese.

- (6) dào BEACH TO HIDE...  
go to beach to hide...  
'[Many penguins] went to the beach to hide.'  
(2-2, SC2)  
Stand. Chn.: [yǒu hěnduō qǐér] dào HAIBIAN DUO QILAI.

In this instance, the switch to English may be motivated by confusion concerning the Chinese coverb DAO 'go to', and code-switching may help the child indicate that the coverb is a verb in this sentence. The Australian beach in the picture may also motivate the switch.

In general, the data I have analysed in Section 3.1 appear to suggest that syntactic transference or convergence may occur in switches by children. Four main typological factors may facilitate code-switching from Chinese to English: (1) the marked use of case morphology; (2) the marked use of the progressive; (3) the overt verb marker facilitators; and (4) the coverb facilitators. Besides these typological factors, syntactic convergence may be motivated by some structural factors that will be discussed in the following section.



Here the syntactic convergence towards English occurs from 15 HAO before the switch *Alice Road*.... Another similar phenomenon is found in a noun phrase giving a date. The word order of dates in Chinese is also the opposite to that in English.

- (10) [Question in Chn.(Lin): nǐ shì shénme shíhòu lái àodàliya de? 'When did you come to Australia?']  
 4TH OF OCTOBER, yī jiǔ bā yī  
 4th of October 1 9 8 1  
 '4th of October, 1981'  
 (1-5, SD1)  
 Stand. Chi.: ...1981 nián 10 yuè 4 rì [year + month + day]

In this case, the child's switch to English is accompanied by syntactic convergence towards English word order.

The comparison of the adjective and adverb also offers potential for syntactic convergence in the corpus. It may also trigger code-switching from Chinese to English. The following is the only example in my corpus.

- (11) hǎo, xǐhuan. yīnwéi bǐjiào duō FREEDOM THAN IN TAIWAN.  
 good like because comparatively more freedom than in Taiwan  
 '[It is] good and [I] like [Australia], because there is comparatively more freedom than in Taiwan.'  
 (1-5, SD1)  
 Stand. Chn.: ...YU ZAI TAIWAN [bǐ, zài àodàliya yǒu] bǐjiào duō de ZIYOU.  
 ...compared with Taiwan, in Australia there is more freedom.

In this sentence, the syntactic convergence occurs from BIJIAO DUO 'comparatively more' *freedom than in Taiwan* towards the English word order of the comparison of the adjective. In standard Chinese, the expression should be YU ZAI TAIWAN BI, AODALIYA YOU BIJIAO DUO DE ZIYOU 'compared with Taiwan, in Australia there is more freedom'. The adverbial phrase *compared with Taiwan* must be placed at the beginning of the sentence.

In general, the syntactic convergence towards English which accompanies code-switching may be facilitated by adverbial position, attributive position, order of residential address and date, and order of comparative degree. Seventeen cases of code-switching facilitated by these structural factors occurred in my corpus.

### 3.3 Grammatical classes

Code-switching may be facilitated by a word (e.g. a verb) used in the same way in one language as a word belonging to an entirely different part of speech in another language. For instance:

- (12) [Question in Chn.(Lin): nǐ kàn, zhèi zhāng zhàopiàn shàng yǒu shénme? 'Look, what are on the picture?']  
 THERE ARE yǒu rén zài lù biān.  
 there are some person at road side  
 'There are some people at the side of road.'  
 (6-5, SA3)  
 Stand. Chn.: yǒu rén zài lù biān.

Here the Chinese word YOU can be translated into English as either 'there are' or 'some'. The switch to English is facilitated by the functional non-correspondence of the items in the two languages.

### 3.4 Concluding remarks on syntactic convergence and code-switching

Consequently, in my corpus, code-switching accompanied by syntactic convergence occurs at three levels: grammatical systems, structures and classes. These data also affirm 'EL island' constituents.

#### 4. Other structural constraints on code-switching

In this section, I will discuss several other structural constraints on code-switching that have been proposed in the literature. These grammatical constraints are: (1) 'integral-unit-planning constraint' or phrase boundary as a point of code-switching; (2) 'conjunction constraint'; (3) 'free-morpheme constraint'; (4) 'semantic constraint'; and (5) 'government constraint'.

##### 4.1 The phrase boundary as a point of code-switching

Code-switching of an entire prepositional phrase, adverbial phrase, noun phrase, verb phrase and direct quotation as object or predicate, is very common. The data affirm "the psychological reality of the phrase as an integral unit of planning" (Clyne 1987:757). I propose to discuss this kind of phenomenon of code-switching at the point of phrase boundary from two points of view: (1) code-switching of a prepositional phrase and the 'semantic constraint'; and (2) code-switching of an adverbial phrase.

According to Pfaff's (1979:310) 'semantic constraint', only whole locative prepositional phrase switches occur often, but not code-switching of figurative or temporal prepositional phrases.

The data analysis shows that the incidence of code-switching of a prepositional phrase is not high among the bilingual children. There are thirteen instances of code-switching to an English prepositional phrase. Eleven of them are switches of a whole prepositional phrase, while there are only two cases showing switches to part of an English prepositional phrase. The eleven complete English prepositional phrases include five locative switches, five temporal ones and one figurative switch. The temporal ones contravene the 'semantic constraint'. The two instances of switches to part of an English prepositional phrase include one locative prepositional phrase and one manner prepositional phrase.

Since the data indicate both instances and violations of the 'semantic constraint', it seems highly doubtful that any 'semantic constraint' applies to the Chinese-English code-switching in my corpus.

The phrase boundary may be a natural location to code-switch an entire prepositional phrase. Following is an example that indicates "the psychological reality of the phrase as an integral unit of planning".

- (13) [Question in Chn. (Lin): nǐ kàn, zhèi zhī xióngmāo zài zuò shénme? 'Look, what is this panda doing?']  
 ON THE GRASS, tā yào KAI TA- DE KOU, LIKE YAWNING  
 on the grass it want open it -gen mouth like yawning  
 'On the grass it wants to open its mouth like yawning.'  
 (2-4, SC2)  
 Stand. Chn.: ZAI CAODI SHANG tā zài ZHANG DA ZUI, XIANG DA HAQI.  
 on the grass it is widely opening its mouth like yawning

In (13) there are two switched English prepositional phrases, one a locative prepositional phrase *on the grass* and the other a figurative prepositional phrase *like yawning*. Example (13) also contains a Chinese verb phrase KAI TA DE KOU 'open his mouth' in the English collocation.

Besides the switches of entire prepositional phrases, there are six examples of switches to entire English adverbial phrases.

- (14) chābùduō 10 diǎn huò 9 diǎn SOMETIME AROUND TEN  
 nearly 10 o'clock or 9 o'clock sometime around ten  
 '[I go to bed] around 10 or 9 o'clock. [It is] sometime around 10.'  
 (4-1, SD2)

In this case, the child switches at the phrase boundary of *sometime*.... The switch to the entire English adverbial phrase *sometime around ten* indicates not only 'the psychological reality of the phrase as an integral unit of planning', but also the social function as a result of repetition so as to clarify what is being said.

My data also show that code-switching to an English noun phrase, verb phrase or direct quotation as object or predicate is very common. The switches to an entire English prepositional phrase, adverbial phrase, noun phrase, verb phrase and direct quotation as object or predicate, support the 'integral-unit-planning constraint'. This demonstrates that 'semantic constraint' is unlikely to work in the Chinese-Australian bilinguals' code-switching. The incidence of code-switching at the phrase boundary is very high.

#### 4.2 'Conjunction constraint' or 'sentence insertion'

Gumperz (1982:88) proposes that "the conjunction always goes with the second switched phrase" while both co-ordinate and subordinate conjoined sentences can be switched. However, Kachru's (1978) opinion is the very opposite to Gumperz. Kachru (1978:39-40) shows several examples of code-mixing in Hindi and English where the conjunction goes with the first language. Kachru (1978:33) states that in structuring code-mixing, it is very common for English-Hindi bilinguals to insert a sentence of a language different from that of the discourse, which "may be either an embedded, conjoined or appositional sentence". In my corpus, the data hardly supports the 'conjunction constraint' proposed by Gumperz. But Kachru's term 'sentence insertion' may better explain code-switching with a conjunction in a coordinate or subordinate conjoined sentence.

The only case of code-switching to English with a conjunction in a co-ordinate conjoined sentence is in (15), which supports Gumperz's proposal. In this example, the child switches to English at the conjunction *but*.

- (15) wǒ jiā yǒu hěnduō zhōngwén shū, BUT I AM NOT INTERESTED IN IT.  
I family have many Chinese book but I am not interested in it  
'My family have many Chinese books, but I am not interested in them.'  
(3-5, SA1)  
Stand. Chn.: wǒ jiā yǒu hěnduō zhōngwén shū, KESHI WO DUI TAMEN BU GAN XINGQU.

However, in my corpus, three instances of Chinese response with an English time adverbial clause in a subordinate conjoined sentence do not support Gumperz's proposal, for example:

- (16) [Question in Chn. (Lin): nǐ māma zài jiā shénme shíhou shuō yīngyǔ? 'When does your mother speak English at home?']  
WHEN ENGLISH PEOPLE COME, tā shuō yīngyǔ.  
when English people come she speak English  
'When English people come, she speaks English.'  
(2-4, SD1)  
Stand. Chn.: DANG AOZHOUEN LAI DE SHIHOU, tā shuō yīngyǔ.

Both (15) and (16) are examples of code-switching to an English coordinate or subordinate conjoined sentence. They more likely support Kachru's proposal of 'sentence insertion'.

#### 4.3 'Free-morpheme constraint'

Sankoff and Poplack (1979) claim that code-switching between a bound morpheme and the lexical form occurs only when the lexical form is phonologically integrated into the language of the bound morpheme. However, in my corpus, twelve examples contradict this 'free-morpheme constraint'. The evidence against the constraint can be divided into three categories: (1) code-switching to and from a Chinese structure particle -DE; (2) code-switching to a Chinese structure particle -DE; and (3) code-switching to a Chinese modal particle -LE. The English lexical forms are integrated into Chinese through the addition of the Chinese particles.

My corpus contains eleven instances of code-switching between an English lexical form and a free bound morpheme, particle -DE. An instance is:

- (17) méi yǒu hěn INTERESTING de  
 not there be very interesting -noms  
 'There is not anything very interesting.'  
 (4-1, SD3)  
 Stand. Chn.: méi yǒu hěn YOUQU DE SHIQING.

In this sentence, the English adjective *interesting* is integrated into Chinese through the addition of the Chinese particle -DE. The switch between the English lexical form *interesting* and the Chinese bound morpheme -DE contravenes the 'free-morpheme constraint'.

The following is an example of code-switching between an English lexical form, a Chinese structure morpheme -DE and an English lexical form.

- (18) zài dǎ qiú chǎng, BASKETBALL de BASKET.  
 at- play ball ground basketball -gen basket  
 '[This is] a basket for basketball at the playground.'  
 (2-2, SC1)  
 Stand. Chn.: [zhè shì] qiúchǎng shàng de LANQIU (DE) QIUKUANG.

In this sentence, two switches to English nouns *basketball* and *basket* are integrated into Chinese through the addition of the Chinese particle -DE. The switch between the lexical form *basketball* and the bound morpheme -DE contradicts the 'free-morpheme constraint', while the second switch to the English word *basket* may be triggered by the first switch *basketball*.

There is only one case of code-switching between an English lexical form and the Chinese bound morpheme modal particle -LE.

- (19) bù xǐhuan, yī diǎn diǎn tài BORING le.  
 not like a bit bit too boring -crs  
 '[I] don't like [it] for it is quite boring.'  
 (1-5, SD1)  
 Stand. Chn.: bù xǐhuan, [nà] LINGREN hěn YANFAN.

Example (19) contains an integration of the English adjective *boring* into Chinese through the addition of the Chinese particle -LE.

#### 4.4 Violations of 'the government constraint'

Di Sciullo *et al.* (1986) attempt to synthesise, within government and binding theory, a number of the constraints proposed under a universal code-switching principle that code-switching occurs only between elements not related to government. This is referred to as the 'government constraint'.

Although the 'government constraint' works in 619 cases, 162 instances contradict it. The violations of the 'government constraint' may be divided into four categories: (1) code-switching from a Chinese verb to an English object; (2) code-switching between an English verb and a Chinese object; (3) code-switching between a Chinese preposition and an English noun or noun phrase; and (4) code-switching between an English preposition and a Chinese noun or noun phrase.

In my corpus, there are 72 instances of code-switching from a Chinese verb to an English object, one of which is shown in the following example:

- (20) yǒu yī gè rén zài qīng WINDOW  
 some one -cl man pg- clean window  
 'Someone is cleaning the window.'  
 (1-5, SB2)  
 Stand. Chn.: yǒu yī gè rén zài qīngxǐ CHUANGHU.

In (20) the child switches from the Chinese verb QING 'clean' to the English noun *window* as an object in the sentence, which is a violation of the 'government constraint'.

Seven instances of code-switching between an English verb and a Chinese object have been found in the corpus, e.g.:

- (21) yī gè rén zài CHOP shù.  
 one -cl man pg- chop tree  
 'A man is chopping trees.'  
 (3-5, SB1)  
 Stand. Chn.: yī gè rén zài KAN shù.

In this sentence, there are two switches: one to the English 'bare form of the verb' *chop* (see 3.1.3.1) and the other between the English verb *chop* and the Chinese object SHU 'tree', a violation of the 'government constraint'. The integration of the English verb *chop* into Chinese discourse may result from the situation where an English man is chopping trees in a picture.

The instances of code-switching between a Chinese preposition and an English noun or noun phrase total seventy-nine. This is also evidence contradicting the 'government constraint'. One typical example is:

- (22) ZAI SHOP LIMIAN yǒu yī gè bīngjīlín PARTY HAT.  
 in- shop -inside there be a -cl ice-cream party hat  
 'In the shop, there is an ice-cream party hat.'  
 (6-2, SB3)  
 Stand. Chn.: ZAI SHANGDIAN LIMIAN yǒu yī gè bīngjīlín de PAIDUI MAOZI.

In this sentence, there are two switches to an English noun or noun phrase. The first switch occurs between the Chinese preposition ZAI...LIMIAN 'in' and the English noun *shop*. This is particularly interesting because *shop* is sandwiched between ZAI and LIMIAN. The English morpheme *shop* is integrated into the Chinese discourse through the Chinese prepositional pattern ZAI...LIMIAN, which contradicts the 'government constraint'. The second switch to the English noun phrase *party hat* may be topically motivated because it is so firmly based in the situation of growing up in Australia.

Code-switching between an English preposition and a Chinese noun or noun phrase takes place four times in my corpus. The following is an example:

- (23) liǎng gè BIRDS STANDING ON THE shù.  
 two -cl birds standing on the tree  
 'The two birds are standing on the tree.'  
 (2-4, SC2)  
 Stand. Chn.: liǎng zhī NIAO ZAI SHUZHI SHANG.  
 Two -cl bird are on- branch -on

This utterance contains two switches: (1) a switch to English at the neutral falling tone word GE and perhaps motivated by the picture of birds that the child has learned about at school in Australia; and (2) switch-back to Chinese within a

prepositional phrase *on the SHU 'tree'* violating the 'government constraint' as a result of awareness of the previous code-switching.

The phenomena of code-switching between V + O and Preposition + N (noun phrase) are very common in my corpus. All of them violate the 'government constraint'.

## 5. Interpretation of some code-switching data according to the Matrix Language Frame Model

According to Myers-Scotton (1993, 1997), the Matrix Language with its grammatical frame plays a dominant role in code-switching. In my data two of the three types of constituents within the ML Frame (MLF) are facilitated in sentences showing intra-sentential code-switching. They are: (1) ML and EL constituents; (2) ML islands; and (3) EL islands. Incidentally Myers-Scotton and Jake (2001) develop two more sub-models: the 4-M model and the Abstract Level model for the MLF model "to investigate the linguistic knowledge that underlies CS" (2001:84). The two models will be discussed separately.

### 5.1 The hypothesis of ML and EL constituents

Myers-Scotton (1993) explains that the ML and EL constituents comprise morphemes from the two or more participating languages. When the ML grammar controls the framing of the ML and EL constituents, only ML vocabulary is activated to produce these constituents, while EL vocabulary provides some content morphemes that must match the specifications set by the ML vocabulary. In my corpus, the data confirm this hypothesis. The greater number of instances fall into these frames.

Examples (3), (17), (18), (19), (20), (21) and (22) belong to the ML and EL constituents' frame. In this frame, the children used Chinese (ML) utterances with switches to English (EL) nouns, verbs, adjectives, adverbs, conjunctions, prepositions, numerals or a pronoun, without syntactic convergence towards, or syntactic transference from English.

### 5.2 The 'EL islands' hypothesis

According to Myers-Scotton (1993) the only time 'EL islands' may be formed is when ML grammar is held back and EL grammatical procedures are activated. The EL islands can be divided into two groups: (1) obligatory EL islands; and (2) optional ones. In the 'obligatory EL islands' group, there are two factors leading to EL islands: (1) the bilinguals' motivation as a result of code-switching to EL islands; and (2) an access by error taking place due to a syntactically active EL system morpheme so as to complete the EL islands from the initiated EL constituent. The 'optional EL islands' include the following six divisions: (1) temporal and manner prepositional phrases (PPs) and verb phrase (VP) complements; (2) noun phrase (NP)/ PP adjuncts used adverbially; (3) adverbial phrases and NPs especially as VP complements; (4) non-quantifier, non-time NPs as VP complements (NPs, adverbial phrases, complements); (5) agent NPs; and (6) main finite verbs with full inflections (Myers-Scotton 1993:144).

In my data, there are many instances supporting the EL islands expectations. The cases discussed in Section 3 (syntactic convergence and code-switching), Section 4.1 (the phrase boundary as a point of code-switching) and Section 4.2 (conjunction constraint), all belong to the EL island code-switching category except for example (3).

#### 5.2.1 'Obligatory EL islands'

In Section 3 there are many instances of code-switching as an 'obligatory EL island'. (4) is an example of code-switching to an English non-finite VP, which may be explained as an obligatory EL island because of either the child's intention or an access by error. A similar explanation can be given for (5) and (7). (6) is an example of code-switching to an obligatory EL island facilitated by the coverb constraint. Both (9) and (10) contain obligatory EL islands due to the word order of date or residential address generalised as in English. In (11), the framing of an EL island results from selecting the English structure of comparison of adjective/adverb in a switch. There is an obligatory EL island in (12) because of the grammatical classes.

The two instances [(15) and (16)] in Section 4.2 concerning the conjunction constraint can also be categorised as obligatory EL islands.

### 5.2.2 'Optional EL islands'

Section 3 contains several instances of 'optional EL islands'. Sentence (1) is an example of code-switching with syntactic convergence towards English, which can also be explained by the theory of optional EL islands due to the formulaic or idiomatic inversion *so is grandpa*. Example (2) contains an optional EL island as a result of the main finite verbs having full inflections.

According to Myers-Scotton (1993:144) these 'optional EL islands' can be categorised into two groups:

- I. Formulaic expressions and idioms  
(13) contains two prepositional phrases: one locative and the other figurative used adverbially.
- II. Other time and manner expressions  
(14) is an instance of a noun phrase used adverbially.

In my corpus, the data include examples of the two kinds of EL islands: obligatory EL islands and optional EL islands. The greater number of examples is of the former category.

### 5.3 Discussion

In terms of surface configuration, intrasentential code-switching phenomena can be categorised into three types: (1) a sentence containing code-switching without syntactic convergence or transference (ML + EL constituents); (2) a sentence which has switches accompanied by syntactic transference towards EL (ML islands + EL islands); and (3) a sentence with switches to EL accompanied only by syntactic convergence (incomplete syntactic transference). In my corpus, the 'unified categorisation' of the MLF model accounts for more kinds of intrasentential code-switching such as code-switching phenomena of types (1) and (2). However, it does not cope too well with compromise forms/structures, i.e. code-switching of category (3). Bolonyai's (1998) model of a 'Composite Matrix Language' is successful in explaining these compromise instances.

When code-switching is accompanied by syntactic convergence or transference, parts of the ML abstract lexical structure are 'split' and 'recombined' into a 'Composite Matrix Language' which designs surface structures of bilingual speech (Bolonyai 1998:39), i.e. the compromise forms or structures. In my data (23) shows a switched finite verb partly with an inflection as in English. Example (8) is a case of code-switching to an English infinitive phrase and 'bare form' *wear glasses*, which should, however, be a present participle phrase according to English morphology. In these two examples, a 'Composite Matrix Language' has developed.

## 6. Summary and conclusions

The syntactic convergence or transference accompanying code-switching takes place at three levels: systems, structures and word-classes. The Matrix Language Frame Model, revised to include the Composite Matrix Language, successfully deals with all forms of code-switching in my corpus (see Section 5.3).

It can be seen from this analysis that grammatical convergence or transference occurs in both Chinese utterances and English code-switching. Syntactic convergence towards or transference from English may occur at the sentence, unit and word levels in Chinese.

The data suggest that the 'integral-unit-planning constraint' (code-switching at the phrase boundary) can explain many grammatical structures of code-switching between Chinese and English. Although the data show some evidence in

favour of the 'semantic constraint' and 'government constraint', violations have also been found in the corpus. 'Sentence insertion' (Kachru 1978) accounts for more cases of code-switching than 'conjunction constraint' (Gumperz 1982). The data offer counterevidence against the 'free-morpheme constraint'. Consequently it is highly doubtful if grammatical constraints exist in code-switching between Chinese and English. My data rather support the existence of facilitators or tendencies.

### Abbreviations

CA	conversational analysis	-perf.	the perfective suffix
Chn.	Chinese	Q	question
-cl	classifier	SA1	Section A(1)
CP	the projection of the complementizer	SA2	Section A(2)
crs	a category of suffix	SA3	Section A(3)
CS	code switching	SB1	Section B(1)
dur-	the durative prefix	SB2	Section B(2)
-dur	the durative suffix	SB3	Section B(3)
EL	embedded language	SC1	Section C(1)
-gen	the genitive morpheme	SC2	Section C(2)
Lin	field worker	SD1	Section D(1)
ML	matrix language	SD2	Section D(2)
MLF	Matrix Language Frame	SD3	Section D(3)
-nom	the nominalising particle		

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Lin Zheng has completed her PhD in Linguistics at Monash University in 2000. She has worked as a lecturer in Chinese in the Department of Asian Languages and Studies at the University of Tasmania, and is currently employed in the School of International and Political Studies at Deakin University.