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Matrix-Language Approaches to Classic Code-Switching: the MLF and 4-M models under scrutiny

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Abstract: *Code switching is a phenomenon present in contexts where speakers use more than one variety. It is interesting for sociolinguistic studies to inquire into this behaviour and see whether it is an accidental behaviour or it follows certain rules and constraints. This paper aims to offer some of these grammatical aspects of code-switching observed in an Algerian context, mainly in the speech of bilingual speakers at university. Our prime objective is to explain the different manifestations of the formal properties of two typologically different codes; Algerian Arabic and French and their implications in shaping the syntactic/pragmatic structures in mixed codes. Then, our aim is not to attribute each switch a function since our frame of reference is not functional but we try to explain the 'how' and 'why' questions differently. The centre of our interest is the socio-pragmatic reality of syntactic constituents in bilingual speech. The analysis of our AA/Fr CS and MSA/AA code-switched data is based on Myers-Scotton's MLF and its supportive models. In the MLF approach, there is always an asymmetry between the languages involved in CS. One of the major shortcomings of the MLF model discussed in the literature is the inadequacy of the notion of the CP as a unit of analysis. Reducing the matrix language to a property of a CP restricts the constraints on code-switching into purely structural limitations and therefore ignores other determining factors in shaping code-switched sentence patterns, be they socio-linguistic or psycho-linguistic.*
Key words: *Grammatical aspects, code-switching, typologically, socio-pragmatic, Myers-Scotton, MLF approach.*
Résumé : *Le changement de code est un phénomène présent dans des contextes où les locuteurs utilisent plus d'une variété. Il est intéressant pour les études sociolinguistiques d'enquêter sur ce comportement et de voir s'il s'agit d'un comportement accidentel ou s'il obéit à certaines règles et contraintes. Cet article vise à proposer quelques-uns de ces aspects grammaticaux du changement de code observés dans un contexte algérien, principalement dans le discours de locuteurs bilingues à l'université. Notre premier objectif est d'expliquer les différentes manifestations des propriétés formelles de deux codes typologiquement différents ; L'arabe Algérien et le français et leurs implications dans la formation des structures syntaxiques/pragmatiques dans les codes mixtes. Ensuite, notre but n'est pas d'attribuer à chaque alternance codique une fonction puisque notre référentiel n'est pas fonctionnel mais nous essayerons d'expliquer différemment les questions du « comment » et du « pourquoi ». Le centre de notre intérêt est la réalité socio-pragmatique des constituants syntaxiques dans le discours bilingue. L'analyse de nos données sur les alternances codiques AA/Fr et MSA/AA est basée sur le Modèle MLF de Myers-Scotton et ses modèles supports. Dans le MLF, il y a toujours une asymétrie entre les langages impliqués dansl'alternnace codique. L'un des défauts majeurs du modèle MLF discuté dans la littérature est l'inadéquation de la notion de CP comme unité d'analyse. Réduire le langage matriciel à une propriété d'un CP restreint les contraintes de changement de code à des limitations purement structurelles et ignore donc d'autres facteurs déterminants dans la formation des modèles de phrases à changement de codes, qu'ils soient socio-linguistiques ou psycho-linguistiques.*
Mots clés : Aspects grammaticaux, Code-Switching, typologique, socio-pragmatique, Myers-Scotton, approche MLF.

1. Introduction

Many approaches have attempted to demonstrate that code-switching is not an accidental behaviour and therefore a set of structural constraints has been elaborated to explain the formal restrictions that rule out the alternative use of codes within the same discourse.

The Matrix language (ML) sets the syntactic frame in the bilingual utterance in which elements from the embedded language will be inserted in these empty slots. Thus, we endeavour in this paper to explain how this language hierarchy is manifested in the asymmetry of syntactic constructions, how the psychological information processing connects the units of language with the units of thought. We begin by giving an overview of the Matrix-Language and its sub-models. Our aim is to test the theoretical findings of these models on our data and to explore their implications for understanding the psycholinguistic mechanisms underlying bilingual language processing. At first, many conceptual notions are explained with illustrative examples taken from our data like the notion of the CP (the projection of the complementizer), the mental lexicon and the lemmas and the lexical entries at the level of the conceptualizer. Secondly, some syntactic configurations are interpreted in the light of the matrix-language models. Thus, we try to provide some generalisations regarding the regular patterns utilised in bilingual speakers' speech observed in their communicative interactions in an Algerian context.

2. An overview of the Matrix Language Framework

The MLF model, first introduced in Myers-Scotton (1993b), has been refined continuously to end up with two supportive extended models, namely the 4-M and the Abstract Level models. It is a linguistic model designed to account for the different structural configurations and syntactic structures in **'classic CS'**[1]. Contrary to Jackendoff (1997), Myers-Scotton reconsiders the relationship between the lexicon to the different components, namely the syntactic and the phonological components. In Myers-Scotton's perception, this means that the MLF model is not primarily a **Phrase Structure** model: the ML constitutes the grammatical frame or simply the abstract structure and not the surface realisations in discourse. Thus, the MLF is a model which tries to make explicit the notion of the Matrix language *"as a theoretical construct"*. In fact, two interrelated concepts 'oppositions and asymmetries' are the keys to the nuts and bolts of the MLF model. The more dominant language is the ML[2] and the other one is the embedded language (EL).

The main aim of the MLF model is to identify the matrix language within a string of speech and therefore identifying its abstract structure. For this purpose, a unit of analysis has been proposed to account for the structural constraints on intra-

[1] For more details, see. Myers-Scotton& Jake (2000).

[2] ML is identified as the unmarked code and the language which provides more morphemes in bilingual speech. Myers-Scotton defines it as *"a label for the abstract morphosyntactic frame of an utterance"* (2002:58).

sentential CS: the unit of analysis in the earliest version of the MLF model was discourse. Myers-Scotton states that *"the ML is the language with the higher frequency of morphemes in a discourse sample in which CS occurs"* (1993:232). But, the question raised is whether discourse sample is really adequate for the analysis of mixed-codes, is it really capable of depicting the boundaries between possible and non-possible code-alternations? It seems that the notion of discourse sample is hazy since it does not really take into account the specific elements to be analysed. This is because the sentence can have many structural configurations (matrix clauses, subordinate clauses, interrogative phrases…).

The MLF model has been criticised because of the vagueness of this idea of 'discourse sample'. Myers-Scotton re-articulates her understanding of discourse sample and tries to give more specific definitions; she considers *"a discourse sample of at least two sentences (within the same turn or across speakers) is a minimum"* (1995:238). In other words, the sample to be analysed implies *"minimally two sentences, either from a single speaker or from an adjacency pair produced by two speakers"* (1997:96). This definition appears to need more specification as well since it identifies matricity only at discourse level and does not depict syntactic constraints intra-sententially. Hence, a new articulation should be proposed for CS analysis. Myers-Scotton&Jake (2001) posit the **CP** *(the projection of the complementizer)* as the unit of analysis not the sentence. Following this trend, a CP comprises a constituent containing a proposition-expressing part and a complementizer-like element that may or may not be null. This complementizer-like element can be any of the clause peripheral words, particles, morphemes used with subordinate clauses or clauses with non-indicative mood. For example, there are two CPs in the following sentence: [I was very scared] [because I had seen an ugly toad].

According to Myers-Scotton, the CP *"is the syntactic structure expressing the predicate-argument of a clause, plus any additional structures needed to encode discourse-relevant structure and the logical structure of that clause".* It is only within the CP that the grammars of the two languages are in contact as explained in Myers-Scotton (2001:88-89). Thus, the unit of analysis is intra-CP code-switched sentences; neither inter-sentential code-switching nor inter-turn switching. Let us take the following example from AA/ Fr CS to explain and illustrate the notion of CP:

(1) llijdi:r **didactique** llijdi:r **polyvalent** j?ansenji gæ:? j?ansenji gæ:? **les modules** *([The one] who studies didactics is polyvalent, he can teach all modules).*

The unit of analysis in the above example is not the whole sentence but the different clauses that it comprises: # /llijdi:r**didactique** dʒa:j **polyvalent** # is the first bilingual CP which contains an external argument /llijdi:r**didactique**/ (subject) that carries the thematic role of a 'patient' denoted

in the predicate dʒa:j **polyvalent.** The second bilingual CP is #jnadʒəm jʔansenji gæ:ʕ **les modules** ## in which the grammars of both AA and Fr are in contact. This CP is the highest unit projected by the lexical items (verb and noun), it is the maximal projection of the node I (inflection) where the verb /jʔansenji/ is the head, the auxiliary /jnadʒəm/ is the specifier and the noun phrase (NP=les modules) is the complement. This example shows that taking the sentence as a unit of analysis would miss many structural details necessary to the understanding of the functioning of mixed sentences.

2.1. *Oppositions and hierarchies in the MLF model*

2.1.1. The matrix language vs. the embedded language distinction

Myers-Scotton posits that the participation of the languages engaged in CS is not equal. One of them sets the grammatical frame for the structuring of the CPs (word order), this frame-setting language is the ML and the other is the embedded language EL. The ML morphemes occur frequently while EL morphemes are restricted. This major role distinction between the two participating languages indicates that the ML is a grammatical frame which provides functional elements while EL constituents fill the slots within that frame. Example (2) is an illustrative case: AA is the ML with a French NP inserted, it is responsible for the word order of constituents and supplies system morphemes (the inflection for the passive participle and the coordinator ({w} signifying 'and'):

(2) wana χa:jfa ndi:r **la deuxième page (***And I'm afraid to make two pages)*

The identification of the ML is not so easy, there are cases where the surface structure obeys to the rules of a particular language but the abstract lexical structure belongs to another, as seen in the following example: the bilingual speaker here produces an utterance like, *tu voulais les mettre où?* (literally, you wanted to put them where? meaning=where did you want to put them?).Though all surface morphemes come from French, the morpho-syntactic structure that underlies this CP is AA /bʏi:ti ddirri:hum wi:n/. So, the identification of the matrix language relies principally on the syntactic role played by such a language within a bilingual CP.

2.1.2. The content morpheme vs. system morpheme distinction

The second distinction established in the MLF model is related to functional elements and content morphemes. Myers-Scotton proposes some features to set a universal line of demarcation between these morphemes regardless their different behaviour cross-linguistically. These properties are [±Quantification], [±thematic role-assigner] and [±thematic-role receiver]. Any categories which show the property [–Quantification] are prototypical content morphemes. Verbs, for instance,

are potential content morphemes; they assign thematic roles. Nouns are also content morphemes because they show the properties [–Quantification, +Thematic-role receiver]. Most nouns and verbs are potential content morphemes in most languages, these elements constitute the predicate-argument structure and hence they either receive or assign thematic roles. Adjectives are content morphemes within the thematic grid, most obviously as predicate adjectives and in other constructions. For example, the adjective intéressée [à] assigns the role of stimulus to NP1 la literature comparée and the role of experiencer to the NP2 la major de promo in the bilingual CP, La major de promo est **intéressée** l literature comparée *(the head of list is interested in comparative literature)*.Some prepositions only assign case and not thematic roles, they are considered as system morphemes in Myers-Scotton's typology. In the CP département de français (department of French), the preposition 'de' is a system morpheme because it assigns objective case to the noun 'département'.

Contrary to the [±thematic role-assigner] and [±thematic-role receiver], the feature [Quantification] is a construct that specifies the quality of individuals across variables. For instance, determiners (a, the) specifying particular individuals; numbers or definiteness, quantifiers (any, no, few, many, all) and possessive adjectives (my, its, her, their) are system morphemes as well. Tense markers which specify a special time-frame within discourse appear at the specifier position of NP and therefore belong to the category of system morphemes. Similarly, adverbs of degree or intensifiers such as very, extremely and rather are system morphemes; they specify the extent of a quality or the degree of a frequency, as in **very** nice or **extremely** important. But, Myers-Scotton assumes that the mapping of thematic roles onto morphemes varies cross-linguistically. The assignment of certain θ-roles is language-specific, what is considered as a content morpheme in a language can be a system morpheme in another language.

2.1.3. Constituents of the CP

The MLF model predicts three types of constituents: **mixed constituents** which include elements from both the matrix and embedded languages, i.e., ML+EL constituents. Matrix language islands that are composed entirely of ML morphemes and are under the control of ML grammar. **Embedded language islands** are composed entirely of morphemes from the EL and are well-formed by EL grammar but inserted within a ML frame. In other words, these constituents are well-formed in the EL but their appearance in the code-switched CP is under the control of the ML. In the following discourse-sample, there are two French EL islands (sous la direction de la fac, l'année dernière), a mixed island (jahadru ʕla *l'autonomie de l'institut)*, then appear /jaχadmu/, /smæʕthum/ as ML islands. #jaχadmu **sous la direction de la fac** smæʕthum jahadru ʕla *l'autonomie de l'institut* **l'année**

dernière *(They work under university I've heard about the institute's autonomy last year).*

2.2. Principles of the MLF model

Myers-Scotton proposes two interrelated principles relevant to the MLF model, namely the morpheme order principle and the system morpheme principle:

The Morpheme Order Principle: in ML+EL constituents which consist of single EL lexemes insertions and any of ML morphemes, surface morpheme order will be that of the ML. Myers-Scotton&Jake (1995) claim that the ML determines the surface syntactic relations in ML+EL constituents. For example, (47) follows AA morpheme order because the French noun *livre* is accompanied with the definite article *le* in accordance with AA morpheme order. This means that the modifying demonstrativehæda:k (that) is followed by the definite article and this is obviously an AA grammatical pattern. This is not identical to French morpheme order which disallows a sequence of two determiners in this particular syntactic distribution. The French counterpart would be : Le livre sur la table appartient à mon père.

(3) hæda:k **le livre** lli ra:h **sur la table appartient à mon père** *(That book on the table belongs to my father)*

The System Morpheme Principle: this principle predicts that all system morphemes which exhibit grammatical relations external to their head constituent will come from the ML in mixed constituents. This means that all syntactically relevant EL system morphemes will not occur in code-switched sentences containing ML+EL constituents. However, syntactically relevant ML system morphemes will occur. According to Myers-Scotton's criteria of morphemes classification mentioned previously, determiners, quantifiers, copulas, do verbs, complementizers, structurally assigned agreement and dummy pronominals fall under the category of system morphemes. Thus, on the basis of the system morpheme principle, all these functional elements should be sourced from the ML. Consider the following example in which the complementizer come from AA, the matrix language in this CP, with an inserted content morpheme from French (N= 'marketing'):

(4) ba:ʃddi:ri**marketing**ta:ni *(to do marketing as well?)*

A set of interrelated hypotheses have been proposed under the MLF model to make predictions for special cases when an EL morpheme appears in ML, the blocking hypothesis, the EL island trigger hypothesis and the Implicational hierarchy hypothesis:

The Blocking Hypothesis proposes that the matrix language blocks any EL content morpheme which does not satisfy certain congruency conditions with ML to

appear in ML+EL constituents. The Blocking Hypothesis is formulated as follows: *"In ML+EL constituents, a blocking filter blocks any EL content morpheme which is not congruent with the ML with respect to three levels of abstraction regarding subcategorization"* (Myers-Scotton 1993b:120). According to Myers-Scotton, two linguistic items are congruent if they correspond to certain qualities. This means that ML blocks EL content morphemes if they are realised as system morphemes in ML. For example, prepositions can either be content or system morphemes depending on the internal structure of the languages involved. The English preposition *for* is a content morpheme since it assigns a thematic role to its complement in a construction like for+NP. The Swahili counterpart, however, does not meet the same conditions of congruency. It is realised as a postpositional suffix and therefore the English preposition *for* cannot occur in mixed islands. One specific example is taken from Swahili/English in Myers-Scotton (1993b:140):

(5) Nikam wambia anipe ruhusa niende ni-ka-**check for you** (*And I told him he should give me permission so that I go and check for you)*
***** Nikam wambia anipe ruhusa niende ni-ka- **check for** wewe.

The EL Island Trigger Hypothesis: It claims that the access of any EL morpheme that does not satisfy the conditions of both the ML and the blocking hypotheses will trigger an obligatory EL island. Myers-Scotton states that *"Whenever an EL morpheme appears which is not permitted under either the ML Hypothesis or the Blocking Hypothesis, the constituent containing it must be completed as an obligatory EL island"* (1993:7). An illustrative example will be (6):

In the following example, the unexpected activation of the demonstrative 'that' characterised by the feature [+Quantification], a system morpheme from EL, triggers off an EL island to occur *cet après-midi pour récupérer mon CD*: **(6)** ndʒi ʔændak **cet après-midi pour récupérer CD** ntæ:ʔi *(I'll come to see you this afternoon to recover my CD).*

It seems that the notion of 'congruence' is central to the understanding of the construction of EL islands within a ML frame. Congruence refers to *"a match* between *the ML and the EL at the lemma level with respect to linguistically relevant factors"* (Myers-Scotton&Jake 1995:985). In Myers-Scotton's model, congruence is manifested at two levels. The first level is related to the status of syntactic categories and the matching between system and content morphemes. If a syntactic category shows incongruency with its EL counterpart, the EL content morpheme cannot occur in ML+EL constituents. For instance, pronominal pronouns are realised as system morphemes *(clitics sourced from the ML)* and their EL counterparts are content morphemes, ML clitics can occur in ML+EL constituents but not the EL's content pronouns. The second level of mismatching which prohibits an EL content morpheme to appear in ML+EL constituents is linked to thematic role assignment.

If EL content morphemes are not congruent with ML morphemes in terms of subcategorization, these morphemes cannot occur in mixed islands.

One specific example concerns prepositions, certain prepositions are considered as content morphemes because they assign thematic roles. The preposition **for** in English assigns the thematic role of goal to **Jane** in the sentence She sent a letter **for** Mary. It can therefore appear in ML+EL constituents. In Swahili, however, it is the verb which assigns the thematic role of beneficiary or goal through the verbal suffix which is not congruent with the English preposition **for**.

Myers-Scotton&Jake (1995) reconsider the notion of congruence and relate it to the matching between the ML and EL at three levels: the lexical-conceptual structure *(intentions and semantic features)*, the predicate-argument structure *(the mapping of syntactic categories to their arguments)*, and morphological realization patterns (syntactic relations and surface word order). They assume that the appearance of EL islands is due to some problems of incongruency between the structures of the languages involved in CS at some levels (the three levels mentioned earlier). The occurrence of EL islands might be explained at the conceptual level so that the bilingual speaker's intentions could not be realised in the ML.

According to this adjusted version of the MLF model, if there is congruence between competing items from the participating languages to code-switching at the conceptual level, the activated EL system morphemes will be incorporated into the grammar of the frame-building language (ML). In cases of incongruency, on the other hand, two compromise strategies will be called (Jake&Myers-Scotton 1997). If the EL inserted morphemes are single words, they appear in EL islands as bare forms[3]. For example, in the CP, whæ:di table de nuit *(And this is (.)bedside table);* the AA system morpheme (ML) equivalent to the French indefinite article 'une' is required with the EL content morpheme (table de nuit).

The noun surfaces here in its bare form because of an incongruency at the lexical-conceptual structure. The second strategy is an EL island which meets the requirements of the well-formedness in EL inserted within the frame constructed by an ML. The EL Island in #lalman maʔændhæ:ʃ les milieux défensifs ## is a French well-formed inserted constituent since the adjective 'défensifs' is in postposition in accordance to French grammar rules.

Besides the blocking and the EL Island trigger hypotheses, Myers-Scotton proposes the **Implicational hierarchy hypothesis** which proposes that peripheral constituents, idiomatic expressions[4] have more tendencies to appear as EL islands.

[3] According to Myers-Scotton&Jake *"Bare forms are EL content morphemes that lack the requisite ML system morpheme that would make the well-formedness in a ML frame. They are often nouns"* (2002:21).

[4] Myers-Scotton proposes the following implicational hierarchy in which formulaic expressions are on the top of the scale, followed by time and manner expressions. Quantifiers, non-time NPs as VP complements come after, then agent NPs and thematic role and case assigners at the bottom.

Prepositional phrases (PPs), time adverbials and idiomatic expressions[5] appear most of the time as EL islands. (e.g., in fact, for that purpose, every day, very late, old habits die hard).

3. The abstract Level model

Myers-Scotton&Jake (1995) have revised slightly the predictions of the MLF model and proposed the Abstract Level model. This model accounts for classic CS as well, it has been elaborated to explain the nature of the abstract morph syntactic frame in bilingual CPs and how sufficiently congruent constructions occur in code-switched sentences. The major premise underlying this model is that language production in bilingual speech is made through three stages of abstract lexical structure:

- **Lexical-conceptual structure:** at this pre-linguistic level, the bilingual speaker forms a pre-verbal intention in the conceptualizer, activating language-specific semantic/pragmatic feature bundles. Theses bundles select lemmas[6] in the mental lexicon. Myers-Scotton&Jake (1997) posit that the matrix language is selected at this level and that directly elected lemmas supporting content morphemes and indirectly elected lemmas supporting early system morphemes are activated.
- **Predicate-argument structure:** when the frame-building language is selected, the ML morphemes become activated at the conceptual level. The ML supplies all late outsider system morphemes and other content morphemes in mixed islands. So, the hierarchies in regard to the participating languages and the status of morphemes will be established at the lemma level (the predicate-argument structure). This level provides information for the mapping of thematic roles on grammatical relations, the mapping of Agent to the subject, for instance, and Beneficiary to the indirect object.
- **Morphological realisation patterns:** at the third level (the formulator), the morpho-syntactic procedures are activated and realised on the surface. This level includes grammatical relations (word order, agreement morphology). Case marking and subject-verb agreement are also examples of morpho-syntactic realisation patterns.

4. The 4-M model: the MLF model revisited

[5] Wray&Perkins (2000) consider formulaic expressions as a sequence of words or elements which appear to be prefabricated, stored or retrieved as a whole rather than being subject to analysis by the language grammar.

[6] Myers-Scotton&Jake (2000) considers lemmas as what mediate between intentions and conceptual-lexical level. This means the predicate-argument structure in which thematic structure is mapped onto grammatical relations. In fact, lemmas express the same meaning posited in Levelt (1989) *"Lemma are abstract language-specific entries in the mental lexicon which contain all structural information regarding lexical-conceptual structure"*

More recently, Myers-Scotton&Jake (2000) have proposed a new sub-model to the MLF model, namely the 4-M model. This model is a redefined version of the content vs. system morpheme opposition. It identifies the features for morpheme classification, specifically thematic role assignment, maximal projections, and coindexing elements. According to the new classification, morphemes fall into four types: content morphemes and three types of system morphemes which include early system morphemes and two late system morphemes, namely bridges and outsiders.

- **Content morphemes:** They occur at the conceptual level; they assign or receive thematic roles. Thus, the properties defining content morpheme are [± thematic role-assigner] and [± thematic role-receiver]. Together with early system morphemes, the content morphemes satisfy the speaker's intentions and unlike other types of system morphemes, they are directly elected and can appear independently from other elements.
- **Early system morphemes:** They are conceptually activated. This means that together with content morphemes, early system morphemes activate the bundles of semantic and pragmatic features which express the speaker's intentions. Specific cases of early system morphemes cited in Myers-Scotton (2000) are plural affixes, most determiners and verb satellite prepositions. The difference between early system morphemes and content morphemes is related to the thematic role-assigning features.

Unlike content morphemes, early system morphemes neither assign nor receive thematic roles. Moreover, they cannot occur independently of other items, they rely on their heads (content morphemes) of the maximal projection. For instance, the occurrence of the AA definite article {el-} does not depend on the speaker's communicative intentions; it depends rather on the content morpheme (the noun that elects it) that needs further conceptual information (definiteness or other information). This needed information is supplied by this early system morpheme.

The following example illustrates the feature [+ conceptually activated] that separates early system morphemes from late system morphemes: **(7) l̲feu rouge** lli mən dʒi:hæt**Castor** fə l̲ **rond point** *(The traffic-light nearer to Castor in the roundabout)*. In (7), the French nouns (feu rouge and rond-point) elect indirectly the reduced form of the AA definite article {l-} to complete the grammatical information that determines its form and position. It adds then definiteness to these nouns expressing by this the semantic/pragmatic features called by the speaker.

- *Late system morphemes:* They are activated at the level of the formulator. Their occurrence meets other requirements different from that of early system morphemes. They contain grammatical information and therefore are not activated conceptually. They are rather structurally assigned and activated when the lemma sent

directions to construct larger constituents. Thus late system morphemes are selected to assemble clauses and sentences. Late system morphemes are further subdivided into two categories, bridge system morphemes and late outsider system morphemes.

- *Late bridge system morphemes:* These are 'bridges' which connect morphemes to build up larger constituents, showing their hierarchical relationships. They occur when their maximal projection *(content morphemes)* requires them. They are different from early system morphemes in terms of their relation to their heads, they not depend on the semantic/ pragmatic properties of the content morpheme. Examples of bridge late system morphemes include the possessive 'of' and the expletive 'it' in English. The form of bridges is different from a language to another; rather, they depend on the grammatical configurations that the language-specific grammar requires of that projection. A bridge connects, for instance, two adjacent nouns without any reference to the semantic bundles associated to the head of this particular structural configuration, the relation is purely grammatical. The partitive construction **peu+ N** in French requires the presence of the preposition 'de' (of) before the noun. Thus, the presence and the form of the bridge system morpheme 'de' in a sentence like, peu de gens réflichissent *(few people think)*, is determined by the structural requirements of such a construction in French.
- *Late outsider system morphemes:* Outsiders are structurally assigned at the positional/surface level. That is, the information required for their occurrence is available only when the formulator sends directions to unify maximal projections contracting a larger constituent in the matrix language. Like bridges, outsiders connect morphemes into larger constituents but differently. They depend; however, on the grammatical information outside the immediate maximal projection in which they occur. Therefore, they are outsiders because their form is determined by the information available outside the maximal entity projected by the lexical head. Examples of outsiders include subject-verb agreement markers, tense-aspect, case and object clitics among others.

The 4-M is considered as a supportive model because it contributes to refining the MLF model. Several problematic issues have been tackled in the light of the 4-M predictions, such as cases of double morphology. According to Myers-Scotton, the system morpheme principle only identifies the types of EL system morphemes which are prohibited to appear in mixed islands *(late system morphemes)*. Some early system morphemes, however, occur in mixed constituents with their content morphemes *(i.e. their heads)* resulting in what is called *double morphology.*

Myers-Scotton posits that this problem is due to *'mistiming'*. The reason behind this mistiming is that early system morphemes occur in the same maximal

projection as their content morphemes. Myers-Scotton&Jake (2000) relate mistiming to three major reasons: firstly, the content morpheme and its early system morpheme are characterised by the feature [+conceptually activated]. Secondly, the system morpheme provides the information needed to complete the speaker's intention conveyed by the content morpheme. Finally, both morphemes occur in the same maximal projection.

5. Conclusion

Many criticisms have been made against Myers-Scotton's models on the basis of data observed in different language pairs involved in code-switching. One of the major shortcomings of the MLF model discussed in the literature is the inadequacy of the notion of the CP as a unit of analysis. Reducing the matrix language to a property of a CP restricts the constraints on code-switching into purely structural limitations and therefore ignores other determining factors in shaping code-switched sentence patterns, be they socio-linguistic or psycho-linguistic.

Boussofora-Omar claims that *"The CP as a structural unit of analysis raises more issues than it solves in identifying the ML, especially in cases where both languages/varieties participating in switching supply system morphemes within the same CP"* (2003:35).

Myers-Scotton has revisited her models continuously; she points out, for instance, that the appearance of the Moroccan clitic{dja:l}within French-framed CP as a no longer problematic since this morpheme is considered as a bridge late system morpheme under the predictions of the 4-M model. The same remark holds true for AA in which the clitic{tæ:ʔ} which occurs freely in a French matrix, as in # j'ai ramené le livre**t**tæ:ʔi## *(I have brought my book).*

Myers-Scotton admits in her revisited versions that EL early system morphemes and bridge late system morphemes can occur in mixed constituents. She introduces the Uniform Structure Principle to account for such cases. The problem of the double morphology has been widely discussed in the literature [Kamwangamalu (1990): Lingala/Chiluba/French, Crawhall (1990): Shona/English, Bokamba (1998):Lingale/French].

Myers-Scotton (1993b) has given a number of examples from Shona/English code-switched data, mainly double-plural affixes to explain what is meant by double morphology. The double morphology has not been observed in any of the works made on Arabic/French or Fuʂħa/Colloquial Arabic CS. Boussofora-Omar (2003) observed another phenomenon which raises problems to the MLF model, the co-occurrence of system morphemes from both varieties signalling different grammatical functions. She has called this 'dual morphology' to explain cases like # masaʔaqifʃ## where the bound morpheme {sa-} is attached to the Fuʂħa verb stem /ʔaqif/ instead of the free particle {sawfa}which should precede the verb.

Moreover, the discontinuous marker of negation {ma…ʃ}is attached to this complex form. Hence, the ML is always unclear. Other similar potential problematic cases to the predictions of the matrix-languages models are very productive in our corpus. A deep analysis will be provided in another research work.

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