



## An Investigation on Persian-English Code-switching and the Matrix Language Frame (MLF) Model

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**ABSTRACT** The main purpose of the present research is to test Matrix Language Frame (MLF) model with respect to Persian-English code-switching (CS) and code-mixing (CM) to reveal if Persian-English CS is a case of “classic code-switching” and to find out whether Persian-English CS/CM confirms the principles of the MLF model or not. The data of this paper was collected from the spontaneous formal and informal interaction of Iranian bilingual students, studying abroad. The three major principles of Matrix Language Frame (MLF) model, namely: (a) the morpheme order principle (b) the system morpheme principle, and (c) the uniform structure principle were precisely investigated in details. Based on the results of analyses, it was found out that Persian-English CS is a supporting evidence for the MLF model.

### INTRODUCTION

Code-switching is basically the natural consequence of contact between people and languages and the study of code-switching is indeed one of the central issues of bilingualism. The Matrix Language Frame model was proposed by Myers-Scotton in 1993, attempts to elucidate and predict grammatical use in switching between two languages. Code-switching (CS) can be structurally categorized into inter-sentential CS and intra-sentential CS. The inter-sentential CS and as well intra-sentential CS have been broadly investigated in the sociolinguistic field but grammatical constraints are not a major focus there. With the intra-sentential CS, grammatical constraints can directly influence the behavior of two, or more participating languages. The MLF model aims at explaining the intra-sentential CS. The more dominant language is the Matrix language (ML) and the other one is the Embedded Language (EL). ML may be recognized as the first language of the speaker or the language in which the morphemes or words are more frequently used in speech.

In this research Persian-English code-switching and code-mixing have been examined based on the Matrix Language Frame (MLF) model proposed to see if the Persian-English CS/CM confirms the main principles of the model or not. The three principles of Matrix Language Frame (MLF) model, namely: (1) the morpheme order principle, (2) the system mor-

pheme principle and (3) the uniform structure principle (Myers-Scotton 2002) were analyzed in-depth. The research also aims to reveal if Persian-English switching is a case of “classic code-switching” as introduced by Myers-Scotton in 2002.

### Objectives

The main objectives of the present study include: (a) to precisely analyze Persian-English CS and CM and its peculiar structural features based on one of the most prominent and controversial models in the field, that is Matrix language Frame (MLF) model; (b) to test Matrix Language Frame (MLF) model and its principles with respect to switching between Persian and English as two typological different languages; (c) to reveal if Persian-English CS is a case of “classic code-switching” and whether Persian-English CS/CM confirms the principles of the MLF model or not.

### METHODOLOGY

The data of this research was collected from Iranian postgraduate students and PhD scholars, all late bilinguals, who studied in three universities of India, namely Panjab University, in Chandigarh, Osmania University and EFL University located in Hyderabad. The data was collected in both formal and informal situations from spontaneous interactions of Persian-English bilingual students in different social con-

text. All the participants of the present study were adults ranging from 24 to 62 years old, including both male and female students.

The unit of analysis of the present study is bilingual clause. For further analysis recording of data was done; and for a better representation of sounds of oral Persian, the data of Persian-English CS/CM were carefully transcribed based on International Phonetic Alphabet (IPA). The appendix provides more details about the abbreviations used in the data analysis of Persian-English CS/CM.

## OBSERVATIONS

### Unit of Analysis

Myers-Scotton (2006) asserts that a clause is the best unit for analyzing bilingual data. She asserts that a sentence can compose of two clauses which one of the clauses is from one of the participating languages and the other one from the second language. However, in such sentences, in fact the two participating languages are not in contact. Therefore, she mentions that it is just in the clause which the participation languages in CS are in contact. The following examples which demonstrate the switching within the clause clarify the point:

(1) [Fæyæt feʔr-ɒ ro mix mi-kon-æn]  
Clause

just poem-PL OBJ mix HAB-do-3Pl  
“They just mix the poems.”

(2) [Belæxære xod-et bjæd manage-f  
kon-i] Clause

finally self-2Sg should manage-PRN do-2Sg

“Finally you, yourself, should manage it.”

(3) [Mæn mi-dun-æm ce-yædr ostɒd-æm  
strict-e] Clause

I HAB-know-1Sg what-much professor-1sg strict-COP

“I know how strict my supervisor is.”

Myers-Scotton (2006) depicts that classic CS contains elements from two or more languages or language varieties in the same clause, nevertheless only one of these languages can be the main source of the morphosyntactic frame of the clause. She mentions that morphosyntactic frame can include all the grammatical and structural requirements which make the frame well-formed in the language (such as:

morpheme order, word order, inflectional morphemes, syntactic and morphosyntactic structures). The focus will be on the intra-sentential switching or code-mixing within the clause. This type of clause is known as bilingual clause; bilingual clause includes morphemes from both participating languages in contact. The following examples are bilingual clauses from Persian-English CM.

(4) Mi-dun-æm ke fæyæt bærd fun-e.  
HAB-know-1Sg that only for fun-COP-1Sg

“I know that it is only for fun.”

(5) Course work-et ro tæmu:m kærd-i?  
course work-2Sg OBJ finish did-2Sg

“Did you finish your course work?”

(6) æmp in original ni-st.

but this original NEG-is

“But this is not original.”

As previously mentioned, in a clause which consists of two or more languages or language varieties, the language variety which provides the main grammatical or structural frame is called Matrix Language (ML) (Myers-Scotton 2006). In other words, that is the structural or grammatical of one language which keeps the whole clause well-formed and that language is the ML; other language that contributes mainly by supplying content morphemes is called Embedded Language (EL). As you see in all above examples Persian language is the ML while English language is EL. This will be discussed further in subsequent sections.

### Language Contact

Language contact occurs in situations where two or more languages or language varieties coexist together and where the bilinguals alternately use these language varieties in a situation. When speech communities come into contact and bilingualism takes place, we can easily state that language contact occurs. According to Thomason (2001), language contact does not demand proficient bilingualism, however the requirement is communication between the speakers of different languages.

### Code Selection

The selection of a particular language or language variety for a given situation is called

code selection. In different situations, individuals may use more than one code while they are communicating with each other, they usually select one code for certain purposes and places, in certain settings and with certain people and may use another code for other purposes in other places and with other people.

### Code-switching

Code-switching (CS) is defined as a change by a speaker (or writer) from one language or language variety to another one. Individuals may start speaking one language and then change to another one in the middle of their speech, or sometimes even in the middle of a sentence. Moradi (2014a) describes CS as follows:

The use of two language varieties in the same conversation. The term code-switching can be defined as the alternation between two or more languages, language varieties, or language registers in discourse between people who have more than one language in common. Generally one of the two languages is dominant language; the major language is often called the matrix language, while the minor language is the embedded language.

Muysken (2011) mentions that code-switching (CS) is “the use of more than one language during a single communicative event.” Switches are often classified based on the place they occur; they include: a) Inter-sentential switches which occur between two separate or distinct clauses or two coordinate clauses that belong to the same utterance. This type of CS occurs between clauses and sentence boundaries, where each clause or sentence is in one language or the other. As demonstrated in the following example:

(7) Mæn ke mi-g-æm ævæl bə xod-ef sohbæt kon. It's a better idea, I think.

I that PROG-tell-1Sg first with self-3Sg talk do. It's a better idea, I think.

“I am saying that first talk to him. I think it is a better idea.”

(8) What a surprise to see you here. To in-ɔ̄ ci-kɔ̄r mi-kon-i.

What a surprise to see you here. You this-place what-work PROG-do-2Sg

“What a surprise to see you here! What are you doing here?”

b) Extra-sentential/emblematic/tag switches: these kinds of switches occur between a clause and an extra clausal element. In this type of CS, exclamation, tags and particular set of phrases in one language are inserted into an utterance of another language. c) Intra-sentential switches which occur within the clause (Muysken 2011). This type of CS which usually is called code-mixing is the most frequent type of Persian-English CS that in fact it occurs within a phrase, a clause or a sentence boundary.

Myers-Scotton (2006) states that classic CS “includes elements from two (or more) language varieties in the same clause, but only one of these varieties is the source of the morpho-syntactic frame for the clause.”

The present research focuses on intra-sentential switches or code-mixing (CM) which occurs within the clause. In this particular type of clause which is known as bilingual clause, morphemes from the two participating languages are in contact. The following examples of Persian-English CM clarify the point:

(9) Sæbr kon, dɔ̄r-æm mi-r-æm u:n-ɔ̄rɔ manage kon-æm

wait do, have-1Sg PROG-go-1Sg that-place OBJ manage do-1Sg

“Wait, I am going to manage that place.”

(10) Mɔ̄ ɔ̄dæm-ɔ̄-je talented-i hæst-im

we people PL-EzI talented-INDF be-1Pl

“We are talented people.”

(11) Dærxɔ̄st dɔ̄d-æm æmɔ̄ reject ɔ̄d application gave-1Sg but reject became.

“I gave an application, but it was rejected.”

### Matrix Language vs. Embedded Language

When an intra-sentential code-switching (CS) takes place, 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 bilingual's first language or the language in which the morphemes or words are more frequently used in speech. As Myers-Scotton (2006) asserts, in a clause composed of two or more languages or language varieties, the language which makes the main grammatical frame is called ML and other languages which largely supply the content morphemes are called EL. MLF model is in

fact an structural-based model to code-switching and “The structural approach to CS is primarily concerned with its grammatical aspects (Moradi 2014b).

### EL Island

According to Myers-Scotton (2006), one could regard a continuum of EL elements with singly occurring lexical items at one end and full phrases at the other end. Therefore, the continuum can be divided in two parts, viz: single words and phrases. These EL phrases are called EL islands (Rahimi and Dabaghi 2013). Myers-Scotton (2002) explains that Embedded Language (EL) islands can be described as “full constituents consisting merely of EL morphemes occurring in a bilingual CP (Complementizer Phrase) that is otherwise framed by ML” (Myers-Scotton 2002). As illustrated in the following examples:

(12) Bɔjæd etelɒ.tɪ-et ro æz short term memory be long term memory be-frest-i.

should information-2sg OBJ from short term memory to long term memory Subj-send-2Sg  
“You should send your information from short term memory to long term memory.”

(13) Bæzi æz in bæce-hɒ-je hostel music mi-xun-æn væ hæmæf fekr mi-kon-æn ke on the stage hæst-æn

some of this child-PL-Ez hostel music HAB-read-3Pl and always think HAB-do-3Pl that on the stage be-3Pl

“Some of these hostel’s guys are studying music and they always think that they are on the stage.”

As you see above, in example (12) “short term memory and long term memory” and in example (13) “on the stage” are well-formed phrases of English as EL which were inserted into Persian language frame as the ML. EL islands are also well-formed by EL (English) grammar, however they are inserted into an ML (Persian) frame. So EL islands are under the constraint of ML grammar.

### The Matrix Language Frame and 4-M Models

#### *Principles of the MLF model*

As mentioned by Rahimi and Dabaghi (2013), MLF model has two major sets of prin-

ciples. The first set encompasses (a) the matrix language principle (b) the asymmetry principle (c) the uniform structure principle; and the second set of principles include: (a) the morpheme order principle (b) the system morpheme principle; these principles can be used for identifying the ML in bilingual conversations. The following sections give more details on each principle separately.

#### *The Matrix Language Principle*

This principle indicates that in a bilingual clause, the morphosyntactic frame of the clause is determined by one of the participating languages and that language is Matrix Language (ML) (Rahimi and Dabaghi 2013). In other words, only one of the participating languages controls the grammatical frame of a mixed constituent and that is Matrix Language. According to Myers-Scotton (2006), to identify the ML two major principles should be considered, namely (1) the morpheme order principle and (2) the system morpheme principle. Myers-Scotton (2006) depicts that these principles “identify this language as the language meeting their requirement” (Rahimi and Dabaghi 2013). Therefore, in the present study, as it was done in another research in the field by Rahimi and Dabaghi (2013), these two principles will be used to test ML principle in regards to Persian-English CS/CM.

#### *The Morpheme Order Principle*

According to this principle, in ML+EL constituents composed of singly-occurring EL lexemes and any number of ML morphemes, surface order of the morphemes will be that of ML (Myers-Scotton 1993:83).

#### *The System Morpheme Principle*

According to this principle, in ML+EL constituents, all system morphemes which their grammatical relations are external to their head constituent will in fact come from ML (Myers-Scotton 1993).

#### *The Asymmetry Principle*

According to this principle, in a bilingual

clause there is an asymmetry relation between two participating languages. In classic CS only one of the involved languages is ML. As Myers-Scotton (2006) demonstrates, asymmetry can be regarded from two perspectives, include: 1) structural asymmetry, which is the main or basic grammatical frame of a bilingual clause; 2) asymmetry regarding the grammatical elements vs. content words.

Based on the structural asymmetry, in a bilingual clause, only one of the participating languages provides the major grammatical frame; in other words, that is the grammatical or structural rules of only one of the participating languages that determine the well-formedness of the mixed constituents. The other language generally co-operates only by supplying content elements.

In regards to asymmetry concerning content morphemes vs. grammatical elements, it can be depicted that the content morphemes are supplied by both ML and EL. These elements consist of verbs, nouns, adjectives and adverbs. On the other hand, a number of particular types of grammatical elements can merely be supplied by ML which is known as late outsider system morpheme; while the other types of system morphemes can come from both ML and EL.

#### *The Uniform Structure Principle*

According to Myers-Scotton (2006), this principle demonstrates that “a given constituent type in any language has a uniform abstract structure and the requirements of well-formedness for this type must be observed whenever the constituent appears.” It simply implies that in a bilingual speech the structure of ML is always preferred. As it has already mentioned, there may be embedded language elements in a bilingual clauses where these EL islands themselves fit into the clause structure of ML.

#### **The 4-M Model**

The 4-M model proposed by Myers-Scotton and Jake (2000, 2001) is an extended type of content-system morpheme of the MLF model. This particular model follows the distinction between content and system morphemes; and the system morphemes are further divided into three subcategories according to the level of

activation at the mental lexicon and the formulator, including: (a) early system morphemes, (b) late bridge system morphemes, and (c) late outsider system morphemes. These three kinds of system morphemes along with the content morphemes constitute the four morphemes of the 4-M model.

This morpheme classification of Myers-Scotton is in fact based on three oppositions or features: 1. [+/- conceptually activated] 2. [+/- thematic role assigner] 3. [+/- refers to grammatical information outside of Maximal Projection of Head].

#### **Content Morphemes and Early System Morphemes**

Content/system morphemes can be distinguished based on whether they assign/receive thematic roles or not. In contrast to system morphemes, content-morphemes assign/receive thematic roles. Both content and early system morphemes are conceptually activated; that is pre-linguistic intention of a speaker (before any particular language is indicated) activate them (Myers-Scotton 2006). The activation of these morphemes takes place at language production level that is known as Mental Lexicon. The mental lexicon includes elements that are called Lemmas. According to Crystal (2008), these lemmas refer to syntactic properties and as well semantic properties of words presented in mental lexicon.

Content words are activated at the lemma level. They are directly selected based on the intention of the speaker. Examples of content morphemes include: verbs, nouns, adjectives and adverbs.

Though early system morphemes do not have thematic roles, but they can play a significant role on the mapping of the conceptual structure to the lemma similar to the content morphemes. Myers-Scotton and Jake (2000, 1995) describe early morphemes as follows: “early system morphemes are often understood without going outside of the maximal projection of the content morpheme that selects them” and “their forms depend on the content morphemes with which they occur”. Instances of early system morphemes in English language include

plural-s, determiners, and some prepositions.

### **Late System Morpheme**

Late system morphemes do not assign or receive thematic roles and they also are not activated at the lemma level. The activation of late system morphemes takes place at a later production level which is known as the formulator and therefore they are called late system morphemes. Late system morphemes are in fact activated at the formulator level when the lemma produces and sends directions to make a grammatical constituents. The most significant role of formulator is to combine verb phrases (VP) and noun phrases (NP) into full clauses. According to Myers-Scotton (2006), late system morphemes are “the cement that holds the clause together.” Late system morphemes are further classified as two: bridges or outsiders, as described below. More details are given in the following sections.

### **Late Bridge System Morphemes**

Similar to early system morphemes, bridge system morphemes are dependent on the information inside the maximal projection in which they occur. As it is perceived by the name, late bridge system morphemes provide bridges between phrases for making larger constituents. In contrast to early system morphemes, bridge system morphemes do not contribute to conceptual structures. They incorporate content morphemes into a larger constituent, for example the possessive markers “of” and “s”- they link two nouns within a noun phrase. As an example the morpheme “of” in “the car of Richard” can be considered as a late bridge system morpheme.

### **Late Outsider System Morphemes**

Outsider morphemes vary from bridge morphemes as they “depend on grammatical information outside of their own maximal projection” (Myers-Scotton and Jake 2000:100). In contrast to bridge system morphemes which their presence and form depend on the well-formedness conditions of the particular constituents within which they occur, the form and presence of the outsider morphemes are depen-

dent on the information outside the elements with which they occur. They are structurally assigned at the positional/surface level. For instance the 3rd person singular-s in “Richard loves Marry very much” is a late outsider morpheme.

In accordance with the System Morpheme Principle as it refers to classic CS, Myers-Scotton (2006) claims that late outsider system morphemes should come just from ML in mixed constituents, while the late bridge system morphemes may come from both ML and EL.

## **DISCUSSION**

In this part, the application of three principles of Matrix Language Frame model in regards to Persian-English CS/CM will be tested. To continue the analysis of MLF model with respect to Persian-English CS/CM data as it was also given in another study by Rahimi and Dabaghi (2013) in which they investigated this linguistic phenomenon by testing corpus data from Persian-English bilingual conversations on TV shows. In contrast, the present research is a fieldwork study that investigates MLF model with real Persian-English CS/CM produced data, collected in both formal and informal contexts; as mentioned, all the participants of the preset research are late bilingual students with somehow same level of English proficiency that assures the consistency of collected data and its analysis. In general, the study will depict that whether the MLF model principles can be confirmed by Persian-English CS/CM and whether Persian-English switching is an approving case for “classic code-switching” proposed by Myers-Scotton (2006).

### **Testing the ML Principle on the Persian-English CS/CM**

As mentioned before, according to this principle, ML should be recognizable in all of the bilingual clauses. To identify the ML, two particular principles must be used, which include: (1) the morpheme order principle, and (2) the system morpheme principle. In subsequent sections each of these principles is separately investigated through application to Persian-English CS/CM.

### The Morpheme Order Principle

As previously mentioned, this principle indicates that in any bilingual clauses, the word order should follow the word order of one of the languages, and that is the Matrix Language.

As mentioned by Crystal (2008), clauses in English language, generally have the verb complements after the main verb, as in English basic structure: SVO, SVA, SVOO, SVC, SVOC, and SVOA2. It should be mentioned that an exception to this is that some adverbs can also come between subject and verb. As illustrated:

SVO [Richard]S [likes]V [apples]V  
SVA [He]S [has been]V [in the classroom]A  
SVOO [Alex]S [gave]V [Richard]O [a Persian book]O

SVC [India]S [became]V [totally independent]C

SVOC [Most students]S [consider]V [these books]O [interesting]C

SVOA [You]S [should take]V [all the books]O [upstairs]A

Exception [I]S [usually]A [play]V [football]O

As demonstrated by Karimi (2005) and Mahootian (1997), in Persian clauses, on the other hand, verb complements come before the verb. The basic structure of Persian clauses, including: SOV, SAV, SOAV, SOOV, SCV, and SOCV are illustrated below:

SOV [mæn]S [mɒʃɪn rɒ]O [xæridæm]V

SAV [mæn]S [dær ɒtɒɪ]A [bud-æm]V

SOAV [ɒnhɒ]S [klɒs rɒ]O [kɒmelæn]A [tæmiz kærdænd]V

SOOV [Reza]S [ketɒb rɒ]O [be Ali]O [dɒd]V

SCV [mæn]S [xub]C [fɒd-æm]V

SOCV [ɒnhɒ]S [fæhr rɒ]O [gɒlbɒrɒn]C [kærdænd]V

Obviously there are some other clause structures for both Persian and English, but for the objective of the present research, the main word order differences between Persian and English will be focused. As you observe, in English clauses, verb complements never come before the verb. Therefore, in the data of present study, according to morpheme order principle, if the verb complements come before the verb, the ML will be Persian language.

Before going further to the main discussion of the research, two structural aspects of Persian language should be considered and explained. The first is Persian compound verb formations process. There are two main types of

compound verb formations in Persian, namely: (1) combination and (2) incorporation (Dabir-Moghaddam 1997; Matras and Shabibi 2007). For the purpose of the present research, the two of the main principles used in “combination” will be considered and discussed. First, a noun is combined with a light verb (LV) (Karimi 2005, 1997a, 1997b), as illustrated in the following examples:

(14) [Pɪru:z]N [fɒdæn]LV “To win”  
win become

(15) [jævɒb]N [dɒdæn]LV “To reply”  
reply give

(16) [Bɒzi]N [kærdæn]LV “To play”  
game do

In the second principle, an adjective (Adj) is combined with a LV, as shown below:

(17) [Nɒrɒhæt]Adj [fɒdæn]LV “to become sad”  
sad become

(18) [ N ɒ r ɒ h æ t ] A d j [ k æ r d æ n ]  
LV “to make (sb) sad” sad do

(19) [Nɒrɒhæt]Adj [budæn]LV “to be sad”  
sad be

(20) [tænhɒ]Adj [budæn]LV “to be alone”  
alone be

Both of the above principles were found in the bilingual clauses of the present study. For example for the first principle, there were instances where English verbs were combined with Persian LVs and formed Persian compound verbs. The following examples clarify the point:

(21) Belæxære xod-et bɒjæd hæme ci-o  
manage kon-i.

finally self-2Sg should all thing-OBJ  
manage do-2Sg

“Finally you have to manage everything.”

(22) Mɒ dɒr-im færhæng-mu:n rɒ  
represent mi-kon-im.

We have-1Pl culture-1Pl OBJ represent  
PROG-do-1Pl

“We are representing our culture.”

(23) Dærxɒst-æm rɛjɛt fɒd

request-1Sg reject became

“My request was rejected.”

As you see above, in example (21) the English verb “manage” was combined with the Persian LV “kon-i” to form a Persian compound verb (CV) “manage kon-i” (manage). In example (22) and (23), respectively, the English verbs “represent” and “reject” were combined with Persian LVs “mi-kon-im” and “fɒd” to form Persian CVs “represent mi-kon-im” and

“reject *ʃod*”.

In regards to the second principle, there were instances of bilingual clauses where English adjective as the first element was combined with Persian LV as the second element to form a Persian CV. The following examples clarify the point:

(24) *mæn* *xerli* nervous *ʃod-æm*.

I very nervous became-1Sg

“I became very nervous.”

(25) *Sæʔi* *kon* *bij-tær* helpful *bəʃ-i*.

try do more-COMPR helpful be-2Sg

“You try to be more helpful.”

As you see above in example (24) and (25), respectively, the English adjectives “nervous” and “helpful” were combined with Persian LVs “*ʃod-æm*” (to become) and “*bəʃ-i*” (to be).

The second structural aspect of Persian language which should be regarded is that in contrast to English, Persian is a Pro-drop language; that is subject can be omitted from Persian sentences or clauses. Therefore in Persian language the presence of subject in a sentence or clause is optional and it can be omitted. The omitted subjects are called null subjects (Radford 2008). The point is demonstrated in the following examples:

(26)  $\emptyset$  swimming *bælæd* n-ist-æm.

swimming know NEG-be-1Sg

“I don’t know swimming.”

(27)  $\emptyset$  *æz* motivation-et *xoʃ-æm* *umæd*.

of motivation-2Sg like-1Sg come

“I liked your motivation.”

(28)  $\emptyset$  self-finance *hæst-im*.

self-finance be-1Pl

“We are self-finance.”

As you see, in example (25) and (26), the subject “*mæn*” (I), which is the first person singular pronoun, was omitted or in other words, it is not overtly expressed. In example (28), the first person plural pronoun “*mə*” (we) was omitted since Persian language is in fact a pro-drop language.

In the majority of the collected data of the present research, the subjects of the clauses are omitted. The presence of omitted subject in a clause in initial position should be taken into account; regarding the position of subjects in these cases, the ML could be either English or Persian according to morpheme order principle. To be more specific, in the collected data, there are cases, such as examples (29) and (30) below, where the word

order is SV without any verb complement.

(29) *Focus* *kon*.

focus do

“Focus”

(30) *æge* *brief-tær* *bud*, *behtær* *bud*.

If brief-COMPR was, better was

“If it was briefer, it would be better.”

In example (29), the null subject is “To” or “*ʃomə*” (You, 2Sg), the verb “*focus kon*” (focus) has no complement. In example (30), the bilingual clause consists of the null subject “*ən*” which means (it) and the compound verb “*brief-tær bud*” (was briefer). As you see, in these types of bilingual clauses where the word order of the clause is SV without any complements, the ML might be recognized either English or Persian based on the morpheme order principle. Nevertheless, the ML in such kind of clauses is considered to be Persian, as Persian verb formation process has been employed.

In the following example, the null subject is “*ənhə*” (they) and the following verb phrase comprised of a verb and its complement. As illustrated below:

(31) *ʃoru* *kærd-æn* *be* *argue* *kærdæn*.

start do-3pl to argue do

“They start to argue.”

As you see above, in this bilingual clause, the word order is compatible with both English language and Persian language. Therefore, the ML can be recognized as either English or Persian. However, the verb contained in the verb complement “*be argue kærdæn*” (to argue) is a compound verb made by Persian compound verb formation process, as discussed in previous sections. According to morpheme order principle, thus, the ML in this bilingual clause is identified as Persian.

In the following example, the word order is acceptable in both English and Persian; however, Persian is identified to be the ML due to two reasons: (i) Persian compound verb formation process was used in this clause and (ii) the direct object “*etun*” which means “you” appears between the two elements of compound verb. This is a normal phenomenon in Persian language, while in English, direct object comes only after verb. Example (32) clarifies the point:

(32) *mæge* *yærər-e* *reject-etun* *kon-æn?*

INT supposed-COP reject-PRN.2pl do-3Pl

“Are you supposed to be rejected?”

There are situations where part of the complement appears before the verb and part of it

appears after the verb, as shown below:

(33) æz bæcegi ælɔye ziɔdi dɔft-æm  
be ketɔb-ɔ-je psychology.  
form childhood interest great had-1Sg  
in book-PL-Ez psychology

“From childhood, I had a great interest in psychology books.”

As you see in example (33), the direct object “æɔlɔye ziɔdi” (great interest) has come before the verb “dɔft-æm” and the indirect object “ketɔb-ɔ-je psychology” has come after the verb. In contrast to English which this structure is considered as ungrammatical, this structure is allowed in Persian and it is considered grammatical. As a result, according to morpheme order principle in these cases the ML language is identified to be Persian.

In the following example also the bilingual clause composed of the direct object “in” (this), the adverb “totally”, the verb “ne-mi-fæhm-æm” and the verb complement “cetori-e”.

(34) in-ototallyne-mi-fæhm-æm cetori-e  
this-OBJ totally NEG-HAB-understand-  
1Sg how-COP.3Sg

“I totally don’t understand how this is.”

In the above example, the direct object has appeared before the verb and the verb complement has appeared after the verb; therefore, the word order is considered to be Persian and as a result again according to morpheme order principle Persian language is identified as ML.

Another important problematic example was demonstrated in example (35) below:

(35) dærkenɔr-e hæme-je knowledge-ɔ-ji:  
ke dɔr-im, hæmiɔe je ciz-ɔ-ji: hæst ke bɔjæd  
jɔd begir-im.

besides-Ez all-Ez knowledge-PL-INDF that  
have-1Pl, always a thing-PL-INDF be which  
should learn get-1Pl

“Besides all the knowledge that we have, always there are things which we should learn.”

As you see above, at the first glance to this clause, one may consider that the word order is compatible with both participating languages. But a closer look and analysis depicts that in fact in this clause Persian and English are in contact in the adjunct “dærkenɔr-e hæme-je knowledge-ɔ-ji: ke dɔr-im” (besides all knowledge that we have) which is a bilingual clause. This bilingual clause, as you observe, is a prepositional phrase. Its word order is compatible with both English and Persian where there is

a preposition “dærkenɔr-e” (besides) and then after it, the complement of preposition “hæme-je knowledge-ɔ-ji:” (all knowledge-PL-INDF) appears and finally the modifying clause “ke dɔr-im” (which have) appears. However, the word order of the rest of the clause is exactly based on the Persian clause structure where, as already mentioned, part of verb complement can come before the verb and part of it can come after it. So based on above observation, according to the morpheme order principle Persian language is identified as the ML in this clause.

As you see in example (36), again at the first glance to this example, one may demonstrate that the word order is compatible with both Persian and English. However, a closer attention to the noun phrase “source-ɔ-je moxtælef-e” (different sources) reveals that the head modifier in this phrase is based on Persian language. Therefore, in this phrase, Persian can be considered as ML. Nevertheless, as already mentioned, since the unit of analysis is not a phrase, but a clause, these kinds of phrases will not be included in the analysis of present study. As illustrated below:

(36) ædæme dæstresi be source-ɔ-je  
moxtælef-e etelɔ.ɔt.

no access to source-PL-Ez different-Ez  
information

“No access to different sources of information.”

As you see in the following example also like the previous one, it is not the order of verb-complement which indicates Persian as the ML, but the head-modifier order in the noun phrase “ɔb-e watermelon” (watermelon juice). Example (37) clarifies the point:

(37) mæxlu:t mikon-im bɔ ɔb-e water-  
melon.

mix do-1pl with juice-Ez watermelon

“We mix it with watermelon juice.”

It should be mentioned that, while in English, adjectives come before the nouns in noun phrases, nouns and adjectives in Persian come in reverse order in a noun phrase; that means adjectives come after the nouns in a noun phrase.

As you see, in the following example, the word order seems to be compatible with both participating languages; however, it is the negation process which functions as a distinguishing factor.

(38) Kefvær ne-mitun-e piɔræft-kon-e

be-xøtere mismanagement væ corruption.  
 country NEG-can-3Sg progress-do-3Sg  
 because-of mismanagement and corruption  
 “The country cannot progress because of  
 mismanagement and corruption.”

While in English language, the morpheme “not” comes after the verb to make it negative form, in Persian the morpheme “ne” as prefix is attached to a verb to turn it into negative form. Consequently, in this example, Persian is identified to be the ML according to morpheme order principle.

There are also instances of bilingual clauses where the ML can be either English or Persian according to morpheme order principle. The following examples clarify the point.

(39) mir-æm tu classroom.

go-1Sg into classroom

“I go into classroom.”

(40) Bøjæd be-zar-esh ru u:n box.  
 should Subj-put-PRN on that box.

“S/he should put it on that box.”

In example (39), the word order is SVA which is compatible with both English and Persian. Therefore, the ML can be either English or Persian according to the morpheme order principle. In the next example, (example 40), the word order is SVOA which is acceptable in both English and Persian; so the MLF can be either English or Persian according to morpheme order principle. As a result, morpheme order principle alone cannot not be helpful in determining the ML in these cases.

To sum up, it should be mentioned that according to morpheme order principle almost in all of the Persian-English bilingual clauses in the present study, the ML can be identified as Persian.

### The System Morpheme Principle and the 4-M Model

System morpheme principle, as already discussed, asserts that all system morphemes whose form and presence are dependent on the information outside the elements within which they occur and hence outside their immediate phrase and also their immediate constituent, can come solely from the ML. These morphemes are called the late outsider system morphemes which have been discussed in the 4-M model. With regards to the presence of

late outsider system morphemes, there are three different conditions in the bilingual clauses of the present study, include: (i) the late outsider system morphemes come just from Persian language, therefore Persian is considered as ML; (ii) the late outsider system morphemes come only from English, so English would be considered as ML; finally (iii) both of the languages, English and Persian, provide the late outsider system morphemes, therefore the possibility of both of the languages being the ML.

Significant examples of late outsider system morphemes in Persian language include the morphemes which attached to the end of some of the verbs that are known as personal endings. These morphemes are used to present the person and number of the verb. The personal endings are represented in following examples:

(41) Tæmøm data-hø ro je jø zæxire  
 kærd-æm.

All data-PL OBJ aplace save did-1Sg  
 “I saved all the data in one place.”

(42) Sob je zære nervous jød-æm.

morning a little nervous became-1Sg

“In the morning I became a little nervous.”

(43) Mø hæm jødgereft-e-im ke æz abbrevia-  
 tion esteføde kon-im.

we also learn-PP-1Pl that of abbreviation  
 use do-1Pl

“We also have learnt to use abbreviation.”

In example (41) and (42), respectively, the ending “æm” at the end of the verbs “zæxire kærd-æm” (saved), and “jød-æm” (became) is first person singular. In example (43) the ending “im” at the end of the verb “esteføde kon-im” (use) is first person and plural in number.

In this part, the focus is on identifying the ML according to system morpheme principle. As seen, the all the English morphemes presented in the above mentioned bilingual clauses are content morphemes. Thus, considering only the provision of content morphemes, English language can be either the ML or the EL, Persian morphemes, on the other hand, involved in both system morphemes and content morphemes, specifically late outsider system morphemes. As a result, if a bilingual clause involves any personal endings (late outsider system morpheme), the ML will be Persian and if it does not involve any personal endings, the ML will be considered as either English or Persian. However, considering this principle, it

should be mentioned that almost in all the cases of Persian-English bilingual clauses, the matrix language (ML) is identified as Persian.

### **Testing the Asymmetry Principle on the Persian-English CS/CM**

As previously mentioned, asymmetry principle asserts that there is an asymmetry relation between the two participating languages in bilingual clauses. This asymmetry is analyzed based on two aspects: (i) structural asymmetry (ii) asymmetry considering content words vs. grammatical elements.

Considering the structural asymmetry, it can be asserted that the structural frame of almost all of the bilingual clauses follow the structural frame of Persian language. This result signifies the asymmetry in terms of the structural frames of Persian-English CS/CM.

Regarding asymmetry involving grammatical constituents and content words, the analysis of the data depicts that English provides only content morphemes, such as nouns, verbs, adjectives and adverbs. While Persian supplies both content morphemes and as well as system morphemes including early system morphemes, late outsider system morphemes and late bridge system morphemes. This analysis again reveals an asymmetry involving grammatical elements and content words in the sample data.

### **Testing the Uniform Structure Principle on the Persian-English CS/CM**

As previously described, the uniform structure principle assumes that the structure of ML is always preferred in a bilingual clause (Rahimi and Dabaghi 2013). As previously outlined, to be in line with Rahimi and Dabaghi (2013) late outsider system morphemes are only provided by ML, while other morphemes can be provided by both the ML and the EL. The uniform structural principle states that even though the early system morphemes and late bridge outside morphemes can come from both participating languages, they preferably come from the ML (Rahimi and Dabaghi 2013).

As mentioned in previous section, English as the EL supplies only content morphemes such as: nouns, verbs, adjective and adverbs. To be in line with Rahimi and Dabaghi (2013),

in our data analysis, it was observed that Persian language is the ML and it not only provides the late outsider system morphemes, but also it supplies the early system morphemes and the late bridge system morphemes. This result, therefore, is supporting the uniform structure principle of MLF model.

## **CONCLUSION**

In this study the application of three principles of MLF model in regards to Persian-English CS/CM has been investigated. It was found out that CS/CM between Persian and English as two typological different languages can be regarded as a supporting evidence to MLF model. In addition, English-Persian CS/CM seems to be classic type of code-switching; in other words, in a bilingual clause only one of the participating languages (Persian language) has the major role in providing morphosyntactic frame; in other words, only one of the languages (Persian) is the source of the morphosyntactic frame of the clause which is the Matrix Language and the other language (English) provides only content morphemes which are only embedded into the ML morphosyntactic frame and hence it is called as Embedded language.

## **RECOMMENDATIONS**

Though this study should be one of the most extensive and complete research papers on Persian-English code-switching and code-mixing concerning a precise analysis of MLF model with respect to switching between this pair of typological different languages, it has some limitations that can be explored in further research. This study involves only adult Persian-English bilinguals. The participants of the present study were only postgraduate students and Ph. D scholars who were fluent in both languages; that means, the participants of the present research were all late bilinguals. However, it should be enlightening to do further research on the phenomenon of Persian-English CS/CM among younger participants or young bilingual children; that means, early bilinguals. Therefore, research on CS/CM among young bilingual children, for example, can be done to examine some the possible explanations for the occurrence of CS/CM among young bilingual

children such as: the utility language system hypothesis, parental rates of CS/CM, parental discourse strategies in response to children's CS/CM, and children's language dominance.

### NOTES

1. Ez (EZAFE) in Persian is a link between a noun and its modifying element.
2. Abbreviations: S= subject, V= verb, O= object, A= ad-verb C= complement

### APPENDIX: LIST OF ABBREVIATIONS

1, 2, 3	1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> Person
ACC	Accusative
COMPR	Comparative
COP	Copula
Ez	Ezafe
HAB	Habitual
INDF	Indefinite
INT	Interrogative
NEG	Negative
OBJ	Objective Maker
PI	Plural
PL	Plural maker
PP	Past Participle
PRN	Pronoun
Sg	Singular
Subj	Subjective

### REFERENCES

- Dabir-Moghaddam Mohammad 1997. Compound verbs in Persian. *Stud Linguistic Sci*, 27(2): 25-59.
- Karimi Simin 2005. *A Minimalist Approach to Scrambling: Evidence from Persian*. Berlin, Germany: Mouton de Gruyter.
- Karimi Simin 1997a. Persian complex predicates and LF incorporation. *Proc Chicago Linguistic Soc (CLS)*, 33: 215-229.
- Karimi Simin 1997b. Persian complex verbs: Idiomatic or compositional. *Lexicology*, 3(2): 273-318.
- Mahootian Shahrzad 1997. *Persian*. London, UK: Routledge.
- Moradi Hamzeh 2014a. A survey on code-mixing, code-switching, language alteration and interference. *Indian Journal of Applied Research*, 4(10): 62-64.
- Moradi Hamzeh 2014b. Linguistic constraints on code-mixing. *International Journal of Scientific Research*, 3(10): 45-47.
- Muysken Pieter 2011. Code-switching. In: R Mesthrie (Ed.): *The Cambridge Handbook of Sociolinguistics*. New York, NY: Cambridge University Press, pp. 301-314.
- Myers-Scotton Carol 1993. *Duelling Languages: Grammatical Structure in Code Switching*. Oxford: Clarendon.
- Myers-Scotton Carol 2002. *Contact Linguistics: Bilingual Encounters and Grammatical Outcomes*. New York, N.Y: Oxford University Press.
- Myers-Scotton Carol 2005. Embedded language elements in Acholi/English code-switching: What's going on? *Language Matters*, 36(1): 3-18.
- Myers-Scotton Carol 2006. *Multiple Voices: An Introduction to Bilingualism*. Oxford, UK: Blackwell Publishing.
- Myers-Scotton Carol, Jake Janice L 1995. Matching lemmas in a bilingual language competence and production model: Evidence from Intrasentential Code-switching. *Linguistics*, 33: 981-1024.
- Myers-Scotton Carol, Jake Janice L 2000. Testing a model of morpheme classification with language contact data. *International Journal of Bilingualism*, 4(1): 1-8.
- Myers-Scotton Carol, Jake Janice L 2001. Explaining aspects of code-switching and their implications. In: J Nicole (Ed.): *One Mind, Two Languages; Bilingual Language Processing*. Oxford: Blackwell, pp. 84-116.
- Rahimi Meisam and Azizollah Dabaghi 2013. Persian-English codeswitching: A test of the Matrix Language Frame (MLF) model. *System*, 41(2): 322-351.
- Radford Andrew 2008. *Minimalist Syntax: Exploring the Structure of English*. UK: Cambridge University Press.
- Thomason Sarah Grey 2001. *Language Contact: An Introduction*. Great Britain: Edinburgh University Press.

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