

## Structural Patterns of Multilingual Codeswitching between Arabic and English

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### ARTICLE INFO

#### Article history

Received: January 12, 2019

Accepted: March 29, 2019

Published: May 31, 2019

Volume: 8 Issue: 3

Advance access: April 2019

Conflicts of interest: None

Funding: None

### ABSTRACT

As multilingualism is increasingly embraced in Saudi Arabia, the inevitable practice of codeswitching is a topic of heated debate. While it has been the subject of strong-held beliefs and opinions, established scholarly work is needed to enlighten the understanding of this use of languages. Hence, this study explored naturally occurring data of the codeswitching use of Arabic and English by multilingual Arab students as they attend Arabic weekly cultural seminar sessions during their temporary stay and study in the US. It captures their codeswitching use via video recordings and subjected to linguistic analyses on three levels: whole text-level, sentence-level and morpheme-level, with the implementation of the mixed-method approach. The findings revealed that the linguistic analysis of 523 codeswitching occurrences found in the data revealed the structural complexity and variety of codeswitching as a linguistic resource available to multilinguals fluent in Arabic and English. Occurring spontaneously and rather unpredictably in multilingual interactions, it disproved common Saudi and other perceptions of it as a form of language offense and careless linguistic behavior.

**Key words:** Codeswitching, Arabic, English, Linguistic Analysis, Matrix Language, morphemes

### INTRODUCTION

Linguistically, codeswitching is defined as the practice of speakers shuttling between languages on structural levels including discourse, sentence, phrase, word, or utterance (Poplack, 1980, Bokamba, 1989). More specifically, that means combining words from two distinct languages without any assimilation (Haugen, 1956). However, a more general definition of codeswitching comes from applied linguistics which views it as a speech practice associated with multilingualism and related to the nature of discourse and the interlocutors engaged in it. Namely, it occurs when two or more languages are used alternatively in one interactional situation (Johnson & Johnson, 1999). These definitions describe codeswitching as a performative speech practice in which multilinguals alternate between languages at all levels of verbal expressions, ranging from the utterance to the discourse level.

Despite the common use of codeswitching by multilinguals, a predominant belief in the anomaly of codeswitching exists even in multilingual societies (Chan, 2009). Despite naturalistic research about its inherent normalcy in the context of various language pairs, codeswitching is misunderstood (Chan, 2009). In the Arab world and especially Saudi society, it is not only undesired but rather socially stigmatized and to some extent considered offensive and ineloquent language practice. In fact, many Arabs agree with the claim that those who perform a full switch are the 'ideal multilinguals' whereas those who switch within sentences

or phrases are not (Cummins, 1979). The issue of multilingual codeswitching is not a new occurrence in public discourse and has gained attention and raised concerns in Arab communities over the years. The existence of this linguistic practice dates back to a century and a half ago in reference to the prophet Mohamad and his multilingual multicultural community.

Nowadays, however, this issue is discussed in the mainstream media, such as television shows, newspapers and online forums from various Arab countries. Codeswitching, as a linguistic practice, has been the subject of strong-held beliefs and passionate arguments in Arab societies, but scholarly linguistic study on this subject is badly needed to enlighten the understanding of this linguistic use. Therefore, this study examined naturally-occurring data of multilingual Arab youths attending a weekly Arabic classes organized by their local Saudi community in the US. It traced the way in which the participants' different linguistic repertoires were combined in the same speech event across different text levels. Therefore, based on the relevant linguistic theories reviewed below, and on the prevalent structural patterns identified in the selected data, the following conceptual model examined the study's data these contexts: whole-language, sentence-level, and word-level. Based on this conceptualization, the following research questions are proposed:

What structural patterns do multilingual Arab students use when engaging in Arabic/English codeswitching?

- a. What structural patterns do they use at the whole-language level when codeswitching?
- b. What structural patterns do they use at the sentence level when codeswitching?
- c. What structural patterns do they use at the morpheme level when codeswitching?

In other words, what types of linguistic codeswitching do the participants perform on the whole-language, sentence, and morpheme level? This linguistic study contributes to the current knowledge about language use among multilingual Arab youths. Moreover, it further informs the awareness about language structure and language use in multilingual communities. It also could inform teachers and educators about multilingual Arab students' use of their varied linguistic resources to achieve communicative goals.

From the linguistic perspective, research on codeswitching analyzes the language knowledge at the multilinguals' disposal when they switch between two language systems in systematic or unsystematic ways. Researchers examining the linguistic structures within which codeswitching occurs examine switches on the word, phrase, and sentence level (e.g. Poplack, 1980; Myers-Scotton, 1993a, Belazi et al., 1994). Their grammatical approach is by nature descriptive and focuses on describing the above types of codeswitching. For example, on the linguistic level, two main types of codeswitching are identified to differentiate between a switch that occurs between sentences, i.e., intersentential, or the classic codeswitch, and, intrasentential, i.e., a switch that occurs within a sentence (Poplack, 1980).

Studies have shown that intrasentential switching can sometimes extend from sentence boundaries to occur within word boundaries. That happens when language morphemes from one language are added to a word from another language (Romaine, 1989). Because this type of codeswitching forces the grammatical structures of different languages to converge, it is considered risky to perform (Poplack, 1980). Yet, this type of switching is common among Arab multilingual speakers. For instance, it is easy to observe the addition of the Arabic article 'al' to words instead of using the English definite article 'the' or replace the English plural marker 's' with its equivalent in Arabic (Alenezi, 2010; Elenazi, 2002). Interestingly enough, Arabic loan words in English tend to be integrated with their Arabic article 'al' as in 'alcohol' and 'algebra.' Further, the intrasentential switching is viewed sometimes as the 'bilingual clause' (Scotton & Jake, 2000), which is the main focus of structural constraints models in codeswitching research. Also, tag-switching, or extra-sentential switching, indicates switching that occurs between an utterance as a tag or as an insertion, such as 'by the way' or 'you know' (Milroy & Muken, 1995). Extra-sentential switching also appears frequently in Arabic/English codeswitching studies (Alenazi, 2010).

Focusing on the types of structural patterns, i.e., words and phrases that are selected and on the construction of sentences in the process of switching languages, linguistic research aims to identify general trends in structural restrictions controlling codeswitching. Proposed linguistic models attempt to predict typical structural constraints. Their

findings have inspired extensions of theories of structural constraints on codeswitching (e.g. Bentahila et al. 1983; Belazi, Rubin & Turbio 1992, 1994; Myers-Scotton 1993). Ultimately, their work provides evidence that revokes the myth that ideal multilinguals perform only intersentential switches in specific situations.

In studying constraints and restrictions on multilingual codeswitching, some find empirical evidence that not all codeswitching practices are structurally restricted (MacSwan, 2009), or that they simply do not apply to the cases they studied (Alenzi, 2002; Myers-Scotton, 2002; Safi, 1992; Woolard, 2004). Such different findings support the ongoing argument whether codeswitching is guarded with structural constraints. By studying naturally occurring talk, many appear to prove that previously identified constraints do not apply to various language pairs (Alenzi, 2002; Safi, 1992). However, although earlier proposed structural constraints are not valid for codeswitching patterns in different communities and language pairs (Myers-Scotton, 2002), there are some observed patterns or governing rules influenced by specific participating languages (Jeff Macswan 2005). Therefore, mostly, multilinguals do not randomly practice codeswitching (Myers-Scotton & Jake, 2000) because different language pairs merge in a coordinated manner (Mohamed, 2014). As mentioned above, there is no consensus on any general structural constraints applicable to all cases and all language pairs in codeswitching. In the reviewed literature, proposed models of language constraints categorize them as general constraints, specific language-related constraints, or constraints stemming from the matrix language model (Naseh 1997). Despite their diverse findings, the studies focusing on linguistic patterns of codeswitching share similar guiding objectives (Mohamed, 2014), i.e., identifying structural features of multilinguals' codeswitching talk, identifying the main and embedded languages used in a codeswitching occurrence, and identifying the language of origin of the morphemes in the codeswitched words. Also, such shared purposes generate possible structural constraints emerging from specific cross-linguistic integration.

Only a few of the handful recent studies that focused on Arabic-English codeswitching examined the linguistic patterns of this language use. For example, one exploratory study focused on finding the most frequently used general type of codeswitching among Yemeni group living abroad (Humyra & Shamlaya, 2018). It found that the more fluent skilled bilinguals codeswitched far more often than the less fluent using intrasentential codeswitching. Another study on Arabic-English codeswitching by bilingual adults in the UK focused on the linguistic and pragmatic patterns of their language use. It found that insertion is used more frequently than alternation between languages on sentences and message boundaries rather than insertion inside sentences (Nafa, 2013).

In this study, I conducted linguistic analysis that adopts the Matrix Language Frame (MLF) model and the 4-Morpheme (4-M) model as its supplement. These models inform the linguistic analysis on every level, from language mor-

phemes to syntactic structures (Myers-Scotton, 1995). Since the classes for the multilinguals in this study are in Arabic, the latter is expected to be the dominant or the ‘Matrix’ language for both content and discussions. Hence, the MFL model, which focuses on multilinguals’ speech production and accounts for case specificity, flexibility, and inclusiveness, provides rich data that optimizes the linguistic analysis. The following sections provide further information on the models selected for this study’s linguistic analysis.

### MATRIX LANGUAGE FRAME (MLF) MODEL

Within the framework of identifying the linguistic constraints on codeswitching, MLF is an influential model proposed by Myers-Scotton (1993), a prominent scholar of codeswitching. The MLF model suggests that when multilingual speakers switch languages, there is a language selected as a base while others remain embedded, mostly in the form of inserted elements from morphemes, words, and phrases. In other words, the languages switched are not used in equal measures (Myers-Scotton & Jake, 2001). The MLF model is thought to evolve from the notion that languages are asymmetrical when produced in a codeswitching mode (Sridhar & Sridhar, 1980). Speakers are usually in mutual understanding and agreement about deciding which language is the matrix during their interactions. In the MLF model, the base or primary language during codeswitching imposes its structural rules on the embedded one. Thus, it tends to control the word order in sentences. The MLF model then asks which of the multiple participating languages determines the outcomes of the structural production of the multilinguals’ codeswitched speech. Typically, the language chosen as the base language imposes its grammatical structure in the speech flow and is selected autonomously (Jake & Scotton, 2009). Further, the matrix language in codeswitching provides the morphosyntactic frame while the embedded language participates in the production of content lexicons (Myers-Scotton & Jake, 2001). Also, it is evident from the corpora collected from naturally occurring conversations that the embedded language elements are affected by the matrix language’s morphemic rules, thus restricting the role of the embedded language. In other words, the matrix language is expected to set structural constraints in codeswitching (see Figure 1).

Moreover, an important issue often discussed in the context of the MLF model is language proficiency as a factor in language selection and switching, especially among developing multilinguals. Jake and Scotton (2009) suggested that while multilinguals may select a matrix language at the conceptual level, their choice further depends on larger settings such as the sociolinguistic and psycholinguistic aspects of discourse, as well as on the interlocutors’ linguistic competence. Given this, they suggested that high proficiency in the matrix language is required and some proficiency in the embedded language is sufficient to set the structural frame for the multilinguals’ codeswitching. Because the matrix language is the primary language for communication, multilinguals have to have a good mastery of the structure of this language to use it as their main language in a discourse. When they don’t, the structural frame is not always dictated by the matrix language but is shaped by the co-participation of the embedded language as well (Myers-Scotton & Jake, 2000).

This explanation, however, does not claim that the matrix language must always be the multilinguals’ dominant language because codeswitching requires sufficient knowledge of the embedded language as well. While some suggest that the matrix language is usually the local or the mother tongue (Lahlou, 1991) of codeswitching in a multilingual community, differing situations can impose change of the matrix language even by the same multilingual speakers in the same conversations (Myers-Scotton, 1995). The selection of both the matrix and embedded languages is influenced by the way speakers are connected socio-psychologically with the language that dominates their language production, i.e. their matrix language (Myers-Scotton, 1995; Jake & Scotton, 2009). Hence, for this study’s participants, the selection of the matrix language may occur in a nonlinear way (Myers-Scotton, 1995).

The MLF model is similar to the idea of ‘insertion’ proposed by Backus (2001) in that they both agree that languages in codeswitching practices come in “interrelated hierarchies” (Myers-Scotton, 1995). The practice of insertion is observed in the codeswitching practices of multilingual children (De Houwer, 1995b; Allen, Genesee, Fish & Crago, 2002). Yet, the MLF model provides detailed framed identification of the types of language elements and of the

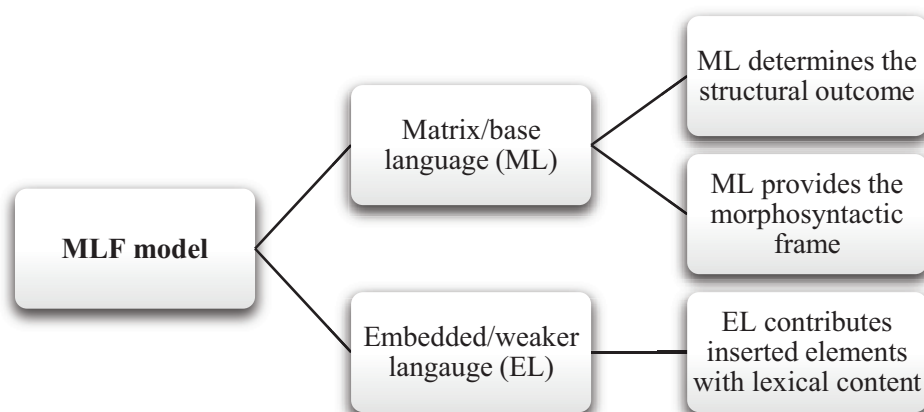


Figure 1. MLF model for linguistic analysis

way these language elements from more than one language form multilingual language production during codeswitching. They seem to agree that nouns that provide content information are the most commonly switched language element, even among young children (Paradis, Nicoladis & Genesee, 2000). In the MLF model, they are identified as content morphemes that are critical for speakers' meaning making (Myers-Scotton & Jake, 1995).

### Morpheme (4-M) Model

As this study intended to examine the linguistic structures within the codeswitching practices of multilingual Arab students, it is useful to adopt the 4-M model, which provides analysis on the morpheme and word levels as a supplement to the MLF model. The 4-M model is proposed as complementing to the MLF model since the latter only accounts for the distribution of the languages' elements in codeswitching but does not closely identify specific participating morphemes and their functions. The 4-M model is a universal linguistic approach that explains content and system morphemes (Myers-Scotton & Jake, 2000a).

The 4-M model was first proposed by Myers-Scotton and Jake (2000a) to be used in discerning roles of elements identified from the matrix and the embedded language contact phenomena like codeswitching. The 4-M model is a foundational model that elaborates on different participating morphemes in the structural construct of codeswitching (Myers-Scotton and Jake 2000a). It goes beyond the basic contrast of content versus system morphemes. In its abstract classification of morphemes, the 4-M model categorizes them according to types based on their roles and functions as linguistic elements. The 4-M model identifies two basic groups of morphemes, that is, content morphemes and system morphemes. On their part, system morphemes branch into one early system morpheme and two late system morphemes, i.e., the bridge and the outsider. Thus, and as the 4-M label suggests, the three system morphemes along with the content morphemes, form four groups of morphemes (Myers-Scotton and Jake 2000a). The following Figure 2 shows how the 4-M model classifies morphemes according to their linguistic functions (see Figure 2).

Following the MLF model, understanding the morphological and semantic roles and functions of each of the four morpheme types discussed above is central to analyzing codeswitching occurrences linguistically (Myers-Scotton and Jake, 2000a). First, content morphemes, as their label suggests, convey the core meaning or the main content of the

produced language. The three types of system morphemes on the other hand, carry the relational and functional aspects of language. Unlike system morphemes, content morphemes are accessed at the conceptual level where they provide or receive thematic roles or, in other words, constitute the most meaningful components in clauses and sentences. Commonly, lexical items that belong to the content morphemes group are verbs, nouns, adjectives, and some that function as complementary-like elements. Gender and number morphemes, however, do not belong to this group. The latter are considered 'early' system morphemes. After reviewing published corpora of multilingual codeswitching data in various language sets, Myerson-Scotton and Jake (2009) as well as others who use the 4-M model find common occurrences of different morphemes derived from the matrix or embedded languages. According to their work, the following are fairly reliable predictions about the nature of switched morphemes:

- Content morphemes are the most switched elements from the embedded language into the matrix language;
- Early system morphemes of prepositions in phrasal verb allocations (e.g., make up) are the most switched elements in cases where English is the embedded language;
- Early system morphemes that are satellite prepositions with phrasal verbs are the second most frequent elements codeswitched from the embedded language into the matrix language.

Early system morphemes that are prepositions are less frequently switched from the embedded language into the matrix one.

### MATERIALS AND METHODS

Ajial was an Arabic complementary school in the US with a primary mission to provide Saudi and Arab study abroad student's children with Arabic academic and cultural content. This school supplemented these children with Arabic language and culture they lack as they attend mainstream American public schools. This population was part of the growing numbers of Saudi bilinguals since the opening of the large scholarship program in 2006 until today. Such programs were stemmed from the increasing demand of more western educated Saudis. A good number of them were youths and children and constitute a number of the rising percentage of multilingual children enrolled in the US public school. They are the second largest group of those enrolled in ELL, though not all of this study's participants. This study examined codeswitching practices of multilingual Arab youth attend-

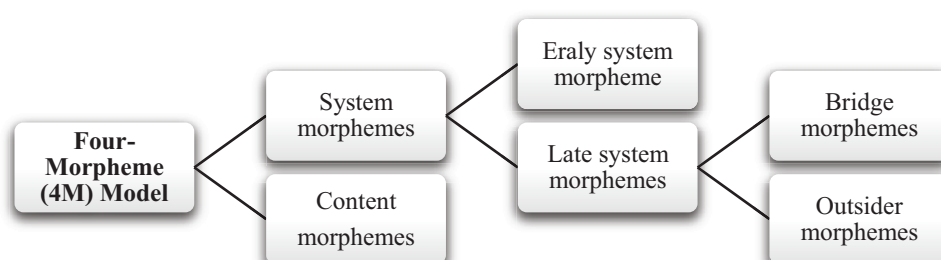
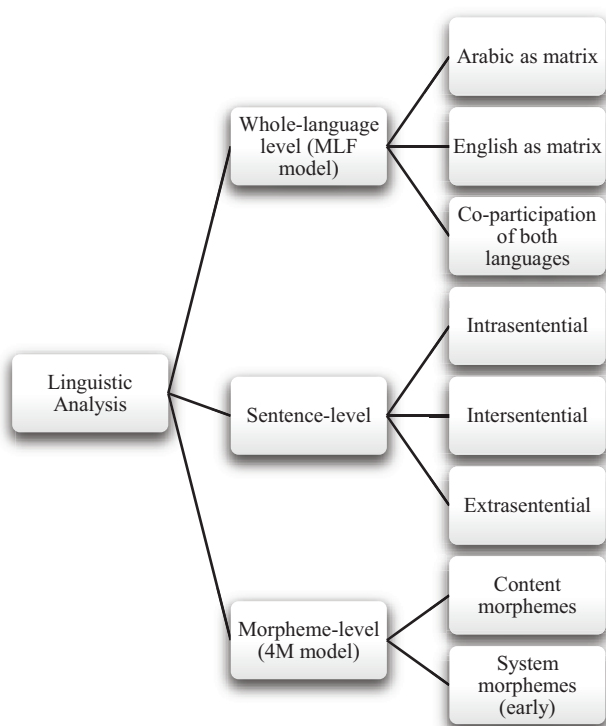


Figure 2. 4-M model for linguistic analysis



**AQ1** **Figure 3.** Linguistic analysis. Whole-language, sentence-level, and morpheme-level analyses

ing one of the classes at Ajial school. They were 9 students ranging in age between 9-13. All participants in this study were Saudis who lived in the US for a period of time ranging from 3 to 5 years and planned to return home upon their parents' completion of their academic and/or professional goals. Some of them were born in the US but came temporarily with their parents. Hence, their multilingualism can be considered voluntarily or desired by their parents. The classes they attended were based on students age groups and grade levels. The teacher in these sessions is an Arab who spoke English as a second language. In these sessions, the teacher shared the textbook and other materials digitally, through the use of an LCD projector. The textbooks, free and accessible to the public, were downloaded from the Saudi Arabian department of education's website. The textbooks were written entirely in Arabic. The aim of selecting these textbooks is to teach the students the academic language of Arabic. Yet, there was no restriction on their language use during these sessions. The textbooks used were *My Language* and *Islamic Manners and Behaviors*. They are the required textbooks Arab students study in Arabic language classes in most Arab countries.

This study's data draws on video recordings of multilingual Arab youths attending weekly Arabic classes. The collected video recordings are 15 in total with the duration of around 2 hours' worth of transcription. All participants recorded in the study provided their informed consent for inclusion before the data collection. The study was conducted in accordance with the IUP Policy and Federal Regulation, the protocol was approved by the Institutional Review Board at Indiana University of Pennsylvania (16-244)."

The data were then transcribed manually due to lack of software that support Arabic writing system along with English such as codeswitching data. The mixed-method approach is used to analyze the data from video-recorded Arabic/English codeswitching occurrences, first, quantitatively, and, then, qualitatively. To ensure efficacy of the implementation of this method, consideration of the characteristics of both approaches is vital (Onwuegbuzie & Johnson, 2006). Here, in analyzing codeswitching practices, the quantitative approach involves the linguistic analysis following the Matrix Language Frame (MLF) and the 4-Morpheme (4-M) models as comprehensive linguistic approaches that examine patterns of codeswitching practices on a structural level. It highlights the frequencies and patterns of different types of codeswitching and facilitates the categorization and coding for further analyses. Once the quantitative analysis identifies patterns and variables by providing statistical and typological showcase of codeswitching occurrences, the qualitative analysis details descriptions of codeswitching meanings in the targeted context. Such process helps elucidate the significance of qualitative explanations and findings.

To implement the mixed-method approach, the quantitative analysis is then complemented with a qualitative examination of the data. The qualitative analysis explains where, what, and why multilingual Arab students codeswitch during their seminar sessions. This study aims to explore codeswitching through a quantitative linguistic analysis based on the MFL and its supplementing 4-M model, as well as through a qualitative analysis based on conversation analysis. It traced the way in which the participants' different linguistic repertoires were combined in the same speech event across different text levels. Therefore, based on the relevant linguistic theories reviewed in this study, and on the prevalent structural patterns identified in the selected data, the following conceptual model examines the study's data in these contexts: whole-language, sentence-level, and word-level.

Below, I subject the extracted 523 codeswitching instances to whole-language, sentence-level, and morpheme-level analyses. Within the whole-language-level analysis, I discuss the instances of Arabic as the matrix or dominant language, the instances of English as the matrix language, and the instances of the co-participation of both languages. Next, I perform a sentence-level analysis of the inter-sentential codeswitching instances, the intra-sentential codeswitching occurrences, and the extra-sentential codeswitches. Finally, I focus on the morpheme-level analysis of the content and system morpheme codeswitches (the early system morphemes in particular).

## RESULTS

This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation as well as the experimental conclusions that can be drawn.

The data showed that codeswitching instances of multilingual Arab students are significant in all types of codeswitching. Below, more detail with example on each classification.

### Whole-language Level Analysis

On the whole-language level, the MLF model focuses on the hierarchy of the languages, i.e., Arabic and English, used simultaneously during the same speech event (Myers-Scotton & Jake, 2000). Here, first, quantitatively, then, qualitatively, I analyze where, how, and to what degree Arabic and English participated, structurally and semantically, in codeswitching instances on the whole-language level. For this study, the assumption is that Arabic is intended to be used as the target language for curriculum and instruction, and, therefore, is the matrix language. Yet, when reviewing the codeswitching instances in this study, this assumption was not consistent with the findings from the data analysis.

Although most of the codeswitching instances showed Arabic as the matrix language, they also occurred with English as the matrix language, and in other instances, they occurred with the equal participation or co-participation of both languages. Of all codeswitching instances, 316 (60%) have Arabic as the matrix language, 129 (25%) have English as the matrix language, and in 78 (15%) instances, Arabic and English co-participate.

### Arabic as the matrix language

In most codeswitching instances, multilingual Arab students used Arabic as the matrix or base language and English as the embedded or supplementary one. These occurred in 316 or (60%) of the 523 codeswitching instances subjected to whole-language level analysis. In these codeswitching instances, the students maintained Arabic as the base language when they participated in discussions. The data showed that they codeswitched only morphemes that align with the Arabic language structure and syntactic frame. Also, it appears that students used this type of codeswitching to avoid hesitation, or, to remember Arabic words they could not recall instantly. Thus, the Arabic-to-English codeswitching was used to facilitate language comprehension, fluency, and precision.

Such codeswitching appeared frequently in the data, especially when students were eagerly participating in discussions or challenging a point proposed by the teacher or other classmates as in the following example (Example 1). In it, the teacher explains a commonly held belief claiming that all humans know right from wrong by birth. Immediately, S1 proposes a scenario that challenges this belief.

#### Example 1.

- 01 T: كل إنسان يولد على الفطرة و بدون تأثير من برا يعرف ربه 'We are all born innocent. That  
02 means we know our creator by birth, without external influence or interference.'  
03 S6: طيب إذا كنت لحالك على 'What if you were stranded alone on an *island* وبدون أي  
04 'where external' *forces* عليك ويخرب عليك 'might influence your beliefs?  
05 *Could Satan manipulate your beliefs there?*

In Example 1 above, S6 responds to the teacher without hesitation or repair. The codeswitch happens in line 03 and 04 from Arabic to English (e.g., "island" and "forces"). Here, Arabic is the matrix language as it provides the syntac-

tic and morphological structure and controls the speech flow. This excerpt shows that S6 uses two English key nouns as content morphemes. Yet, English is the embedded language since it only provides lexical morphemes, without changing the sentence's syntactic structure or word order.

### English as the matrix language

While Arabic was more frequently used as the matrix language in most of the codeswitching instances in the data, there was a significant number of instances where participants engaged in mostly English speech with Arabic as the embedded language. English as the matrix language constitutes 129 (25%) of this study's 523 codeswitching instances subjected to whole-language level analysis. Noticeably, the data showed that the codeswitching instances with English as the matrix language occurred when discussions among students intensified and when responding to the teacher's questions. Also, English was the matrix language when discussions of certain topics were initiated in English or related to their education in their American schools. In such cases, Arabic appeared as the embedded language where it provided only content morphemes (Myers-Scotton & Jake, 2017). Example 2 below demonstrates this. The topic is the relation between faith and Islamic practices. The teacher gives an example of the door key as a metaphor for Islamic beliefs and explains that the other parts of the key, that is its teeth, could symbolize the Islamic practices and rituals.

#### Example 2.

- 01 T: You cannot use the key without its teeth, but what if you only have the teeth of the key?  
02 S5: ↑It doesn't make sense, how can you تصوم, تصلي, تحج  
03 'pray, fast, and do the pilgrimage if you don't believe'.

In line 01 in the above example, the teacher elaborates further on his "key=beliefs" metaphor in English. S5 replies with a rising pitch using the same language he hears but codeswitches to a number of Arabic verbs. In line 03, the codeswitch happens with inflected Arabic verbs that contain pronouns as prefixes, suffixes, or both, as in the verbs "يصلصت" and "موصت". Preceding these simple present verbs, "pray" and "fast," is the equivalent to the English pronoun "you," that is the Arabic second person singular masculine pronoun. Here, it is a bound morpheme appearing before the English verbs. Referring to the subject, such Arabic bound morphemes are similar in meaning to the English pronoun "you" but have different structural functions. In fact, S5's codeswitches to this form of Arabic verb is clever, as it boosts the expressiveness of his speech by allowing him to convey more using fewer morphemes. In addition, these Arabic verbs are culturally specific to the participants, and perhaps are often used in Arabic at their homes and communities.

In many other instances in which Arabic was the embedded language, the codeswitched elements were mostly single morphemes, such as verbs, prepositions, and adverbial/prepositional phrases. Furthermore, in most cases, the structural framework and word order of the matrix language was not grammatically affected by the embedded language,

whether it was English or Arabic. Similarly, the embedded morphemes did not violate their own structural patterns in either language.

### Co-participation of Arabic and English

While the general assumption was that the participating languages in codeswitching are asymmetrical, where one dominates the other structurally, this study's data analysis showed that many codeswitching instances occurred as co-participation of English and Arabic. This symmetrical codeswitching of languages occurred in 78 (15%) of this study's 523 codeswitching instances subject to whole-language level analysis. The morphemic elements of the two languages were nearly equal and neither language structurally controlled the other (Myers-Scotton & Jake, 2000). In this study, most co-participation instances occurred in short phrases, often with each language providing a morpheme. As mentioned above in the discussion of Arabic as the embedded language, participants seemed to practice this type of codeswitching for convenience. Example 5 below demonstrates this. After discussing the concept of humans being born innocent, S2 asks a question and redirects the discussion by refocusing on his personal view and experience of the world. Then, S2 receives responses from other classmates. Frequently, students discuss issues outside the box, through questions or scenarios that get their peers' attention and bring humor to their class sessions.

Example 3.

01 S2: عندني سؤال، طرزان مولود في ال 'I have a question, was Tarzan born in the' **jungle?**

02 S4: هذي 'This is a' [fairytale

03 S5: [O my god!

Here, in line 01, by using the noun "jungle," S2 codeswitches to English as an embedded language. In line 03, however, the codeswitch by S4 is a co-participation of the two languages. This codeswitch also motivates S5 in line 04 to continue the codeswitch as he reacts to this question/answer interaction between S2 and S4. Back to line 03, where the co-participation of the two languages occurs, S4 uses the Arabic demonstrative "هذي" as the equivalent to

"this" in English. Unlike English, in Arabic, demonstratives are inflected morphemes and must agree with the subject in number and gender. Here, in Example 5, it agrees with the preceding English noun subject "fairytale" in that it treats the word as a singular feminine noun, just like its Arabic counterpart.

Moreover, in Arabic, this is considered a noun or a nominal phrase, which consists of two nouns or what replaces them. The rule of these nominal phrases is that the pronoun introduces the statement and the noun provides information or "news" about the first. Hence, "هذي" or "this" is the pronoun and "fairytale" is the second item in the noun phrase that informs the first. Also, Arabic has no verb for "to be," so the phrase which is considered a declarative noun phrase in Arabic is complete structurally and semantically in both languages. Notice that the codeswitching instances in both lines 01 and 02 are intra-sentential switches. However, they differ drastically in the way each language participated in each codeswitch. Therefore, line 03 in Example 3 above shows how Arabic and English participate equally in an intra-sentential codeswitch where each language provides an equal number of morphemes.

### Sentence-level Analysis

After analyzing codeswitching at the whole-language level, that is in terms of the switches between the matrix and embedded language as a whole, here, I focused on the sentence-level analyses of codeswitching, or on the way codeswitching occurs within and between sentences. For that, I focused on three types of codeswitching instances, inter-sentential, intra-sentential, and extra-sentential, more specifically on their frequency and forms. The 523 codeswitching instances subjected to this study's sentence-level analysis, 204 (39%) were inter-sentential, 275 (53%) were intra-sentential, while 44 (8%) were extra-sentential codeswitches, all occurring at the sentence level.

### Inter-sentential codeswitching

Inter-sentential codeswitching occurred when the same speaker switches languages between sentences in a sin-

**AQ2** **Table 1.** Codeswitching. Linguistic analysis. Data occurrences. Numbers and percentages

Analyses: Levels	Sublevels	Subtypes	#	%	#	%	#	%
Whole-language level analyses (MLF Model)	Arabic/Matrix				316	60%	523	40%
	English/Matrix				129	25%		
	Co-participation				78	15%		
Sentence-level analyses	Inter-sentential				204	39%	523	40%
	Extra-sentential				44	8%		
	Intra-sentential				275	53%		
Morpheme-level analyses (4M Model)	Content morphemes	Nouns	112	55%	203	74%	275	20%
		Adverbials	39	20%				
		Verbs	24	12%				
		Adjectives	28	13%				
	System morphemes	Early system morphemes				72	26%	

gle turn or by multiple speakers in multiple turns in the same conversation. There were 204 (39%) inter-sentential codeswitching instances within this study's 523 sentence-level codeswitches. Mostly, this type occurred in this study's data when participants asked follow-up questions and commented in class discussions. Declarative sentences and dependent conditional clauses appeared most often as inter-sentential codeswitching. During their ongoing discussions, students repeatedly asked their teacher and classmates topic-related questions. For instance, when the teacher answered a student question from a previous class session, a student would codeswitch to English to ask another question based on his teacher's answer. In Example 4 below, the topic is staying focused and avoiding distractions during prayer.

Example 4.

- 01 T: *تكلمننا عن التلأفت في الصلاة بحتت و صار مكروه* 'you asked me about getting  
 02 distracted during prayer and I researched it, and it is dis-  
 03 approved'  
 03 S5: *أيوه أمي قالت مكروه* 'yeah, my mom told me this, you shouldn't do it.'  
 04 S3: **So is it OK to do this** ((acting: turning his head sideways))

In the above example, in lines 03 and 04, S5's statement ("you shouldn't do it") and S3's follow-up question "So it is OK to do this" are inter-sentential codeswitches. In many instances, inter-sentential codeswitching is motivated by previous codeswitches where participants aim to highlight statements or questions. Also, participants use inter-sentential codeswitching when they hear another classmate speak assertively while codeswitching to English, or back and forth.

### Extra-sentential codeswitching

Extra-sentential codeswitching occurred from one language to another when transitioning between sentences without semantically altering them, i.e., "by the way" or "you know." In this study, the data shows that extra-sentential codeswitching occurred in 44 (8%) of all codeswitching instances that occurred at clause or sentence boundaries. Participants used extra-sentential codeswitching to transition thoughts, maintain turns, introduce statements, or utter common language-specific phrases. For example, the morpheme "like" is frequently used among millennials, but not for the purpose of describing similar characteristics; rather, it is used to indicate pauses, or to redirect a description of a scene or situation (Plat, 1995). Also, some linguists describe such use of "like" as a replacement of "said," aiming for "casualism" (Larocque, 2017). Example 5 below demonstrates extra-sentential codeswitching in speech. The topic is being peaceful and avoiding hurting others physically or verbally. S2 asks a question to push the boundaries and engage his classmates in the discussion. He asks whether it is normal to play aggressively with peers the way football players do.

Example 5.

- 01 S2: *عندي سؤال ال football players* 'I have a question',  
 02 *يدفون بعض أثناء اللعبة* 'push each other aggressively when playing so the other  
 03 team doesn't

- 03 move forward' *إذا ندف بعض كذا نلعب* 'if we tackle like  
 04 them' like (0.2) *عادي* 'is it okay to do that'

Example 5 shows, in line 4., that S2 uses "like" here between two Arabic dependent clauses. It is an extra-sentential codeswitch, as it occurs at the sentence boundary and stands by itself. The use of "like" here sounds like a pause, allowing the speaker time to form his phrase in Arabic. It gives a sense of transitioning as the speaker overcomes his hesitation. Furthermore, the filler "like" here occurs between a conditional clause and a question. The use of "like" at sentence boundary was the most commonly occurring extra-sentential codeswitch in this study. Other extra-sentential codeswitching instances occurred in phrases such as "in general," "well," and "so" for the purpose of transitioning. Besides these examples, some culture-specific phrases such as "هللدمحل", meaning "Praises to Allah," were also commonly used by being uttered spontaneously many times in interactions (Woodlard, 2004).

### Intra-sentential codeswitching

Intra-sentential codeswitching occurred when the same speaker uses two languages or more in the same clause or sentence. It is a codeswitching within or inside sentences also referred to as codemixing (Appel & Muysken, 2005). Compared to inter-sentential and extra-sentential codeswitching, it was the most frequently occurring type of codeswitching in the database with 275 (53%) instances within this study's overall number of 523 codeswitches. In this study's data, intra-sentential codeswitching mostly occurred when participants codeswitched morphemes and phrases to achieve fluency and spontaneity in their attempts at self-expression (Poplack, 1980). Further, intra-sentential codeswitching is considered difficult and risky as it requires advanced knowledge of and experience with the use of both languages in order to attain acceptable structural convergence. Therefore, intra-sentential codeswitching is also considered a reliable indicator of a speaker's fluency in one or both languages (Poplack, 1980; Lipski, 1985). Being the most prevailing codeswitching structural pattern, it also exhibits notable discourse and pragmatic variation as it becomes clear later in this study's data's analysis. During their class sessions, students used intra-sentential codeswitching to join in the conversation. In the following Example, the topic is lying and honesty. Joining in the conversation, S6 remembers the story about Yusuf's brothers who threw Yusuf in a well, then stained Yusuf's shirt with blood and showed it to their father as "evidence" of Yusuf's having been eaten by wolves.

Example 6.

- 01 S6: *إخوان يوسف بيون يعطون أبوهم* 'Yusuf's brothers wanted  
 02 to give their father'  
 02 **evidence** *يلع بذك مد اوطح* 'so they put fake blood on'  
 03 *Yusuf's shirt*  
 03 *فيه ناس مسافرين مروا بعدين لما لقوه في البئر طلعهو بعدين هم* 'then,  
 04 after they threw him in  
 04 the water) well, some travelers passed by and picked  
 05 him up, but then they' **enslaved him**.



In example 6 above, the session's broader discussion is on the topic of the value of honesty and the consequences of dishonesty. To provide an example of dishonesty or lying, S6 contributes part of a story he learned from books. The intra-sentential codeswitching occurs in lines 2., and 5. As this example shows, the codeswitching occurs inside sentences. The three codeswitched utterances here participate in providing key content to the story. As the transcription in the example suggests, there are no pauses or repairs that indicate hesitation or language shortage. Rather, S6 codeswitches "evidence," "Yusuf's shirt," and "enslaved him" from Arabic to English to achieve higher fluency and maximum effect on his audience. The choice of this story may also be prompted by its well-known notoriety, yet another reason for impressing his classmates by breaking the boredom associated with high moralizing.

### Morpheme-level Analysis

As the previous examples illustrated, this study's morpheme-level analysis found that nouns are mostly codeswitched to English as the embedded language in Arabic texts, that is as common nouns and never as proper nouns. As such, they did not violate the structural rules of either the matrix or the embedded language. Rather, they fit in the Arabic word order. Nouns were switched as objects (72 or 64% of all nouns) and as subjects (40 or 36% of all nouns). Thus, codeswitched nouns as objects occurred almost twice as often as codeswitched nouns as subjects. That might be because objects usually carry new or unknown information, and, thus, at object boundaries, speakers may have problems finding the most effective way of presenting this information, or, as the study's findings show, may find that using an English noun best expresses their thoughts. When the main message, usually a familiar or known topic in a sentence is best conveyed in English, nouns were used as subjects, especially in cases where concepts acquired in English were concerned.

The second most codeswitched content morphemes, verbs (24 or 12% of all switched content morphemes) were mostly switched to Arabic. By doing so, the participants achieved conciseness as Arabic verbs are highly inflected, and, thus, carry additional information in the form of morphological markers for gender, number, and person. Further, as Arabic clauses and sentences can begin with a verb, without any disruption of the Arabic syntactic structure, participants can begin their phrases with a verb and skip the required noun at the beginning of English sentences as the carrier of the main message. Close to verbs, adverbials were codeswitched in 39 instances or in 20% of all switched content morphemes, but unlike verbs, they were mostly switched to English as prepositional phrases or adverbs in cases where English provides a more concise or precise phrase clarifying the context of their intended message.

Nouns codeswitched as adjectives (28 or 13% of all codeswitched content morphemes) were codeswitched to both English and Arabic. In this study's database, 21 English nouns were codeswitched to Arabic clauses. As such, they appeared as either subject complements, or as parts of noun

phrases without affecting the syntactic structure of the Arabic matrix language. Even though adjectives are pre-nominal in English and post-nominal in Arabic, adjectives were switched in pre-nominal positions in both languages without syntactic disruption of Arabic which does not impose structural restrictions on switched English morphemes.

Besides switched content morphemes (e.g., nouns, verbs, adverbials, and adjectives), a small number of system morphemes, or early system morphemes, that is definite articles and conjunctions (72 or 26% of all codeswitched morphemes) (see Table) occurred as definite articles in both Arabic and English texts when Arabic or English was the matrix language without causing syntactic alterations to either language. Rather, "the" and its Arabic counterpart were used synonymously. As a bound morpheme, the Arabic definite article appeared before English nouns, and vice versa and the English "the" appeared before Arabic nouns and noun phrases. Codeswitched conjunctions occurred in longer turns by a single speaker without contributing or receiving thematic content.

### DISCUSSION

The linguistic analysis of the 523 codeswitching instances collected for this study revealed significant language contact developments at all three analyzed levels, that is whole-language level, sentence level, and morpheme level. The whole-language level analysis focused on the roles Arabic and English play as either the matrix language, the embedded language, or as co-participants with equal morphemic representation. Given the goal of the weekly seminar sessions to consolidate the use of Arabic, especially in academic contexts, it is only natural that the results of this analysis show that Arabic was the Matrix language in 316 (60%) out of all 523 codeswitching instances, significantly outnumbering English as a matrix language. When used as the matrix language, Arabic provided the morphological and syntactic structures whereas English supplied individual morphemes, or words and phrases. The latter tended to represent notions that were acquired in English and were unfamiliar in Arabic, or, were more readily articulated and defined in English as typically western or English concepts.

English as a matrix language, however, occurred in fewer cases, that is in 129 (25%) of the 523 codeswitching instances subjected to linguistic analysis (see Table). That meant that for every codeswitch to Arabic with English as the matrix language, there were almost 2.5 switches to English with Arabic as the matrix language. English appeared to be used as the matrix language in responses to the teachers' questions, when discussions intensify, or when discussions on certain topics were initiated in English. In such cases, as the embedded language, Arabic provided content morphemes (e.g., bound morphemes, verbs, prepositions, adverbials), culturally specific morphemes, as well as short phrases. When English was the matrix language, it dominated Arabic structurally by the number of morphemes it provided. Even though, by design, the lessons videotaped for this study targeted the enhancement of Arabic language and culture, besides the smaller but significant number of codeswitch-

es with English as the matrix language, there was an even smaller number of codeswitches, that is 78 or 15% of all 523 codeswitching instances constituting this study's database, which indicated the symmetrical co-participation of Arabic and English, mostly in short phrases where each language provides a morpheme and neither language controls the other structurally. Most of these codeswitches occurred within the sentence.

The sentence-level linguistic analysis disclosed a complex process of 204 inter-sentential, 44 extra-sentential, and 275 intra-sentential codeswitches. Inter-sentential codeswitches involved declarative sentences and dependent conditional clauses that complete semantically the clause they clarify. Extra-sentential codeswitches occurred at sentence boundaries without altering either sentence's syntactic or semantic structure. Often standing for codeswitching in general, intra-sentential codeswitches were the most common and the most complex structurally, thus available only to advanced speakers of both languages. In this study, their frequent use testifies to the participants' fluency in both languages. Codeswitched morphemes provided key semantic content and hybrid grammar structures whereas the matrix language contributed most lexical items as well as the morphosyntactic rules in codeswitched texts.

The morpheme-level linguistic analysis revealed the use of 275 content morphemes (e.g., nouns – 112, adverbials – 39, verbs – 24, and adjectives – 28) and a smaller number of system morphemes (72). It shows that nouns were the most frequently switched morphemes (112), with adverbials (39), verbs (24), and adjectives (28) also appearing in significant numbers. Nouns were largely codeswitched as objects or as the carriers of new unknown information and less so as subjects or bearers of familiar or known information. Furthermore, nouns were also codeswitched as subjects when the subject had been acquired in English and was better expressed this way. Verbs were mostly codeswitched to Arabic for conciseness. Adverbials were mostly switched to English as prepositional phrases or adverbs again for conciseness. Nouns were also switched as adjectives as subject complements in Arabic clauses. System morphemes, that is definite articles, were switched to both languages. Also, I compared this study's findings on codeswitched morphemes to those found in published corpora of data on multilingual codeswitching (Myerson-Scotton & Jake, 2009). The significance of this model lies in revealing the way codeswitched morphemes convey the speakers' intended meanings. Applying the 4-M model to the morpheme-level analysis of this study's data shows that participants mostly codeswitched content morphemes in intra-sentential codeswitching which constitute 275 or (53%) of all codeswitching instances.

## CONCLUSIONS

Overall, the linguistic analysis of all codeswitching occurrences captured in this study revealed the structural complexity and variety of codeswitching as a linguistic resource available to multilinguals fluent in Arabic and English. The findings revealed multilingual codeswitching as a complex naturally-occurring linguistic process with its own internal

structure and rules, a linguistic management and creativity rather than a mechanical mixture of the two. In fact, it showed the fluidity and interconnectedness between languages. Furthermore, this language use was indeed a skilled language performance of these multilinguals (Myers-Scotton, 1993) that helped them to maximize their cognitive processing of content studied as well as their expression as humans. The findings refuted common beliefs that codeswitching is a personal choice and a careless use of languages, and, as such, should be avoided and even chastised.

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