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Linguistic Aspects of Arabic-English Code Switching on Facebook and Radio in Australia

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Abstract

Code switching (CS) is a worldwide phenomenon wherein bilinguals utilize two languages within a single conversation and even within a single utterance in both formal and informal settings. The study investigates the linguistic aspects of CS among Arabic-English bilingual speakers in Australia. An integrated approach with both qualitative (conversation analysis) and quantitative (frequency distribution) analysis methods is employed for the purpose of this research. The data were collected from two sets of public resources that are recordings of free-flowing conversations in radio and chats on Facebook. The study concluded that CS is possible at various syntactic and discourse boundaries in these contexts despite the typological differences between the two languages. Nouns with noun phrases and interjections represented the largest number of switched elements in the corpus. In examining the theoretical aspects of Arabic-English CS, the data gave support to the congruence model while challenged the universality of the equivalence and the free morpheme models.

Keywords: code switching, linguistic patterns, grammatical constraints, structural factors

1. Background to the study

1.1. Definitions and categories of code switching

CS is considered as one of the most common aspects of bilingual speech that easily occurs in conversation (Boztepe 2005). According to Gumperz (1982 cited in Hamers & Blanc 2000:258), CS can be defined as "the juxtaposition within the same speech exchange of passages of speech belonging to two different grammatical systems or sub-systems". It is also described as the alternating between two different linguistic codes within the same conversation (Myers-Scotton 2005).

In analyzing CS grammatically, basic distinctions should be made. According to Dulm (2007) and Hamers and Blanc (2000), various types of CS can be distinguished on the basis of the nature and length of switched units. Generally, as laid out below, there are four grammatical categories of CS:

1. Extra-sentential or tag insertion, where a tag from one language is attached to an utterance which is completely from another language, e.g.:

- Azi e frumos, **sah**?
  (Today is nice, **isn't it?**) (Kanakri & Ionescu, 2010)

2. Inter-sentential or inter-clausal CS, wherein the switch is between clauses or sentence boundaries; one clause being in one language and the next clause is in another, e.g.:

- I love Horlicks **maar hier's niks.**
  (I love Horlicks **but there is nothing here**) (Dulm, 2007)

3. Intra-sentential, or switches within either a clause or sentence boundary, e.g.:

- El **man** que **came** ayer **wants** John comprar **a car** nuevo.
  (The **man** who **came** yesterday **wants** John to buy **a** new **car.**) (Poplack, 1990)

4. Intra-word, where switching occurs within a word boundary, e.g.:

- Mahal-**uri**
  (shop**s**) (Kanakri & Ionescu, 2010)

However, most research tends to focus on the intra-sentential and intra-word types since the two languages are mixed within such bounded linguistic units (Poplack, 2001; Bowers, 2006). According to Dulm (2007), this type of CS is problematic for the syntactic theory where two languages mixed within bounded linguistic units and share in the grammatical structure of the sentence.

In this study, the term CS is used to refer to the use of two linguistic varieties in an utterance. The four categories of CS mentioned above are considered.

1.2 A linguistic approach to code switching

In general, the study of CS has been developed in three directions: psycholinguistics, linguistics, and sociolinguistics (Namba, 2008). While some studies investigate only one aspect of CS, others take up two or three areas. For the purpose of this paper linguistic aspects of CS will be discussed insofar as it can contribute towards understanding the grammatical description of CS.

The grammatical dimension of CS tries to address the question of whether CS is random or rule-governed linguistic behavior, and whether there are any systematic rules or syntactic constraints that restrict this operation. According to Hamers and Blanc (2000:258), the study of CS covers a variety of language pairs to examine whether this phenomenon "obeys universal constraints or follows discourse principles". Poplack (2001) explains that in the earlier literature, including Labov (1972) and Lance (1975), CS was described as an indiscriminate procedure. But, in more recent research, many linguists such as Bader (2003), Boztepe (2005) and Rezaeian (2009) argue that CS does not occur haphazardly but rather at specific switch points, so that the key question should focus on the nature of the rules that govern its patterns.

Various models within the framework of particular theories of grammar have been proposed for linguistic factors that govern CS patterns. The *Equivalence* and the *free morpheme* constraints of Poplack (1978) were the first and still the most influential models in terms of contributing to the linguistic aspects of CS, which primarily focus on symmetry in CS constructions (Poplack, 1980). In general, they suggest that the interaction of the two grammars during CS is ruled by a "third grammar" (Hamers & Blanc, 2000). On the other hand, the *Matrix language frame* model of Myers- Scotton (1993) and more recent hypotheses within the framework of minimalist syntax such as the minimal theoretical assumptions of Chomsky (1995) and MacSwan (1999) as well as the *congruence* model of Sebba (1998), are among those that direct more attention to asymmetry in CS patterns (Dulm, 2007). Overall, they try to avoid the proposal of a third grammar by using the minimal theoretical apparatus.

However, various studies on linguistic aspects of CS that mainly attempt to test the validity and universality of the linguistic constraints refer to disagreement in the constraints on CS in their data to some extent, sometimes to the same theory. Boztepe (2005) argues that this variance may be due to different language pairs involved in CS, which mostly have specific typological characteristics. The diversity might be also due to the variation in methods or the aim of researchers when applying such theories *(*Dulm, 2007). Thus, according to Li Wei (2000), the occurrence of CS between or within sentences has been governed not only by extra-linguistics (social or situational) but also by intra-linguistic (structural) factors. Hence, for better understanding for CS mechanism, social and grammatical factors should be considered.

1.3 The Arab community in Australia

Australia is known as a diverse society, both culturally and linguistically. The Australian population includes immigrants of different nationalities, mainly from European and Asian countries. English is the de facto national language, which is spoken by the vast majority of the population. According to the ABS Census 2011, Arabic is the most commonly spoken language in NSW other than English (2.7% of the population).

Arab immigrants first came to Australia in the late nineteenth century (Hage, 2002). They came from various Middle Eastern countries as well as Maghreb countries in North Africa. Today, more than quarter of a million Australians identify themselves as having Arab ancestry. They represent 1.3% (287,174 people) of the total Australian population (ABS Census, 2011). Arabic speakers in Australia are thus a linguistic minority group who typically use their own language as well as English to one degree or another in order to serve a wide range of communicative and cultural functions.

1.4 A brief grammatical overview of the differences between Arabic and English

Arabic and English languages are typologically dissimilar in several aspects; in that Arabic is a Semitic (Asian) language whereas English is Germanic (European) language in origin (Alduais, 2012). Despite these distinctions, they have been mixed and used together in a wide range of sociolinguistic contexts, as noted in Abalhassan and Alshalawi (2000) and Owens (2005) and others. The main structures that may be affected during switching in Arabic-English bilingual speech are discussed here.

1.4.1 Word-order system

Whereas English has a relatively fixed S-V-O word-order, Arabic has a free-word-order, either (S-V-O) or (V-S-O), as illustrated below:

	S	V	O		V	S	O
•	Ahmad	katab	alresalah		Katab	Ahmad	alresalah
	(Ahmad wrote the letter)				(Ahmad wrote the letter)		

In the English translation, the sentence appears the same in both cases since English does not allow the second structure in its system, whereas Arabic allows either (NP-VP-Comp) or (VP-NP-Comp) (Alduais, 2012).

Similarly, Arabic and English are not alike when it comes to the position of noun modifiers because Arabic has a noun-adjective order. In Arabic, the nominal modifier normally follows the noun, which is contrary to English in which an adjective normally precedes the noun. The next example illustrates this situation:

V S O Adj (O-Mod)

- Katab-tu qessah qasserah
  (I wrote a short story)

Another important difference in word order system between the two languages can be seen clearly in nominal possessive constructions. In Arabic, the possessor comes immediately after the possessed, and is either juxtaposed as a pronominal possessor (suffix) or appears as a nominal possessor. By contrast in English the nominal possessor comes before the possessed in the form of possessive pronoun or nominal possessor with attaching the suffix (-'s) as can be noted in examples below.

N possessed- Pronoun possessor N possessed N possessor

- Ketab-ak ketab alwalad (Your book)
  (The boy's book)

1.4.2 Sentence Structure

In English, an NP is the first and basic element in a simple sentence, which cannot be changed unless the form of the sentences is changed to another structure as in a question or an imperative. On the other hand, in Arabic, there are two basic sentence types, as indicated in (4.1.*)* above. They are usually referred to as nominal and verbal sentences (AlMuhtaseb & Mellish, 1997).

Another difference between Arabic and English sentence structures, which often affects mixing them in speech, is that Arabic allows nominal sentences with no verb. In English, it is obligatory to put VP after NP, and therefore no VP means no sentence (Alduais 2012). The next example shows that Arabic can express a complete meaning without the copula verb "to be" in it.

S Adj

- Albent jamelah
  (The girl 'is' beautiful)

1.4.3 Definiteness

Formally, Arabic has a specific system for marking definiteness. An indefinite noun is unmarked contrary to English, while a definite noun is marked by the definite article prefix (*al-)*, as in these examples:

Detnr-N N

- Al-beet beet
  (The house) ("A" house)

1.4.4 Dual and Plural

As well as a distinction between singular and plural number, Arabic also has a third category, dual. Arabic has a specific representation for dual objects as can be seen in example below (Al-Muhtaseb & Mellish, 1997).

Singular Dual Plural

- kitab >a book kitaban \ kitabayn> two books kutub> books

Generally, different rules are applied to the singular, dual and plural, and some agreements on several features, such as number and gender, are imposed in-between nouns, adjectives and verbs. The agreement can be indicated by adding internal, prefix and/or suffix markers to words depending on the rules, as can be seen below in this noun-adjective agreement:

Detnr-N Detnr-Adj N Adj

- Al-rajl al-taweel Rajl taweel
  (The tall man) ("A" tall man)

1.4.5 Rich Morphology

Arabic is a rich language in terms of morphological structure. It has a set of derivational and inflectional features that are normally in the form of prefixes, infixes or suffixes, all of which can completely change the meaning of the word. In addition, inflectional markers may also merge with words such as particles, pronouns, verbs and adjectives to serve specific grammatical roles as in the agreement cases discussed above (Al-Muhtaseb & Mellish 1997). Arabic is a derivational language for verbs, unlike the case of concatenative verbs in English. The next example shows how some words that can hold the meaning of a full sentence in English:

Modal-1st Pers Pronoun (Pl) -V

- *Sanusafer*
  (We will travel)

2. Methodology

2.1 Objectives

This paper intends to achieve the following objectives:

1. Identify the patterns of CS in Arabic-English conversations.
2. Explore the impact of typological differences between Arabic and English on CS patterns.
3. Examine the extent to which grammatical and social constraints restrict switching between Arabic and English.

2.2 Research Questions

This paper focuses on the following two questions:

1. What are the CS' patterns in Arabic-English bilingual speakers' interactions in the context of Australia?
2. To what extent do grammatical and social constraints restrict switching between Arabic and English in the Australian context?

2.3 Participants

The participants involved in this study are members of Australia's Arab community. Most Arabic-English speakers from whom CS data were collected are residents of Sydney. The sample design includes subjects, who were divided into two groups:

The first group is made up of people who participate in Arabic radio channels in Australia, both as announcers and audience. Three Arabic-Australian radio channels were the main resources of this research, namely, *2ME Radio Arabia, Muslim Community Radio,* and *Voice of Islam.*

The second contribution to this study also comes from public resources, that is, members of different associations of Arabs in Australia in the social networking forum (Facebook). Among such pages are *Arabs in Australia, Arab community in Australia,* and *Arabic International Student Association in Australia.*

2.4 Data Collection and Analysis

The CS data were collected from two sets of resources. One data resource was recordings of free-flowing conversations of Australian Arabic-English speakers on different radio channels. Another main instrument for gathering data was the various conversations in computer- mediated communications (Facebook) by Arabic-English bilinguals living in Australia.

Conversation analysis (CA) is used to examine the actual interaction among the participants. According to Schegloff (1987), CA is an analytical method that enables the researcher to examine the characteristics of recorded talk in interactions empirically. Hence, it helps identify patterns of CS according to syntactic categories. As for the quantitative analysis, frequency distribution is used in order to transform a disorganized set of figures into a set of categorized and systematized data. It is "an organized tabulation of the number of individuals located in each category on the scale of measurement" (Gravetter & Wallnau, 2008:36). Thus, it is helpful to illustrate the number of occurrences of various categories of CS as well as estimate the extent of language dominance in different contexts. The most frequent items as well as the most dominant language in CS data in this corpus have been identified through this technique.

Both inductive and deductive techniques of data analysis were employed. Both qualitative the quantitative methods in this research rely on inductive forms of analysis to provide detailed explanations for the occurrence of the CS phenomena. Deductive forms are used to test the validity of previous theories in terms of constraints that restrict CS in different situations and to compare categories at different levels.

As most Facebook data are already written in Roman letters, the data from the audiotapes have been transcribed into Roman letters. The criteria for segmentation of data have been used with examples to illustrate the patterns of CS with regard to form (code switch is bolded for emphasis). Grammatical features (gloss) are provided for classification purposes, as well as translation into English followed in parentheses. For the sake of identifying language dominance, Myers-Scotton's approach (1993) is employed in which the Matrix language (ML) contributes to the system morphemes and surface morpheme order in bilingual utterances.

3. Results and Discussion

3.1 Grammatical aspects of Arabic-English code switching

3.1.1 Switching at category boundaries

The data of this study reveal that CS between Arabic and English is possible at different grammatical levels and different patterns, which are related to the typological characteristics of this pair involved in CS, are identified. Based on conversational analysis of Arabic-English CS patterns, the compiled data yield switching within syntactic as well as discourse units. Four categories of switching are identified in the linguistic analysis of this data including: extra-sentential (tag) switching, inter- sentential switching, intra-sentential switching, and intra-word switching.

The data generate numerous examples of switching at the discourse level where tags in one language are inserted into an utterance in another. The tags involved in Arabic-English CS patterns can be single words or short phrasal or sentential constructions. There are frequent instances of Arabic-English extra-sentential switching as in the following:

-Single word:

1. Aljuab Khata'a, **sorry**
   (The answer 'is' wrong, **sorry**)

-Larger sequences of words:

2. **Subhan Allah**! So glad to see this, keep up good job
   (**Glory be to Allah!** So glad to see this, keep up 'the' good job)

There is an interesting form of switch, which is very frequent in the data, where tag-switching can resemble the form of intra-sentential switching. In this type of switch, the speaker changes languages to insert a parenthetical item-clause, after which he returns to his original language. Among the examples of this types are notably:

3. Not really, **alhumdu lilah,** he is still in the same place
   (Not really, **Praise be to God**, he is still in the same place)

Secondly, the data yield several examples of switching at the syntactic boundary. CS occurs at the maximal and minimal syntactic categories. The data allow for inter-sentential switching in Arabic-English bilingual speech, where switches can be at clause and sentence boundaries. Besides, the data generate various examples that involve intra-sentential and intra-word switching in which the switches are found within a clause as well as word boundary.

For inter-sentential switching, there are numerous examples in which switches can be made between the two main clauses or between a main clause and a subordinate clause as in the following:

-Two main clauses:

4. What a beautiful view. **Bahebak ya Lebnen**
   (What a beautiful view, **I love you O, 'a vocative', Lebanon**)

-Declaratives, with no overt 'that':

5. Wa naqool **not all wheezing are asthmatic**
   (And we say **'that' not all wheezes are asthmatic)**

-Interrogatives:

6. Allah a'alam **how many times**
   (God knows **how many times)**

-Adverbial clauses of reason or purpose:

7. Thank you very much **lia'anki da'eman tusharki ma'ana**
   (Thank you very much **because you always participate with us**)

- In embedded relatives:

8. Hia ekhtart alswa'al **which bridges for win**
   (She chose the question, which **builds a bridge to win)**

- In conditional clauses:

9. Yalla bye bye, **if you haven't learned how to swim**!
   (Go away **if you haven't learned how to swim!)**

Switching can occur in the case of coordinated clauses where the switched coordinating conjunction can be in different languages from the two clauses as in (10). It can also be in different positions either at the end of the first clause so that the coordinating conjunction is in the same language of the second clause (examples not mentioned here for limited space).

10. Anyone here from Perth **wa** hoping 4 girls?
    (Anyone here from Perth **and** hoping for girls?

In the case of intra-sentential and intra-word switching, the data show that switching takes place at major constituent boundaries within sentences, between different kinds of phrases as well as at minor constituent boundaries within phrases and words.

In intra-sentential CS, first of all, switches were found between various types of phrases including NP, VP, AdvP, AdjP, PP and CoordP, as in the following:

-Subject and predicate:

11. Almara'ah **control** kul shi fi albeet
    (The woman **control's'** everything in the house)

-Verb and object:

12. Swina **Olympic games**
    (We did '**the' Olympic games**)

-Verb and PP:

13. **Thanx** li-eqtrahatik
    (**Thanks** for your suggestions**)**

-NP and AdjP:

14. Hatha fi etar shamil **as global sign of asthma or allergy**
    (This is generally considered **as 'a' global sign of asthma or allergy**)

-VP and AdvP:

15. Dima nashitah **hyper** awi
    (Dima 'is' very **hyper**active)

There is also switching between coordinated phrases in which the switched coordinating conjunction is in a different language from the two phrases as in (16) or it can be at the second phrase boundary while there are no instances of switching at the end of the first phrase found in this corpus.

16. Endhm seafood **wa** fried rice
    (They have seafood **and** fried rice)

Second of all, there are also possibilities for switching within phrases as NP, VP, PossP, DetveP, PP and CoordP. A variety of examples illustrate that switching is possible in this context as in the following:

-Determiner and noun:

17. albint tua'aqb ala kull **offences**
(The girl will be punished for all **offences**)

-Subject and verb:

18. Aljaliah **survived**
(The minority **survived)**

-Noun and adjective:

19. I'd call him cancer **khabees**
(I would call him 'a' **malicious** cancer)

-Verb and subjective predicate:

20. Awiz raqmak ybqa **private**
(Do you want your number to be **private?)**

-Verb and object:

21. swina limama **surprise**
(We made for mammy **'a' surprise**)

-Verb and adverb:

22. Anta a'atitni **already** jwab
(You have **already** given me an answer)

Auxiliary and verb:

23. Ma abgha **do work**
(I do not want **to do 'the' work)**

-After prepositions in PP:

24. Hunak anwa'a adidah min **wheezing chest**
(There are several kinds of **wheezing chest**)

-Possessed and possessor:

25. It is **jebeil** Edde sands
(It is Edde **mountain** sands)

Switching is also found very frequently in the case of coordinated words where the switched coordinating conjunction can be in a different language from the two words as in (26) or can be at the second word while there are no instances of switching at the end of the first word.

26. taqool hot **auu** warm
(She said hot **or** warm)

Switching can be in a syndetic coordination where the coordinators are absent as shown in the example below:

27. Asma'a mihan doctor, **dentist,** muhami, **builder, nurse**, ostath madrasah, **painter**
(The names of professions 'are' doctor, **dentist,** lawyer, **builder, nurse**, school teacher, **painter**)

It is also possible between a complementizer and the clause it introduces as in the following:

28. nahnu naqool anna **not all asthmatics wheeze**
(We say that **not all asthmatics wheeze**)

For the case of intra-word CS, there are various instances illustrating switches within word boundaries. Typical examples for such cases are:

-Determiner and noun, which is very frequent in the data:

29. hasasiah men **al-egg** au **al-banana** au **al-strawberry**
(Allergic **to the eggs,** 'or' **the bananas** or **the strawberries**)

-The possessive clitic pronoun "k" is added as a suffix to the English noun "profile" and "face":

30. Fi profile-**k**
(In **your** profile)

-The past tense marker "ed", is added as a suffix to the Arabic verb "teshtat":

31. Aswatkum tetshat-**ed**
(Your voice is dispers**ed)**

-The plural marker 'at' is added as suffixes to the English nouns "toilet" and "shower":

32. endna toilet-**at** wa shower-**at**
(We have toilets and showers)

There are examples of switching between verbs and subject and\or object pronouns in which such pronouns in Arabic are cliticised to the English verbs. Among the examples of such cases are:

-The Arabic subject first person pronoun "a" and object third person masculine pronoun "hum" are affixed to the English verb "save":

33. Mumken **a-save-hum** liali ma'ahm aqal shia'a
(Could I **save them** for those who have less?)

-The Arabic present verb marker "t" and object third person feminine pronoun "ha" are affixed to the English verb "read":

34. Mama lazem **t-read-iha** li
(Mammy, you have to **read it** for me)

These results of radio and Facebook data revealed possibility for switching between Arabic and English at various syntactic and discourse boundaries although the typological differences between them in various aspects. These findings are consistent with the findings of Owens (2005) and Alrowais (2012) on the same language pairs (Arabic and English) who found that switches occurred in various syntactic positions. They also support the findings of various studies on typologically distant language pairs, for example: Arabic-French CS of Bentahila and Davies (1983) and Redouane (2005), Romanian-Arabic bilinguals by Kanakri and Ionescu (2010), CS in Iranian-Canadian conducted by Rezaeian (2009), and the grammar of English-Afrikaans CS by Van Gass (2002), Bowers (2006) and Dulm (2007), who provided several examples that show switches occurred in various distinctive syntactic environments.

The data reveal occurrence of switching at discourse level in which tags from a language are attached into an utterance completely in another. A number of code switches involve interjections and discourse marker elements were frequently observed in this study. These constructions were produced either as single words or short phrasal or sentential tags. This findings support the results of several studies concerned with CS patterns in different pairs of languages as in the study by Bader (2003) on characteristics of CS to Arabic among non- English foreign nationals in Jordan. He provided numerous instances of CS to Arabic in the speech of French, Russian and Italian native speakers living in Jordan when they communicated in English or French. He found that words and phrases related to daily greetings, health conditions and certain expressions frequently used in different occasions were the most widely switched. Kanakri and Ionescu (2010) in a study on Romanian-Arabic CS, and Alrowais (2012) on Arabic-English CS, generated various examples that go in line with these findings including exclamations, idioms, interjections and discourse markers.

As yielded in the data of this study, tags are frequently added to the utterances but occasionally tag-switching can take the form of intra-sentential switching and can be produced as parenthetical expressions. This result lends support to the findings of analyses by Bentahila and Davies (1983), Bader (2003) and Kanakri and Ionescu (2010) that switched tag items can be inserted as a parenthetical clause, after which the speaker returns to his original language. Bowers's findings (2006) are also compatible with this result as he indicated to 'chunk' which carries meaning on its own and can be switched easily since the speaker, in his case study, is more familiar with the English phrase which is meaningfully stands on its own in his mind and appears in speech rather than its Afrikaans equivalent.

At clause boundaries, the findings of switches between a main clause and subordinate clause as in conditional, coordinated, adverbial clauses of purpose and relative clauses corroborate the findings of study of Arabic-French CS by Redouane (2005) and Bentahila and Davies (1983). In addition, switching in declaratives and interrogatives corroborates the claim made by Bentahila and Davies (1983) and Kanakri and Ionescu (2010) that these types of switching are permissible.

With respect to coordinated clauses, Gumperz (1977) claims that when a switch occurs between two conjoined sentences, the conjunction must always be in the same language as the second sentence. However, the findings of this study do not support this claim, as the switched coordinating conjunction can be in a different language from the two clauses, or in different positions either at the end of the first clause or at the second clause. This result is supported by several examples of three cases of the switched coordinating conjunction in coordinated clauses found in studies of Arabic-French CS by Redouane (2005) and Bentahila and Davies (1983). Bowers's findings (2006) also support the result of this study as the discourse of her study provides many counter-examples of Gumperz's claim.

There is also evidence in the data of instances of switching across sentences at major constituent boundaries within sentence, such as NP, VP, AdvP, AdjP, PP and CoordP. In addition, the data also show that CS is possible at various minor boundaries within such major constituents as switching within NP, VP and PP. These findings are consistent with the results of Redouane (2005), Bentahila and Davies (1983), and Alrowais (2012) who found examples of switching at various levels within sentence.

In addition, switching found between a complementiser and the clause it introduces supports the claim made by Bentahila and Davies (1983) but counters that of Gumperz (1977) who argued that switching is impossible at this situation. In case of coordinated phrases and words, all of the examples show that the switched coordinating conjunction is in Arabic either between two English phrases\words or at the second minor English constituent boundary which are in line with the findings of Redouane (2005) and Bentahila and Davies (1983) even though no examples of English switched conjunction were found within sentences.

The data yielded various compounds including both derivational and inflectional structures, which corroborate the claim made by Kanakri and Ionescu (2010) that Romanian-Arabic bilingual speech permits the four well-known frames of

code-switching identified by linguists involving intra-word switching. The study of Arabic-French CS by Redouane (2005) also presented typical instances of switches in every syntactic category involving single words, from Arabic to French or French to Arabic. However, this finding of intra-word CS seems to contradict the claim made by Poblack (1980) in studying Spanish-English CS that the switch may not occur between a bound morpheme and a lexical form except in borrowing cases. The possibility of intra-word CS also counters to a certain extent the notion claimed by Bentahila and Davies (1983:317) of Arabic-French CS that "the only boundaries which seem to block switching are those morpheme boundaries internal to words". They argued that examples of switches within words were felt to be most "bizarre" by the respondents, provoking amusement and sometimes causing incomprehension. However, throughout the data of this study, a few examples of intra-word switches seem to be strange and unacceptable to the participants, specifically in verb and adjective boundaries in spite of switching operations can happen very easily and naturally. Among examples that can be judged as strange utterances are the following:

-The third person plural marker in Arabic, "o", is added as a suffix to the English verb "share":

35. shar-**o** > ('They' shared)

-The progressive marker in English "ing" is added as a suffix to the Arabic noun "rasm":

36. rasm-**ing** > (painting)

-The superlative inflectional in Arabic, "a", is added as a prefix to an adjective, "fresh", in English:

37. **a**-fresh > (freshest)

-The first person plural marker "n" is used with the English verb "do":

38. **n**-do > (to do)

It can be concluded here that in Arabic-English CS, different language choice patterns occur which allow for four categories of switching: extra-sentential switching, inter-sentential switching, intra-sentential switching, and intra-word switching which involves smaller and larger constituents (morphemes, words, phrases, sentences and clauses).

3.1.2 Switching to a particular syntactic category

In this study, the data yielded around 307 switches in the entire corpus (248 switches in radio conversations and 59 in Facebook chats). Based on the frequency distribution of number of different switched elements in these contexts, several characteristics of Arabic- English CS categories are identified in this data. The analysis of the data reveals that in both settings, switching occurred in two directions, from either Arabic to English or English to Arabic, even though the former was most frequent in CS patterns in radio whilst the latter was more common in Facebook switches. Based on Myers-Scotton's approach (1993) to identifying the language dominance of CS in which the Matrix language (ML) contributes to the system morphemes and surface morpheme order in bilingual utterances, there were instances when Arabic plays the dominant role as ML and others in which English is identified as the ML. The Figure (1) shows the rate of language dominance in both radio and Facebook data.

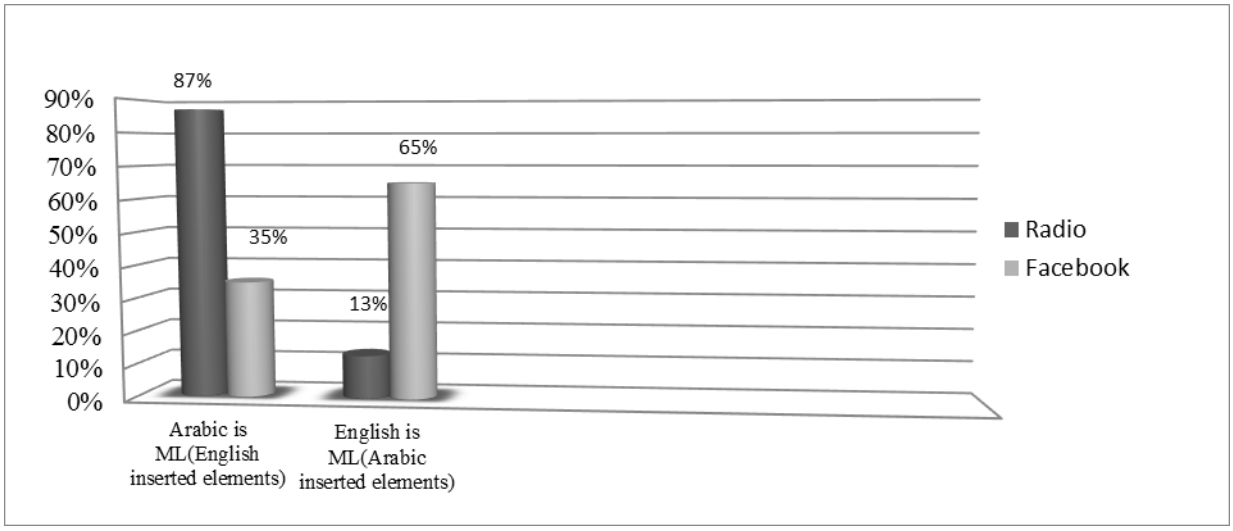
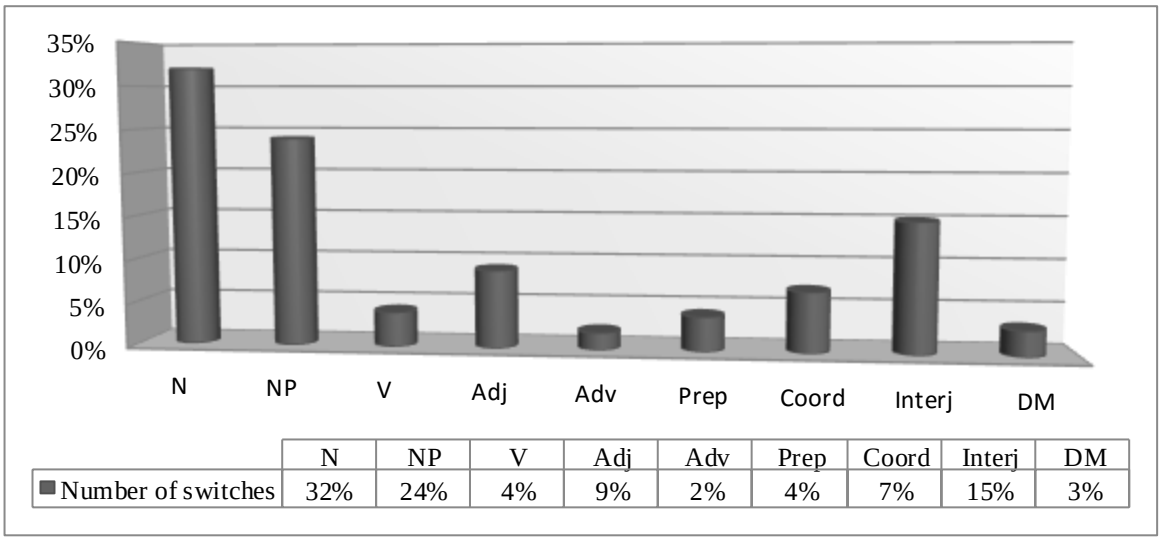


Figure 1. The rate of dominant language in radio and Facebook

This figure indicates that the total number of English inserted elements is more than the total number of Arabic inserted elements in radio switched utterances. So, Arabic almost plays the role of the dominant language, as the number of Arabic ML utterances constitutes 87%, while the number of English ML utterances makes up only 13% of the total of coded elements in radio data. On the other hand, from the Facebook data English appears to be the most dominant language in CS patterns. The rate of Arabic inserted elements is 65% in which English is the ML, but the English coded elements represent 35% where Arabic tends to be the less common language in Arabic-English bilingual conversation on Facebook.

As for the distribution of a particular category of switching, CS practices among Arabic- English speakers vary in their

use of the four categories of switching (tag, inter-sentential, intra-sentential, and intra-word switching). In the analysis of the data, the intra-sentential and intra-word switching significantly prevail throughout the switched patterns in bilingual utterances. The Figure (2) displays the frequency of occurrences for each category of switching.

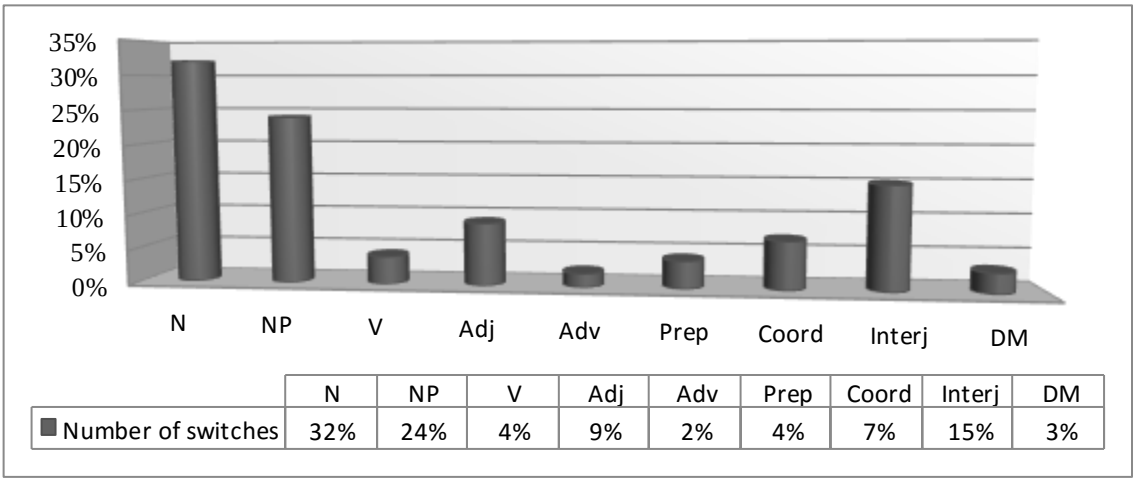


	N	NP	V	Adj	Adv	Prep	Coord	Interj	DM
Number of switches	32%	24%	4%	9%	2%	4%	7%	15%	3%

Figure 2. The distribution of a particular category of switching

As shown in this chart, *Intra-sentential* CS forms the majority of switched categories as it makes up 60% of the total numbers of all CS instances found in the data. After *Intra-sentential*, *Intra- word switching* is the category that most frequently occurred in Arabic–English bilingual speech, that is 23% of the total CS categories. *Tag-switching* only represents 13% of the total number of cases in which CS takes place. There were only 12 examples (4%) of *inter-sentential* CS in this corpus.

With regard to the overall distribution of the occurrence of code switches at particular syntactic categories, the data yield various examples of CS of different syntactic items at maximal as well as minimal levels, including N, NP, V, Adj, Adv, Prep, Coord, Interj and DM. The Figure (3) shows all statistics of CS items as generalized from radio and Facebook data.



	N	NP	V	Adj	Adv	Prep	Coord	Interj	DM
Number of switches	32%	24%	4%	9%	2%	4%	7%	15%	3%

Figure 3. The distribution of a particular category of switching

In this figure, nouns with noun phrases represent the largest number of switched items in the corpus. Single nouns constitute 32% and NPs make up 24% of the total switches in Arabic-English CS. Interjections are the next most frequent items in this data. The smallest percentages of code switches were observed in the use of adjectives, coordinators, verbs, prepositions discourse markers, and adverbs, respectively.

In the discussion of these findings, different characteristics related to CS in Arabic-English speech contexts can be considered. One interpretation for the use of English as the ML in Facebook CS is that Facebook is used more by the younger generations who have Arabic as their mother tongue but learn it less intensely and have fewer opportunities to practice it in the Australian contexts even with their families and friends. Thus, they choose English as the ML in their bilingual speech as they may feel that they are more proficient in English and can use it more confidently. This is in contrast to radio participants who are almost always from the older generation who speak mostly Arabic and maintain it as their ML even in English-Arabic speaking contexts. This finding is compatible with the findings of Poblack (1983) in

a study of English and Spanish in the Puerto Rican community of New York, and those of Alenezi (2006) and Alrowais (2012) in a study of Arabic-English CS, who found that young generation of immigrants diverge from the older generation and are more prone to using English as the ML in the practice of CS, while older people tend to interact more in their first language.

The other possibility of using English as ML in Facebook CS has to do with the nature of Facebook pages which have almost always a communicative function so that they often do not need to use their mother tongue to achieve other social motivations as shown by their group status or excluding people from their communication even if the interlocutors know both languages satisfactorily. On the other hand, the radio setting reflects specific social situations, which primarily serve to mark social identities as the channels are used to address Arabs in Australia, so that Arabic is used as ML to serve different cultural functions in such a context.

This result agrees with the notion put forward by Myers Scotton (1993) about the markedness and unmarkedness of code switching choices as people interact in a language and use the relevant codes to comply with unmarked (expected) wishes as in the case of Facebook interactions in English, or switching markedly to a certain language in conversations to serve specific functions as in some radio interactions in Arabic found in the data. Alenezi (2006) and Alrowais (2012) also support this finding since CS may show the constructions of social identities by speakers and reflect their preferences and needs. Further support of this result is made by Forslund (2009) who argued that a bilingual use of a language are great related to needs to be able to communicate, while some people use both languages, others do not as they just need to be really fluent in one language.

In using intra-sentential and intra-word as the most frequent categories of CS speech in this context, there is an evidence to the maturational nature of linguistic and social processes of most Arabic-English bilingual speakers who participate in this study, since using intra- sentential CS requires a high development of syntactic knowledge for both languages for it to be used sufficiently and comprehensively. This finding corroborates the results of various researchers such as Poblack (1983) who found that bilinguals dominant in Spanish make greater use of inter-sentential CS, while balanced bilinguals significantly use more intra-sentential switching in their speech. Kanakri and Ionescu (2010) also agree with this finding and find that these types of CS, tag and inter-sentential, are encountered most often in the speech of less fluent bilinguals because it involves the least syntactic difficulty. However, this analysis challenges the suggestion of Alrowais (2012) who claim that most fluent bilinguals use inter-sentential switching. Although it goes in line with her statement that the lack of inter-sentential CS by participants implies that there is a lack of proficiency in at least one of the languages of interactions.

As shown in the present study, most of the English-inserted elements in the Arabic-English CS are nouns and NPs. There are several reasons for the greater occurrences of nouns compared to other switched elements, which are also supported in the CS literature. Nouns are used most often since they are relatively free of syntactic constraints. Unlike nouns, other word classes such as verbs and system morphemes carry more syntactic features and may require more grammatical congruence such as inflection for tense, gender and number, thereby affecting the syntactic structure of an utterance.

Myers-Scotton (2002:76) supports this result by explaining that verbs tend to occur less as "they are [+ thematic role assigner] and therefore carry more 'syntactic baggage' than nouns, meaning their fit with the recipient language may be harder to make". Forslund (2009) also agrees with this finding and consider nouns to be freer than other word classes in terms of grammatical restrictions on their occurrence. Bowers (2006) and Alrowais (2012) also found that with content words, nouns make up the bulk and form the majority of the coded elements. They are easily switched because they often appear in the same syntactic slot in both languages.

To sum up, CS occurs in two directions in this corpus - from Arabic to English and English to Arabic. Arabic plays the role of ML in CS patterns in radio, whilst English is the ML in Facebook switches. For CS in this pair of languages, the intra-sentential and intra-word switching significantly prevails throughout the switched patterns in bilingual utterances. At the level of particular syntactic category of Arabic-English CS, nouns with noun phrases represent the largest number of switched elements in the corpus.

3.2 Theoretical aspects of Arabic/English code switching

3.2.1 The equivalence model

As mentioned already, the equivalence model of Poplack (1978) is among the first and most influential models that contribute to the linguistic analysis of CS. The constraint is formulated as follows:

> Code-switches will tend to occur at points in discourse where juxtaposition of L1 and L2 elements does not violate a syntactic rule of either language, i.e. at points around which the surface structures of the two languages map onto each other (Poplack 1980:586).

In this hypothesis, Poplack postulates that CS is possible only if there is a linear equivalence in the surface structure of the two languages in which the order of the sentence constituents is grammatically correct with respect to the two languages. She suggests that CS tends to occur at points where the elements of L1 & L2 do not violate any syntactic rule of either language. She presented examples of CS that are grammatical by both English and Spanish standards because they follow the rules of both languages.

The findings of the present study present violations of this hypothesis as there are differences in the organizational structure of the two languages, and speakers switch even under conditions where switching is supposed to be

impossible. There are various cases in which Arabic and English differ in word order systems (see1.4.1.). According to this constraint, switching should not happen under these circumstances; however, at the syntactic level, certain interesting mixed Arabic-English structures occur and seem to be acceptable. Among the cases of non-equivalent structures in Arabic and English where CS can happen are the following:

- Switching between the subject and main verb: whereas English has a relatively fixed (S-V- O) word order, Arabic has a free word order, either (S-V-O) or (V-S-O) in which the verb may precede the subject, which is not allowed in English. The following examples follow the Arabic surface structure while at the same time violating the rules of English syntax as the verb is followed by the subject, either as a noun or a clitic pronoun as in (12,16,21&32).

- Switching between adjectives and nouns: as Arabic has a noun-adjective order in which the nominal modifier normally follows the noun, this is contrary to English where an adjective normally precedes the noun. The examples (19, 39) clarify this conflict where the adjectives follow the nouns they modify thereby violating English grammar:

39. **Break** qasser wa nekmel swa
(Short **break** and we will continue together)

-Switching in nominal possessive constructions: in Arabic, the possessor comes immediately after the possessed, and is either juxtaposed as a pronominal possessor (suffix) or appears as a nominal possessor. By contrast, in English the nominal possessor comes before the possessed in the form of possessive pronoun or nominal possessor with the suffix (-'s) attached. This contrast can be noted in examples (25 &40), wherein in the former (25), the nominal possessor comes before the possessed according to English rules, while in the latter example (40), the possessor comes after the possessed following Arabic rules which both violate the equivalence hypothesis.

40. ana aqool sawt al-**drum**
(I say the **drum** voice)

Moreover, there are several instances in this discourse that reveal a lack of equivalence between the two languages, where different elements may be missing for one language while they follow the grammar of another, as can be seen in the following examples:

-Switching between the verb and subject with covert subject: as in Arabic the verb does not require an overt subject; both “Ana abgha” and simply “abgha” express (I want), the former with an overt pronoun subject ”Ana”, the latter without it as in the examples (5, 23&26).

-Switching with the omission of the English indefinite articles (a, an) before a noun or noun phrase, since Arabic does not have such articles to mark indefiniteness as in the examples (19& 21).

-Switching with the omission of the subject agreement marker in the English verb as in (11), although Arabic has such an agreement marker and is added either as a suffix or a prefix according to special rules (see 4.4), English has this marker as a suffix like in this example.

-Switching with the absence of the English copula verb “to be” in switched utterances: as Arabic allows nominal sentences with no verb unlike English, it is obligatory to put VP after NP, as in (15& 41).

41. Hia Al-bakhakhat al-**preventative**
(They ‘are’ the **preventative** sprays)

On the other hand, there are examples of elements existing in switching utterances that seem consistent with the grammar of one language while conflicting that of another and are considered additional elements as in (41). These violate English grammar as the adjective within the definite noun phrase is accompanied by an Arabic definite article ‘al’. Arabic grammar requires such a noun-adjective agreement, which is not found in English, while the English copula verb “to be”, coming before the Arabic predicative in (25), is not found in Arabic grammar.

In short, the data of this study cast doubt on the validity of this constraint. This finding may suggest that the equivalence constraint may account well for CS between languages with similar grammars (e.g., Spanish and English) but is not valid for CS between languages that have very different grammars as in the case of Arabic and English. When comparing this finding with studies on the grammatical constraints on CS patterns, a number of studies involving different language pairs present counter-examples of ‘equivalence structure’ constraints that violate the syntax of the languages in interaction.

In the study of Arabic-French CS by Bentahila and Davies (1983) and Redouane (2005), the surface structure of the two languages was violated in terms of word order systems as in subject and verb as well as adjective and noun. The violation was also found in a lack or addition of some elements that leads to non-equivalence between the two languages. This is the case in the sequence of determiners in NPs, which is allowed in Arabic, whereas only one is permitted in French. All these examples go against the validity of the equivalence theory. The finding of this study is also supported by the results of Bowers (2006) in terms of the occurrence of CS although there is a word order conflict between Afrikaans and English as in the past tense, negation and interrogative constructions. Rezaeian (2009) asserted that the findings of his study are not compatible with this hypothesis as CS happens even while there are differences between the grammars of Persian and English as in the verb and its object complement, and noun and its adjectives. Similar violation of this constraint is suggested by Bader (2003) where non-English foreign nationals use English adjective-noun order in CS to Arabic which is also against Arabic rules. Berk-Seligson (1986) presented various examples of ungrammatical combinations of Hebrew and Spanish, which contrast the equivalence constraint as in the

absence of definite and indefinite Spanish articles before Hebrew nouns, and the omission of Hebrew definite articles in noun phrases.

Nevertheless, Sebba (1998) and Clyne (2000) assert that this data does not affect the validity of this constraint and the adjustments involving repetition, addition or omission of constituents are made to the syntax for the advantage of syntactic convergence as will be discussed later in the congruence model.

3.2.2 The free morpheme model

The free morpheme constraint of Poplack (1978) is also amongst the most important linguistic constraints operating on intrasentential CS. The hypothesis is explained by Poplack (1980:586) as follows:

> "Codes may be switched after any constituent in discourse provided that the constituent is not a bound morpheme".

Poplack predicts that codes may not be between a bound morpheme and a lexical form unless the latter is phonologically integrated into the language of the bound morpheme as in borrowing.

In fact, the finding of this study contravenes to a large extent this hypothesis as there are frequent examples of intra-word CS in which bound morphemes of one language are attached to roots (free morphemes) in another language, and are not borrowed items as can be seen in the above examples, (29)-(34).

However, there are a few examples in which this constraint may be applicable, such as those that can be judged as strange utterances in examples (35)-(38). In addition, there are examples that may support this theory which involve the omission of some elements which can be free morphemes in a language while they are bound in another. For example, the definite article "the" in English which counters the clitic article "al" in Arabic which thus results in a violation of both languages as in (12 & 23).

In the CS literature, various studies have presented examples that support the present data and violate the free morpheme model. It was found by Redouane (2005) that switches occur across word internal morpheme boundaries involving inflectional morphemes from Arabic, which are attached to stem morphemes from French. Bowers (2006) offered counter- examples of this constraint in verb constructions, wherein the Afrikaans bound morphemes are used with English verbs. Rezaeian (2009) also mentioned various examples, which are compatible with the findings of the present study, where Persian bound morphemes are attached to English nouns or adjectives. The data of Kanakri and Ionescu (2010) on Romanian-Arabic CS also contradict free morpheme constraint, as the switching can be within words between Romanian plural markers and Arabic nouns.

However, the findings of this study contrast those of Bentahila and Davies (1983), which assert that word-internal morpheme boundaries block switching, in line with the free morpheme model. They argued that examples of switches within words were felt to be most "bizarre" by the respondents, provoking amusement and sometimes causing incomprehension. The results from Berk-Seligson (1986) also lend support to the free morpheme constraint, for he suggested that the frequent occurrences of large intra-sentential constituents support this constraint. Yet, this finding goes in line with the results of some structures in this study that seem unacceptable in Arabic-English discourse as well as of the prevalence of certain categories in CS which indicate striving for congruence in the structure of the two languages supporting the congruence model as discussed in the next section.

3.2.3 The congruence model

This model was developed by Sebba (1998) to integrate the study of CS syntax into a wider framework that takes into account the pragmatic as well as social aspects of CS. According to Sebba (1998:7):

> Congruence is not just a function of the syntax of the languages involved. The locus of congruence is the mind of the speaker, but community norms determine, by and large, the behavior of individual speakers. Bilinguals create congruent categories by finding common ground between the languages concerned.

He explains that there are at least four possibilities of strategies used in switching between two categories as in the following:

- Harmonization; where the category is treated as identical in both languages.
- Neutralization; which allows switching by creating a slot for a congruent category in incompatible languages.
- Compromise; where switching allows for resulting utterances that are not grammatical in either or both languages.
- Blocking; where switching is not permitted and preference is for alternative switches at largest or next smallest constituents.

These strategies can be combined in a given bilingual situation, specifically where CS is socially permitted as can be noted in the case of Arabic-English CS in this corpus. Generally, the theory of congruence between ML and EL is reinforced by the findings of the present study. As there is a high degree of incompatibility between Arabic and English, a *harmonization* strategy is used in very narrow frameworks as between some types of determiner with nouns as in (17) and between a complementiser and the clause it introduces as in (28).

Therefore, switching is blocked at most points and is often limited to switching of lexical categories, inter-sentential and tag switches. From the findings of different categories of CS in (3.1.2.), nouns, noun phrases and interjections represent the largest number of switched items in the corpus. Nouns are used most often since they are relatively free of syntactic

constraints, and require less grammatical congruence unlike other word classes, which significantly affect congruence as verbs and system morphemes. So this finding of *blocking* CS and preference for free lexical items lends support to this theory. Moreover, full switching in NPs represents another evidence of the congruence theory by which the full structure of a language can be achieved as a noun defines an adjective and the possessed is related to the possessor, and Arabic and English contrast each other in the word order of these structures as in (12,14&24). Furthermore, frequent use of tags, which mostly involve interjections, also supports this model as they are inserted with no effect on the rules of either language in interactions (1)-(3). In addition, using inter-sentential also supports congruence as in cases where the subsequent congruence of structure is impossible, and where speakers choose to continue CS in subordinate clauses to avoid ungrammatical utterances (4)-(9).

Another strategy used by Arabic-English bilingual speakers in this discourse is *compromise*. As mentioned already in (3.2.1.), there are various examples of switching that result in structures that are not grammatical in either Arabic or English. They contain elements that seem consistent with the grammar of one language while conflicting with that of another. They may be considered additional elements as the English adjectives within the definite noun phrase are accompanied by an Arabic definite article and the English copula verb "to be" comes before the Arabic predicative. Moreover, there are several instances in this discourse that reveal a lack of elements for one language when following the grammar of another. There are examples that imply the absence of elements which are obligatory in English as the subject, the copula verb "to be", the indefinite articles (a, an) as well as the subject agreement marker. In addition, there are examples that involve the omission of some elements which can be free morphemes in a language while it is bound in another. For example, the definite article "the" in English, which counters the clitic article "al" in Arabic that thus results in a violation of both languages as discussed in (3.2.2).

Comparing these findings with those found in the literature, they are supported by several studies concerned with congruence as an important aspect of CS behavior in different contexts. Blocking CS at certain points and the tendency towards smaller or larger structures, found in the studies of Alrowais (2012) and Rezaeian (2009), indicate that speakers tend to use certain lexical and syntactic items which simplify integrating the structure of the two languages and avoid the incongruity of rules such as nouns, adjectives and large constructions as inter-sentential category. They see that the prevalence of certain categories in CS indicates striving for congruence in the structure.

Bowers' findings (2006) also support this theory and are in line with the results of this study where a blank syntactic 'slot' occurs as English does not apply double negation while Afrikaans use of the second negation element appears at the end of the phrase. Owens' findings (2005) from a study of Nigerian Arabic and English are consistent with the present results where the lack of structural congruity between ML and EL resulted in 'bare' forms in which the definite article, marker of plural, and possessive pronoun are not used to avoid incongruity. Alrowais (2012) also found that speakers in her study use a compromise strategy in producing a double morphology so as to maintain congruence in CS behaviors.

It can be concluded thus that while the congruence theories seem applicable to a large extent in this data, the findings reveal that the equivalence and free morpheme models often appear to be invalid as constraints on producing CS, at least in this corpus.

4. Conclusion

The main purpose of this paper is to investigate the linguistic aspects of CS among Arabic-English bilingual speakers in Australia. Generally, research has proven that CS between Arabic and English is possible and often seems to be acceptable despite the typological differences between them at various levels. It was observed that there are possibilities for switching at various syntactic and discourse boundaries where the four categories of CS are allowed: tag-switching, inter- sentential switching, intra-sentential switching, and intra-word switching. It was also found that throughout the switched patterns, there was a significant prevalence of intra-sentential and intra-word switching. At the level of particular syntactic category of Arabic-English CS, nouns with noun phrases as well as interjections represent the largest number of switched elements in the corpus.

With respect to the theoretical aspects of Arabic-English CS, the validity of three models proposed as grammatical constraints on CS was reviewed. Overall, CS in this corpus does not completely correspond to constraints put forward by bilingualism researchers. The findings of this study revealed that the equivalence and free morpheme models appear to be overwhelmingly invalid as constraints on producing CS in this corpus, as frequent examples show violations of their proposals. Although, the data supported the congruence model as the speakers used different strategies to achieve congruency in CS.

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List of Abbreviations

Adj	Adjective	Mod	Modifier
AdjP	Adjective Phrase	N	Noun
Adv	Adverb	NP	Noun Phrase
AdvP	Adverb Phrase	O	Object
Coord	Coordinator	Pers	Person
CoordP	Coordinative Phrase	PL	Plural
Detnr	Determiner	PossP	Possessive Phrase
DetveP	Determinative Phrase	Prep	Preposition
DM	Discourse marker	S	Subject
Fem	Feminine	Sg	Singular
Interj	Interjection	V	Verb
Masc	Masculine	VP	Verb Phrase