

An overview of Myers-Scotton's Matrix Language Frame model

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English

1 Background

The alternation of two languages inside and outside of sentences –codeswitching (CS hereafter) has been studied mainly from two perspectives, i.e. grammatical/syntactic and pragmatic/discourse (Romaine, 1995). Although these two aspects are related and a knowledge of one helps understand the other (Myers-Scotton, 2002:Chapter 2), because of a limit in space, I will focus on the structural perspective here.

A number of researchers have proposed descriptive grammatical constraints in CS, rather than theoretical. Poplack's study on Spanish/English bilinguals (1980) was one of the most influential studies. The equivalence constraint and the free morpheme constraint were proposed after a large bilingual data was examined.

The free morpheme constraint

Codes may be switched after any constituent in discourse provided that constituent is not a bound morpheme. (Poplack, 1980: 585)

The equivalence constraint

Code-switches will tend to occur at points in discourse where juxtaposition of L1 and L2 elements does not violate a syntactic rule of either language, i.e. at points around which the surface structure of the two languages map onto each other.

(Poplack, 1980: 586)

Her study is specifically based on syntactically close languages, i.e. English / Spanish but counter-examples can be found in syntactically distant languages. In the 1980s some other models were proposed to define grammatical constraint, e.g. Chomskians' Government Binding model by Di Sciullo, Muysken and Singh (1986). Myers-Scotton and her associate Azuma developed a model based on speech production theory, i.e. Azuma's frame-content hypothesis (1993) and Myers-Scotton's Matrix Language Frame (MLF) model (1993). Myers-Scotton's MLF model is an abstract theoretical model but it has been employed to examine contact phenomenon among a variety of languages since the 90s. Her MLF model was revised in Myers-Scotton, 1997 and extended sub-models were proposed. (Myers-Scotton & Jake 2000, 2001)

The concept of the MLF model is influenced by psycholinguistic theories. The most significant of the three are the differential activation of base language and guest language (Grosjean, 1988 quoted in Myers-Scotton, 1993), the different retrieval process of closed class items and open items in Garrett's speech error study (1975 quoted in Myers-Scotton, 1993), and lemmas in the mental lexicon linking conceptual information and grammatical function in Levelt's language production model. (1989 quoted in Myers-Scotton, 1993)

2. MLF model

CS can be structurally divided into inter-sentential CS and intra-sentential CS. The inter-sentential CS has been broadly studied in the socio-linguistic field but grammatical constraints are not a major focus there. With the intra-sentential CS, grammatical constraints directly affect the behaviour of two, or more participating languages. The MLF model is devised to explain intra-sentential CS.

2.1 ML-EL distinction

When an intra-sentential CS occurs, the distribution of two languages is asymmetrical. The more dominant language is the Matrix language (ML) and the other one is the Embedded Language (EL). ML might be identified as the first language of the speaker or the language in which the morphemes or words are more frequently used in speech. Myers-Scotton's (1993) criteria are more structurally based. MLs provide abstract grammatical frames where ELs are inserted. The criteria will be explained in more detail later.

Although the term "intra-sentential" has been used broadly and consistently in the literature, Myers-Scotton advocate that as a unit of analysis, CP (projection of Complementizer) is more appropriate than a sentence because "even within a sentence, the grammars may not be in contact"(Myers-Scotton , 2002:55). The status ¹ of CPs is clear and it is used by many researchers.(Myers-Scotton, 2002:55)

Myers-Scotton classified two kinds of CS according to the speaker's proficiency. If the speaker is proficient enough to make a sufficient grammatical structure in the ML, it is called classical CS. On the other hand "when speakers do not have full access to the grammatical frame of the intended ML, part of the abstract structure comes from one variety and part from another"(Myers-Scotton& Jake, 2000:2). This composite CS has been observed when the speakers have ambiguous intentions about the desired ML. In this paper only classic CS is discussed.

A bilingual CP can consist of 1) ML islands which have only ML morphemes 2) mixed constituents including morphemes from both ML and EL and 3) EL islands consists of only EL morphemes. ML islands are made of ML morphemes and are under the control of ML grammar. On the other hand EL islands are also well-formed by EL grammar but they are inserted into an ML frame. Therefore EL islands are under the constraint of ML grammar.

2.2 Content-system morpheme distinction

The distinction between content and system morphemes² is crucial in identifying the ML. Content morphemes, e.g. nouns, verbs, adjectives and some prepositions, express semantic and pragmatic aspects and assign or receive thematic roles. These are essential to convey messages in communication. System morphemes, e.g. function words and inflections, express the relation between content morphemes

¹ A CP is "the syntactic structure expressing the predicate-argument structure of a clause, plus any additional structures needed to encode discourse-relevant structure and the logical form of that clause. (Myers-Scotton, 2002:54)

² The concept of content-system distinction corresponds to other dichotomies, i.e. free- bound morphemes,

and do not assign or receive thematic roles. They are essential in building grammatical frames. In bilingual CPs, system morphemes are employed only from the ML and content morphemes are taken from both the ML and EL. Myers-Scotton proposed two principles to identify the ML in bilingual CPs using a content-system morpheme distinction.

The Morpheme-Order Principle : In ML+EL constituents consisting of singly-occurring EL lexemes and any number of ML morphemes, surface morpheme order will be that of ML.

The System Morpheme Principle: In ML+EL constituents, all system morphemes which have grammatical relations external to their head constituent will come from the ML

(Myers-Scotton, 1993:83)

The particular system morphemes mentioned here are further specified as “late-outsider” system morphemes with the 4-M model. (Myers-Scotton & Jake, 2000:100)

e.g.1 (Toshiya is pointing)

Kore *wa* cat *ya* { There is a cat. }

this TOP FP

* Content morphemes = *kore*³, cat System morphemes = *wa*, *ya*

Example 1 shows that he inserted an EL (English) content morpheme into an ML (Japanese) frame consisting of both content and system morphemes.

3. 4M model

The content-system morpheme opposition of the MLF model is refined and an extended version “4-M model” is proposed. (Myers-Scotton & Jake, 2000, 2001) This model follows the distinction of content-system morphemes, and system morphemes are further classified into three subcategories according to the activation stage at the mental lexicon and the formulator. Her classification is illustrated below.

content-function words, lexical –grammatical items, etc.

³ Pronouns such as “it” in English can be a system morpheme. Here “this” receives a thematic role, therefore a content morpheme.

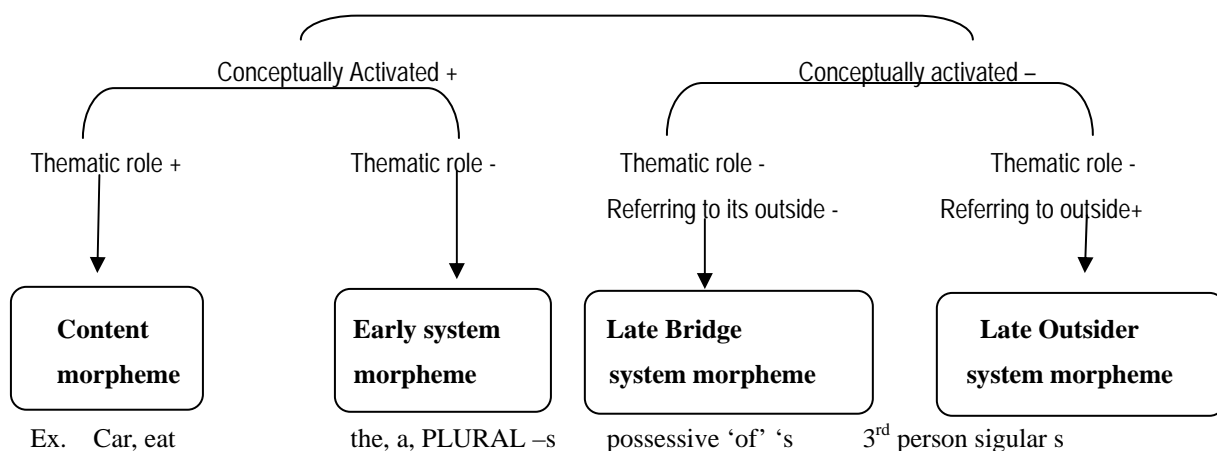


Figure 1 Morpheme Classification (Myers-Scotton, 2002:73)

3.1 Content morphemes : As mentioned before with the MLF model, content/system morphemes are distinguished according to whether they assign/receive a thematic role or not. Content-morphemes assign / receive a thematic role and are activated at the lemma level. They are directly elected according to the speaker's intention.

3.2 Early system morphemes

If a system morpheme is activated at the lemma level, it is an early system morpheme. Although they don't have a thematic role, they contribute to the mapping of the conceptual structure to the lemma like content morphemes. Myers-Scotton & Jake (2000,96) defines early morphemes as follows: Early system morphemes “are always realized without going outside of the maximal projection of the content morpheme that elects them” and “their form depends on the content morpheme with which they occur”. Examples of early system morphemes in English are determiners, plural-s, some prepositions, etc.

3.3 Late system morphemes

Late system morphemes neither assign or receive thematic roles nor are they activated at the lemma level. They are activated at the formulator level when the lemma sends directions to construct a grammatical constituent. Late system morphemes are further categorized as two-bridges or outsiders.

3.3.1 Late bridge system morphemes

Like early system morphemes, bridge system morphemes depend on information inside the maximal projection in which they occur. Unlike early morphemes, they don't contribute to conceptual structures. They integrate content morphemes into a larger constituent, e.g. the possessive markers “of” and “s”- they link two nouns within a noun phrase.

3.3.2 Late outsider system morphemes

Outsider morphemes differ from bridge morphemes in that they “depend on grammatical information outside of their own maximal projection”(Myers-Scotton & Jake, 2000:100). They are structurally assigned at the positional/surface level. For example the 3rd person singular -s is a late outsider morpheme.

An example of morpheme classification according to 4-M model.

(Ellis is playing Uno. He can't find one card and is asking Toshiya.)

e.g. 2 *Kore* (.) *no* ⁴*atsu* *ga* (.) missing
this GEN thing NOM

* Content = *Kore*, *atsu*, missing

Bridge= *no*,

Outsider=*ga*

3.4 How the 4-M model supports MLF model

The 4-M model contributes to refining the MLF model in several cases of classic CS. For example, the case of double morphology has been problematic with System morpheme principles.

e.g. 3 ⁵E: *boku* copying *yatteru-yo*
I do-ing-SP

Content = *boku*, copy, yat-

Early= -ing, *teru*

Outsider= *yo*

Here the progressive tense particle is repeated in the EL (ing) and ML(-*teru*). The occurrence of the system morpheme in the EL violates the System morpheme principle. However with the 4-M model, only outsider late system morphemes should come from the ML. Thus early system morphemes may appear in an EL. "Because of their link to content morphemes, early system morphemes may 'move' with them in various contact phenomena in contrast to late system morphemes"(Myers-Scotton, 2002:300) Double morphology itself is a frequently observed phenomenon. Myers-Scotton hypothesized that "[o]nly early system morphemes may be doubled in classic codeswitching." (2002: 92) Therefore the system morpheme principle should be re-defined to include that only outsider system morphemes should come from the ML.

4. The Abstract Level model

The 4-M model has been employed to extend the MLF model and both models account for 'classic CS'. By adding the third model, the Abstract Level model, we can describe "what will count as 'sufficient congruence' in [CS] so that certain constructions are possible for certain language pairs" and how it "provides a principled explanation for the nature of the abstract morphosyntactic frame that structures bilingual clauses."(Myers-Scotton, 2002:19)⁶

⁴ *yatsu in the standard colloquial Japanese

⁵ (Watching "Harry Potter" movie An enchanted car is flying in the sky.
Holding a toy "flying car" in his hand and copying)

⁶ It also explain other language contact phenomena as well, e.g. composite CS, lexical borrowing (MLF

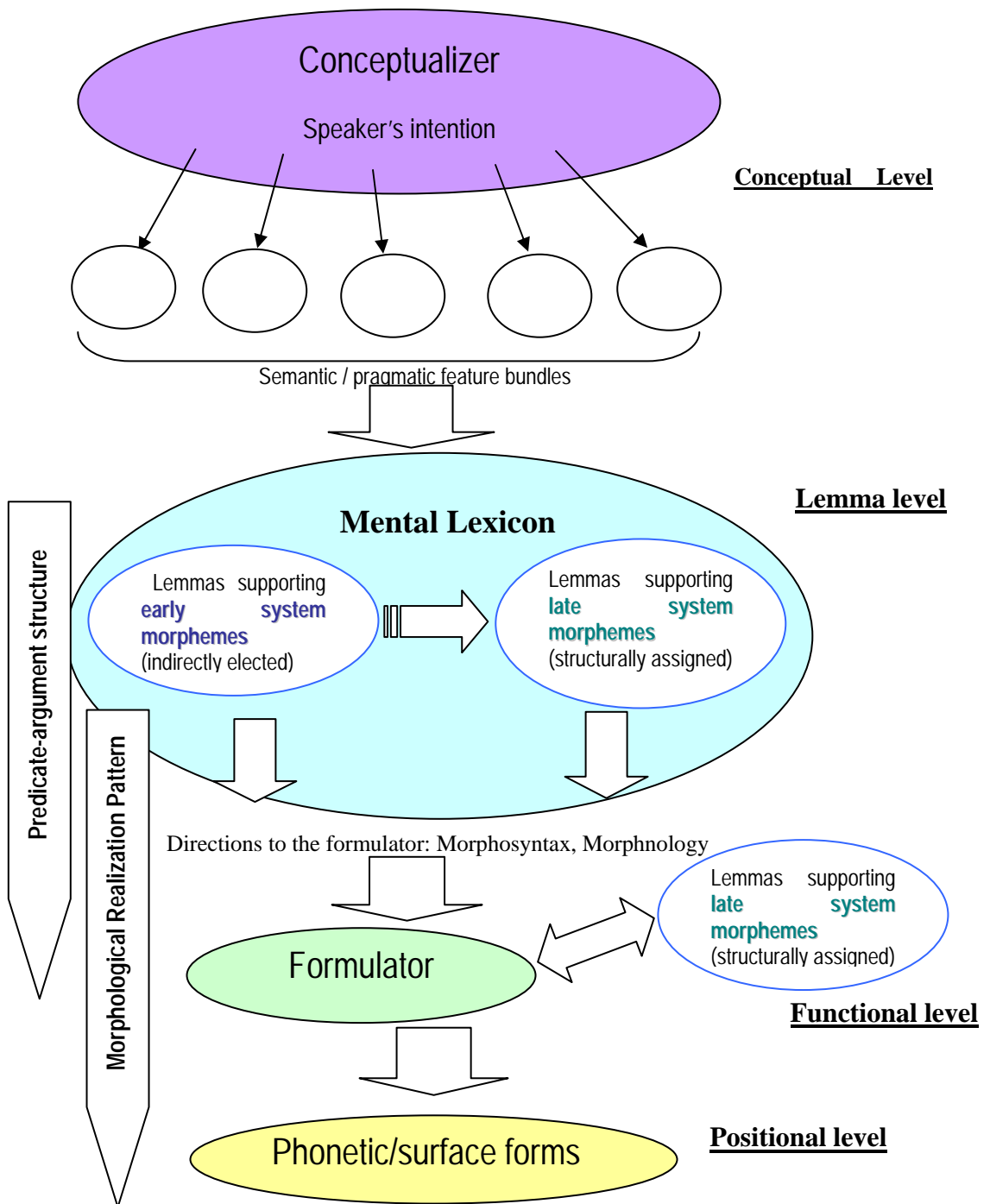


Figure 2 Production process diagram : lemma activation and abstract lexical structure based on Myers-Scotton & Jake (2001)

model doesn't distinguish lexical borrowing and CS), convergence, attrition, first second language attrition, and creole formation. (Myers-Scotton, 2002: chapter 5&6)

4.1 Abstract Lexical Structure

This model premises that language production is made through three abstract levels of the lemma.

Figure 2 illustrates the relation between the 4-M model and the Abstract Lexical Structures.

4.1.1 – Lexical conceptual structure

At this level, psycho-linguistic and socio-linguistic intention in the conceptualizer activate “language specific semantic/pragmatic features bundles” (Myers-Scotton & Jake, 2000) between the conceptualizer and the mental lexicon.

4.1.2 - Predicate-argument Structure

At the next level, thematic structure is mapped onto grammatical relations.

e.g. AGENT→SUBJECT, BENEFICIARY→INDIRECT OBJECT

4.1.3- Morphological realization pattern

At the third level, grammatical relations are realized on the surface.

e.g. word order, agreement morphology

4.2 Congruence

When ELs appear in an ML frame, their congruence with ML counterparts must be checked at the three levels of abstract lexical structure in the mental lexicon.

Blocking hypothesis : A blocking filter blocks any EL content morpheme which is not congruent with the ML with respect to three levels of abstraction regarding sub-categorization (1993:120)

If the congruence is insufficient, compromise strategies will be employed, e.g. bare forms, do-verb constructions and EL islands.

Bare forms are “EL content morphemes that lack the requisite ML system morphemes that would make the well-formed in a ML frame. They are often nouns.” (2002:21)

e.g. 4 And this is (.) *shippo*
 a tail

Here the ML system morpheme “a” is required with the EL content morpheme *shippo*. Incongruence occurs in terms of the lexical-conceptual structure. Therefore a compromise strategy, a bare-form is employed. Another type of bare form “do-construction” is frequently observed in agglutinative languages such as Japanese and Turkish.

e.g.5 *Minna* escape *shi ta* *katta*
 Everyone do IP PAST
 {Everyone wanted to escape}

Another significant compromise strategy for incongruence is EL islands.

e.g. 6 (Ellis is playing a video game. He doesn't want his big brother to help him.)

No I want do this *[jibun* *de]* (I want to do this by myself.)
myself by

“*Jibun de*” consists of a noun+ postpositional case marker which are well-formed in EL (Japanese) grammar, although it doesn’t fit the morpheme order of the ML grammar. The position of the whole phrase fits well as an adverbial phrase in the ML. Adverbial phrases are a major type of EL islands.(Myers-Scotton, 2002:141).

5 Implications

The MLF model with the 4-M model and Abstract Level model can cater for not only classic CS but also composite CS. It will be a powerful tool for analyzing complex phenomena such as bilingual children’s CS where a number of developmental factors interact with language contact phenomena.

One of the common issues in the first and second language acquisition, the order of morpheme acquisition will be discussed using the 4-M and Abstract Level models below. In the SLA research, the “natural order” of acquisition⁷ (Krashen, 1977) was found and many researchers have attempted to give an account of this. Wei (2000) proposed Implicational Hierarchy Principle based on the 4-M and the Abstract Level model .

Implicational Hierarchy Principle: Directly-elected morphemes (content morphemes) are acquired before system morphemes, and indirectly-elected morphemes (early system morphemes) are acquired before structurally –assigned ones (late system morphemes) (Wei, 2000)

He conducted experimental studies using Chinese and Japanese adult second language learners and found concrete evidence which supported the 4-M model.

In first language acquisition, as telegraphic speech implies, content morphemes are acquired first and system morphemes are acquired later. Crystal (1986, 136) quoted Brown’s acquisition order⁸ of grammatical ⁹words and explained that the question why children acquire grammatical words in this order is not easy to answer. The 4-M and Abstract Level model can give one explanation. For example, the acquisitional order of the three kinds of morpheme ‘s’ is as follows in Brown’s list (quoted in Crystal, p137) “4. plural ending-s > 6.possessive ‘s’ > 10. Third person –s”. The plurals “s” is an early system morpheme, possessive “‘s” is a bridge and a 3rd person “s” is an outsider. If we apply the implication hierarchy principle here, it is obvious that these three morphemes are acquired in the order of Early > Bridge > Outsider. Therefore it seems that MLF model with two sub-models can be a powerful tool in exploring bilingual children’s language acquisition.

Why are EL islands used as a compromise strategy when incongruence occurs? Myers-Scotton (2002, 141) indicates that diverse data sets imply “a relatively ¹⁰lower level of activation for Embedded

⁷ e.g. –ing, plural, copula → auxiliary, article→ irregular past→ regular past, 3rd singular, possessive

⁸ 1. –ing, 2. in, 3. on, 4. plural-s, 5. irregular past, 6. possessive ‘s, etc...

⁹ Grammatical words correspond with Function words System morphemes.

¹⁰ To produce a phrase compositionally “would seem to involve a higher level of activation than producing

Language islands than for the mixed constituent under Matrix Language control.”

EL islands are often adverbial phrases of time or phase, i.e. adjuncts which are “outside the predicate-argument structure projected by main clause” (141) although thematic roles are assigned and morphological patterns are projected within the EL island. In many cases the structure of EL islands are formulaic and Backus’ (1999, 2003) Unit hypothesis can be applied here.

The Unit hypothesis: Every multimorphemic EL insertion is a unit, inserted into a ML clausal frame.

Since the majority of the EL islands are prepositional phrases and in many cases prepositional phrases are a ‘lexical unit’, one can hypothesize that all EL islands are a lexical unit. A more comprehensive definition of ‘unit’ is a formulaic sequence. It is “a sequence, continuous or discontinuous, of words or other elements, which is, or appears to be, prefabricated: that is, stored and retrieved whole from memory at the time of use, rather than being subject to generation or analysis by the language grammar” (Wray 2002:9). Formulaicity checking of EL islands might reveal the reason why speakers use them as a compromise strategy.

Myers-Scotton accounts for double morphology using the early system morphology hypothesis (see 3.4). If we add the unit hypothesis or the formulaic sequence perspective we can further explain that “early morphemes can but do not always move with the content morphemes, however, when it moves the early and content morphemes are formulaic sequences”.

6 Conclusion

Myers-Scotton’s MLF model with the 4M and Abstract Level model is a powerful tool to describe not only CS but also a variety of language contact phenomena and also language acquisition. The use of the 4-M model for language acquisition seems especially promising. A further study on the rather complex item of ‘EL islands’ is needed. The scope of formulaic language might clarify some ambiguity in the use of EL islands.

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