The Phonotactic Adaptation of English Loanwords in Arabic

Anwar A. H. Al-Athwary
Department of English, Faculty of Arts and Science
Najran University, Najran, Saudi Arabia

Abstract
The phonological modifications made to English loanwords in Modern Standard Arabic (MSA) have come as a response to cope with the phonetic and phonological constraints in MSA sound system. These adaptations of loanword pronunciation clearly reflect the areas and effects of phonetic and phonological interference between the two languages in contact. For this purpose, over than 300 of English words borrowed by MSA are analyzed. At the syllabic and prosodic level, mechanisms like cluster simplification, syllabic consonant conversion, gemination, etc. are found at work and by far systematic in MSA borrowings. Generally, it has been found that most of the regular adaptations at syllable level such as declusterization, syllabic consonant conversion, consonant lengthening and vocalic glide insertion, are motivated by linguistic constraints inherited in the phonological system of MSA rather than by extra-linguistic motivations.

Keywords: adaptation, consonants, English loanwords, MSA, phonotactics, vowels

1. Introduction
The phonological adaptation of loanwords is of two kinds: adaptation at the segmental (individual-sound) level and adaptation at the phonotactic (syllabic or prosodic) level. The present article focuses on the second type, i.e. the syllabic modification of English borrowings in Modern Standard Arabic (MSA). MSA follows its own rules and has its own characteristic types of syllable structure. The following facts on MSA syllable patterns are agreed upon among Arab and non-Arab linguists.

Unlike English, vowel-initial syllables never occur in MSA; all syllables always begin with a single consonant. This statement is supported by the fact that "all vowels, when recorded (in isolation by spectrograph), are initiated with a glottal stop *ʔ* "[1] (al-Ani 1970: 22). Therefore, all native words and foreign words as well, which are supposed to start with a vowel are initiated with a glottal stop before the vowel.

Unlike English, too, initial consonant clusters are not permissible, and the onset, which is a basic constituent of the syllable, is occupied by only one consonant. Final and medial two-consonant clusters are possible like in *qaşr* /CVCC/ 'a palace' and *ʔaħmar* /CVC-CVC/ 'red'. In the case of medial consonant sequence, the first member is the coda of the preceding syllable and the second one is the onset of the following syllable as in the word *ʔaħmar* above. This implies that three-consonant clusters are not allowed. On the other hand, the sequence of two vowels is disallowed anywhere in MSA syllable structure (Al-Matlabi 1984: 235).

There is a third specific type of sound sequence, which involves the sequence of two identical consonants and technically called "geminate". By definition, gemination is a process by which a consonant is doubled, obtaining a long consonant as a result[2]. Unlike English, gemination in MSA is abundant and serves a significant morphological and semantic function, and therefore contrasts with their corresponding simple consonants. Consider the following native minimal pairs in (1) in which *l* and *k* are geminated:

(1)

a.	*qalam*	(n)	'a pen'
	qallam-	(v)	'to cut ones nails, flower beds, etc.'
b.	*ʔakal-*	(v)	'to eat'
	ʔakkal-	(v)	'to feed'.

Distributionally, the geminates occur word-medially as in (1) and word finally as in *ħaqq* 'a right', *watadd* 'a peg, wedge', etc. The former occurrence is the most frequent and always comes in intervocalic position. It should also be mentioned that all consonants (including the semivowels) are potentially involved in germination process.
The syllable nucleus [+ syllabic] should be either a short vowel or a long vowel. Thus, the number of syllables in an utterance will be identical to the number of vowels therein. This is in line with the universal principle of syllabification.[3] Five syllable patterns are permitted in MSA (see al-Ani 1970: 87, Al-Matlabi 1984: 238 and Hijazi 1998: 80-81) (C= consonants, V= a short vowel and V: = a long vowel):

(2)

(i)	/CV/	as in *wa* 'and'
(ii)	/CV:/	as in *fi:* 'in(side)'
(iii)	/CVC/	as in *qiṭ* 'a cat'
(iv)	/CV:C/	as in *ba:b* 'a door'
(v)	/CVCC/	as in *milħ* 'salt'.4

The pattern ending with a vowel is an open syllable (CV and CV:) and that ending with a consonant is a closed syllable (others). Moreover, the first pattern (CV) is classified as a short syllable and all the rest as long syllables. The first three patterns have a higher frequency of occurrence.

2. Statement of the research problem
With the modern technological and educational developments that have taken place in the world and their recent echoes in the Arab world, a need has arisen for transferring many technical concepts into Modern Standard Arabic (MSA) in many fields. As a result Arabic finds itself face to face with an immense number of foreign terminology, especially from English. The consonant cluster systems of English and MSA are totally different as mentioned in the introduction above. So, the adaptation of English consonant clusters into MSA is faced by many constraints.

This paper, therefore, attempts to address the following question: how are MSA borrowings from English accommodated at the syllabic (phonotactic) level into the phonological structure of MSA? It aims at investigating the possible mechanisms and strategies used by MSA to incorporate English clusters into the phonological system of MSA.

3. Research methods
Being a language of formal speech, formal education and mass media, MSA loanword materials meant for the analysis are compiled from different sources such Arabic newspapers (as the main source), some Arabic magazines, textbooks, and dictionaries, and a number of Arabic websites. An additional source is the linguistic background and intuitions of the researcher himself as a native speaker of Arabic. The number of loanwords collected is over than three hundred items. The data collected are analyzed by using the descriptive and analytical methods.

4. The integrated model of loanword nativization
The integrated model proposed by Danesi is based on Italo-Canadian loanword data from English, and consists of two main principles (1985c: 21-39): i) The Paradigmatic Principle (PP) and ii) The Phonological Synchronization Principle (PSP). PP refers to the interpretation of foreign item morphologically. So, this principle will not be discussed here because is beyond the scope of the present paper.

4.1 The phonological synchronization principle (PSP)
The foreign sounds of the item in question are interpreted in terms of the syllabic, prosodic, phonemic and phonetic patterns (as the case may be) of the borrowing language.
This principle implies two basic processes:

a. Sounds and sound patterns that are identical in both the donor and borrowing languages will not be modified in any way.

b. Differences in pronunciation will activate either repatterning processes which are tied to the phonological system, or simple phonetic substitution mechanisms.

Thus, such model is eclectic in the sense that it has incorporated the three basic types of adaptation mechanisms of a morphological, phonological and phonetic nature that are attributed respectively to the generative, phonemic and phonetic models.

The two principles stated earlier interact with each other to generate a nativized form which is, in most cases, indistinguishable in form-class shape and phonological configuration from native words. Such interaction, which occurs in determining the final shape of a loanword, is not a new concept. Danesi, however, considers the morphological adaptation mechanisms as autonomous rather than extensions of phonological ones. The borrower, he notes, seems to make some adjustments purely on the basis of the internal paradigmatic requirement of the native language without any reference to the phonological configuration of the incoming item (1985:23).

5. Analysis and results

It is obvious from the quick comparison between the two phonological systems of English (as the source language) and MSA (as the recipient language) in the introduction that the areas of interference do exist in both the phonetic level and the syllabic level. The involvement of the two levels in loanword adaptation is natural. Wells (2000: 10) explains that in the borrowing process "the incorporating of a loanword from one language into another may involve not only the sounds (phonetic segments, phonemics), of which the word's pronunciation is compared, but also the positions in which those sounds are used (syllable structure, phonotactics), the phonetic processes they undergo (phonological rules) and their accompanying suprasegmental features (duration, stress/accent)". In this way, not only do the speakers of MSA replace the exotic English phonemes by familiar MSA ones, they will also reorganize the way the sounds are arranged to conform to MSA phonotactics.

In the Integrated Model of Loanword Nativization, the adjustments to syllable structure of incoming words are an example of phonological repatterning (Danesi 1985c: 37). This fact manifests itself clearly in a number of sub-mechanisms that operate within this framework and which include the following: declusterization, syllabic consonant conversion, consonant lengthening (gemination), vocalic glide insertion, syllable deletion, monophthongization, and change in vowel duration (i.e. quantity). As can be seen below, these sequential and prosodic modifications in syllabic structure of English loans show a high degree of regularity. In the following analysis, I will confine myself to the first four mechanisms.

5.1 Declusterization

One of the clear-cut phonotactic constraints in MSA phonology is that consonant clusters (CCs) exist only word-medially and word-finally but never word-initially and they are always made up of two elements. Therefore, in the context of arabicized loans, the English initial consonant clusters (ICCs) will subject to the process of cluster split or Declusterization. It is made possible by means of two repatterning methods or mechanisms: i) the anaptactic vowel insertion and ii) the prefixation of the prosthetic syllable *?i-*.

The anaptactic vowel insertion is the most frequent mechanism whereby an anaptactic vowel is placed after the first member of English ICCs and after the second member of English medial consonant clusters (MCCs) that consist of three elements. The examples in (3 a-b) will suffice:

(3)   a) ICCs:

*ki*ri:m < cream

*ki*ristal < crystal

*fi*ri:zar < freezer

*fu*lu:r < fluorine

*bu*lu:tu < Ploto

*bu*runz < bronze

b) MCCs:

*kuntu*rul < control[5]

*kumbi*yu:tar < /k∂mpju:t∂/ 'computer'

*ʔiliktu*ru:niyy < electronic

In the case of the three-element sequences across word boundaries, the vowel is inserted after the first element of the sequence as in the loanword *ʔaysikrim* from /aıskri:m/ 'ice-cream'. The consonant sequence may, however, remain as it is as in *banknu:t* from English 'banknote' because the syllable structure of this compound is in line with that of MSA phonology.[6] That is, the syllables /CVCC/ plus /CVC/ of this word are permissible in MSA.

As can be observed in (4 a-b) above, the phenomenon of sound harmony (i.e. the spreading of the following vowel or the following glide) in this mechanism is clearly manifested. That is, the quality or category of the intrusive vowel is always determined by the quality of the vowel occurring in the subsequent syllable. At this point, it may be appropriate to note that such phenomenon seems to be general in languages which do not admit ICCs in their phonological structure (see for example Paradis and Lebel 1994: 82 on Fula (a western African language), and Sharma 1980: 83-84 on Central Pahāri Language in India).

It should be also noted that the intrusive vowel is usually short as *i* and *u* in (3 a-b). The short vowel *a*, however, might be used as an anaptactic vowel, but it optionally alternates with *i* in loanwords like in (4) below:

(4)   *ta*ra:nzi:t ~ *ti*ra:nzi:t < transit

*ba*la:zma ~ *bi*la:zma < plasma

*fa*la:š   ~ *fi*la:š < flash

*ba*lasti:k ~ *bi*la:sti:k < plastics

*ba*la:ti:n ~ *bi*la:ti:n < platinum

The vowel harmony is also maintained here because *a* and *i* still belong to the same category, i.e. both are front vowels.

Now, we turn to the second mechanism of declusterization, i.e. the prefixation of the prosthetic syllable *?i-*. It is so striking but less frequent. The mechanism strictly applies to the English ICCs that start with the sibilant /s/, e.g. /str-/, /st-/, /sk-/, etc. To split such consonant sequences, the prosthetic syllable *?i-* (i.e. the glottal stop *?* + the short front vowel *i*) is prefixed before the cluster constituting, with the first element of the cluster, a new syllable of the type /CVC/:

(5)   *?is*tira:ti:jiyyah < strategy

       *?i*starli:niyy < sterling

       *?i*skitš < sketch

       *?i*sti:riyu < stereo

       *?i*sta:ti:kiyyah < statics

       *?i*skuwa:š < squash

The break of the ICCs in this way makes the syllabic structure of English loanwords permissible to MSA phonology: in the new created syllable, the first /C/ (i.e. *?*) performs as the onset of the syllable, the /V/ (i.e. *i*) as the nucleus and the first element of the consonant cluster as the coda. Needless to say that the use of the glottal stop *?* is necessary here in order to conform with MSA phonological rule which states that syllables should always start with a consonant. In the case of the fist example in (5), i.e. *?istira:ti:jiyyah*, the two mechanisms are involved, i.e. the prefixation of *?i-* and the insertion of the anaptactic *i* after the second element of the three consonant cluster as the nucleus of the second created syllable (i.e. /-tr-/). The prosthetic *?i-* might be prefixed to some loanwords that do not have initial clusters like *?ismant* from English 'cement.' This case can be accounted for as a case of false analogy.

There are some cases in the data where the two declusterization rules may alternatively apply as can be seen in (6):

(6)   a. Vowel Apantyxis   b. *?i*-Prefixation

     kili:ni:kiy   *?ikli:ni:kiy*   < clinical

     bila:ti:n   *?ibla:ti:n*   < platine

     bila:zma   *?ibla:zma*   < plasma[7]

In other borrowings, the alternative application of declusterization mechanism in (6b), however, is infrequent and in many other cases seems to be unacceptable by MSA speakers.[8] It would be very odd, for instance, to encounter loan forms like the ones in (7):

(7)   *$?ikrista:l$ to refer to English 'crystal'

      *$?ibrunz$ to refer to English 'bronze'

      *$?ifla:š$ to refer to English 'flash', etc.

The discussion of the ICCs being split in English loanwords of MSA gives rise to a very important and controversial point which calls for some comment and clarification.

Some Arab linguists (see Al-Qinaii 1998 & 2000) claim that MSA terms in modern times (than ever before) tend to maintain the initial clusters of foreign vocabulary. Al-Qinaii, for instance, supportively quoted al-Shihabi (1955) who in turn notes that:

> This rule (i.e. the rule of ICCs declusterization) has become somewhat out dated in Modern Standard Arabic wherein the flux of loanwords has made initial clusters of two consonants permissible without the need to insert any short or long vowels.
> (Al-Qinaii 1998: 299)

To provide an evidence to his view, Al-Qinaii argues that words like the French 'stade' (i.e. stadium) can be either adapted as *?ista:d* or *sta:d* in Arabic and the English item 'tramway' as *tra:m* (ibid). Note that the statement concerning the English loan *tra:m* contradicts with al-Qinai's notation in his article of 2000, p. 21, where the MSA correlate of the English 'tram' is transcribed as *tira:m,* i.e. with the break of English ICC.

In fact we don't agree with such point of view for many reasons. First of all, it can be argued that al-Shihabi's earlier observation may hold true only with regard to many Arabic regional dialects, which permit initial clusters in their own syllable structures like dialects spoken in Al-Sham and Al-Maghrib countries.[9] This phenomenon can be accounted for by the fact that such dialects were largely influenced by foreign languages during the colonization era, especially by the French language and culture. For MSA, the case is totally different and as we discussed above that the rule is so strict that all foreign ICCs should be declusterized. In case of any anomalies occur (see Al-Qinaii 2000: 15) they have to be considered as exceptional cases that are highly influenced by the indigenous dialects and by the level of education as well. The second argument is that there is a linguistic evidence against such claim. If we want to apply the MSA morphosyntatic rule of "*?al-*prefixation" (where *?al-* is the definite article meaning 'the') to the loanword *sta:d* stated by Al-Qinaii, we get the unacceptable word **?al-sta:d*, and of course the correct alternative is *?al-?ista:d*, i.e. by prefixing the prosthetic syllable *?i-* to the word before adding *?al-*.

Thus, it can be inferred that accepting ICCs in MSA borrowings may cause many problems which, in turn, may lead to linguistic complexity. Another linguistic support drawn from my personal observations is related to the fact that English vocabulary with ICCs represents areas of interference to untrained Arabic learners of English in most Arab educational institutions. They usually and unconsciously insert a short vowel and break the ICCs of many English words. Finally, it can be concluded that the non-existence of ICCs in MSA native

syllable patterns is marked as one of its language-specific characteristics. Consequently, the repeatedly ICCs split of English loanwords in MSA is a matter that is related to the very phonological and morphological structure of Arabic (i.e. MSA), the change of which becomes impossible. Despite the fact that MSA has already incorporated a lot of foreign items into its lexicon as a response to the need-filling motive, to use Hockett's (1970) terms, this should not be utilized as a justification to modernize the language by wrong means, i.e. by altering or modifying its basic structure. The natural reaction towards the incoming items is rather to adapt them so as to conform to MSA morphophonemic structure.

5. 2 Syllabic consonant conversion

Vowels in English (both pure and diphthongal) typically behave as the nuclei (i.e. peaks) of the syllable and are assigned the feature [+syllabic]. Furthermore, the sonorants /l̩/, /m,/ and /n̩/ may also constitute the peaks of some types of final syllables as in English words like 'little', 'racism' and 'mutton', respectively. These consonants become [+syllabic] and labeled as syllabic consonants. In the context of MSA syllables, however, [+syllabic] is only granted to the vowels and never to consonants which, as a result, never occur as syllabic consonants.

The syllabic consonants found in some English loanwords are, therefore, converted into non-syllabic ones. In other words, each syllable whose peak is a syllabic consonant is changed to a syllable with a vowel as the syllable nucleus and the syllabic consonant as its coda margin, as in (8) below:

(8)   a.   *di:zil* < /di:zl̩/ 'diesel'

                ni:kil < /ni:kl̩/ 'nickel'

                ka:bil < /keɪbl̩/ 'cable'

                mu:di:l < /modl̩/ 'model'

        b.   *dijital* < /dɪdʒɪtl̩/ 'digital'

                ṣ*andal* < /sændl̩/ 'sandal'

                kirista:l < /krɪstl̩/ 'crystal'

        c.   *kartu:n* < /kɑ:tn̩/ 'carton'

The epenthetic vowel is either *i*, as in (8a), *a* as in (8b), or *u* as in (8c) whose quality is influenced by the spreading vowel in the preceding syllable, hence the vowel harmony occurs as in (8a-b) (both vowels in each case are front) except in *mu:di:l* (8a) and *kartu:n* (8c). The influence of English orthography (i.e. spelling) is evident, particularly in (8 b-c) wherein the quality of the intrusive vowel is affected by the vowel letters of English final syllables.

The process of English syllabic consonant conversion can be couched in the form of a general rule in (9), (C, refers to the syllabic consonant):

(9)   Eng.   MSA

{C}   →   *{VC}*

        Among the total number of the adapted syllabic consonants (8 cases as in (8)), the sonorant /l̩/ constitutes the sizeable number (7 cases (8a-b)) with only one case of the sonorant /n̩/ (8c). The syllabic sonorant /m̩/ is attested in one word, viz. *ru:mati:zm* from the English /ru:m∂tızm̩/ 'rheumatism'. It is, however, an exceptional case to the rule in (9) where the syllabic /m̩/ is somewhat maintained and partially dealt with as a final consonant cluster, i.e.-*sm*. Alternatively, the English syllabic /m̩/ is deleted so that we get the loan form *ru:mati:z.*

5.3 Consonant lengthening
The technical term for consonant lengthening or doubling is usually known as "gemination". Blanc (1952) defines it as "the prolongation of the continuants and a longer closure of stops" (quoted by al-Ani 1970: 77). As it has been discussed earlier that geminates are so abandunt in MSA and occur word-medially and word-finally with the former being the most frequent.

        In MSA loanwords, the germinates usually occur word-medially and, of course, intervocalically. The lateral *l*, and the semi-vowel *y* are the only geminates found in MSA loanword data as can be seen in (10):

(10)   *ġurilla* < /g∂rıl∂/ 'gorilla'

        fanilla < /flænl/ 'flannel'

        millimitr < /mılımi:t∂/ 'millimetre'

        millilitr < /mılıli:t∂/ 'millilitre'

        filla/villa < /vıl∂/ 'villa'

        ʔayyun < /aıon/ 'ion'

        There is one case in which the geminate *n* occurs word finally. It is the loanword *ṭann* from the English 'ton'. The gemination taking place here is in analogy with native words like *ħadd* 'boundary, limit, penalty', *ṭall* 'drizzle, dew'.

        It is convenient here to point out that consonant lengthening is treated as a syllabic phenomenon by many linguists. Al-Ani (1970: 77) refers to it as "identical clusters", and in Danesi's Model of Loanword Nativzation it is classified as one of the syllabic repatterning mechanisms. Danesi (1985c) provides a phonological evidence to such classification. Referring to Ingria (1980), Lefen (1980), and Stemberger (1984), he argues that:

> In terms of syllable structure, the doubling process (i.e. gemination) can be explained by positing that length is a nonsegmental feature … It belongs to what Clements and Keyser (1984) call the CV-tier. The double consonants are, it would seem, ambisyllabic constituents filling two non-nuclear positions in a syllabic tree.   (Danesi 1985c: 37)

The following metrical tree in (11) is given by Danesi for the English loanword 'fatto' fact' in Italo-Canadian, an Italian variety spoken in Canada ($ = syllable boundary):

11)

Segmental tier

CV-tier

```
          $                    $
        / | \
       C  C V  C    C          V
       |    |   \   /          |
       f    a    t:            o
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In loan forms, and also in native words, a geminate occurs within a single morpheme, and is, therefore, called, in Hayes' terminology, "true geminate" as opposed to "fake geminate" which takes place across morpheme boundary. Moreover, true geminate cannot be broken up by epenthesis or metathesis rules (Hayes 1986: 327). The split of the geminate *-ll-* in *fanilla*, for instance, by an epenthetic vowel results in the unacceptable **fanilila*. The true geminate like *-ll-* in loanwords can be presented as in (12).

(12)   C   C
                \   /
                 l:

However, where the syllable boundary is concerned, the first member of the doubled consonant occurs as a coda of the preceding syllable, and the second always as an onset of the following syllable.

The syllabic repatterning mechanism in English loanwords may be illustrated by analyzing two arabicized items, i.e. *ġurilla* and *?ayyu:n* cited in (10) above in terms of metrical trees as can be seen in (13) below:

(13)   a. *ġurilla < g∂rıl∂*

English Form   Arabicized Form

```
  $      $      $              $      $      $
 /|\    /\    /\             /\     /|\    /\
C V C  V C   V             C  V C  V C C   V
|  | |  | |   |            |  | |   | \ /   |
g  ∂ r  ı l   ∂            ġ  u: r i  l:    a
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b. *?ayyu:n* < aɪ'ɒn

       English Form   ***Arabicized Form***

    aɪ ɒ   n   *?* *ay:*   *u:* *n*

The fact that geminates in Arabic performing a morphological and semantic function has nothing to do with geminates in loanwords. An explanation for the point could lie in the fact that these functions are related to gemination that is pertained to certain morphological patterns of native morphemes that do not follow in the available loanword data. As a sort of example at point is the doubling of the second consonant of MSA tri-consonantal verbal root *faɛal-* or/and the doubling of the second consonant plus the lengthening of the second vowel (vowel germination) of the same pattern. This yields the morphological patterns *faɛɛal-*, and *faɛɛa:l*, respectively. The output is so productive as can be observed in (15) and which is not applicable to loan forms:

(14)   ***faɛal-***   ***faɛɛal***   ***faɛɛa:l***

       ?akal-   *?akkal-*   *?akka:l*

       'to eat' 'to feed'   'one who eats much'

       rasam- _____   *rassa:m*

       'to paint'   'a painter'

       đaħak-   *đaħħak-*   *đaħħa:k*

       'to laugh   'cause to laugh' 'one who laughs/ makes others laugh much'

       jamad-   *jammad-*   _____

       'to freeze'   'cause to freeze'

Thus, the presence of the germinates in loan words of MSA is merely stimulated by the tendency on the part of Arab speakers to assign such characteristic to loans as a mechanism of nativization.

5.4 Vocalic glide insertion

MSA disallows the combination of two (or more) different vowels in its phonotactics; this constraint suggests that a nucleus of MSA syllable is always composed of a single vowel and never be a sequence of different vowels.

The expression "different vowels" in the previous paragraph should not be understood as to otherwise state that a sequence of two "similar vowels" might exist in MSA syllable structure. Rather, the only implication the expression may have is that "long vowels (in their underlying forms) can be considered as sequences of two identical vowels" (Mahadin 1996: 44-5).

To avoid the occurrence of two (or more) vowel sequences in MSA borrowings from English, MSA resorts to a phonological rule at work in order to alter such unacceptable sequences to acceptable ones; that is the rule of vocalic glide insertion.

5.4.1 Vocalic glide insertion rule

The types of vowel sequences that found in English loanwords, and which are subject to the rule of vocalic glide insertion are mentioned in (16) below:

(15)   a. two pure vowels such as /ɪɒ/, /ʊe/ /ɪæ/, etc.,

          b. a diphthong such as /ɪ∂/, /ɔɪ/, etc and,

          c. a diphthong + a vowel such as /ɪ∂ʊ/, /aɪɒ/, etc.[10]

Now, consider the following examples:

(16) a. *?ulu:mbiya:d* < /∂ʊlɪmpɪæd/ 'Olympiad'

         jiyu:lu:jiya < /dʒɪ'ɒl∂dʒɪ/ 'geology'

         ?infiluwanza < /ɪnflu'enz∂/ 'influenza'

         kalsiyu:m < /kælsɪ∂m/ 'calcium'

     b. *ra:diyu:* < /reɪdɪ∂ʊ/ 'radio'

         malu:riyu < /m∂le∂rɪ∂/ 'malaria'

         fi:diyu:< /vɪdɪ∂ʊ/ 'video'

         kafiti:riya < /kæf∂tɪ∂rɪ∂/ 'cafeteria'

The vocal glide insertion rule is applied in a total of 28 cases in the loanword data. The intrusive glide is either *y* (the most frequent= 26 cases) or *w* (very rare = 2 cases), and that is determined by the spreading of the preceding vowel, i.e. it is a back glide *w* after a back vowel as the last example in (16a) and a front guide *y* after a front vowel as the rest of examples in (16).

The split of vowel sequences by means of a vocalic glide in English loanwords can be couched in a form of a rule in (17).

(17)   English   MSA

         {VV}   →   {VGV} G = the glide *y* or *w*

The intrusive glide should not be treated as a member of a diphthong. If we analyzed it as such, we would have a sequence of two vowels (the created diphthong plus a vowel, preceding or following it). The alternative and adequate analysis is that the glide of the rule in (17) can safely

be considered as a separate consonant (i.e. semi-vowel) whose function is to break the unpermitted vowel sequences in MSA loans.

This observation also operates in some cases where the vocalic glide replaces the first element of the English vowel sequence as in *?i:dyulu:jiyyah* from /aɪdɪ'ɒɪ∂dʒɪ/ 'ideology' and *fisyulujiya* from /fɪzɪ'ɒl∂dʒɪ/ 'physiology' or sometimes substitutes a diphthong as in *hirwi:n* from /her∂ʊɪn/ 'heroin'.

The glottal stop? and the glide *h* may have the same function of the vocalic glide as stated by the rule in (17). The former may be inserted to break vowel sequences within words, while the latter is inserted when the MSA bound plural morpheme *-a:t* is suffixed to singular loanwords ending with the vowel *u:* as in *si:na:riyu:-ha:t* (pl.) 'scenarios' and *ša:mbu:-ha:t* (pl.) 'shampoos'.

6. Conclusion

The analysis has revealed that the foreign items are adapted at the syllabic level. This would mean that not only do the speakers of MSA replace the exotic English phonemes by familiar MSA ones (the segmental adaptation), they also reorganize the way the sounds are arranged to conform to MSA phonotactics. The phonological analysis serves a very significant pedagogical purpose of drawing the attention of English teachers in the Arab homeland to most of the predictable linguistic interferences by bringing home to them the contrastive aspects of the phonology of Arabic and English. The syllabic analysis of English borrowings in MSA has revealed the following areas of interference which English teachers should take into account when introducing English to Arab learners of English: English ICCs (initial consonant clusters) may be repeatedly declusterized by the students because they are lacking in the MSA phonetic system as discussed above. The absence of gemination in English may represent another area of interference. For instance, The English sounds /m/, /d/, l/, /t/ in words like "common", "sudden", "pillar", "butter", etc. may be considered as geminates by Arab learners of English and mispronunciations as /kɒ**mm**∂n/, etc. may repeatedly occur. In addition to the influence of the Arabic gemination, this is partially affected by the orthographic form of English.

7. Notes

1. For reading convenience, the following phonetic symbols are used in the transliteration of Arabic words (both native and borrowed):

?	*glottal stop (ء)*	*ħ*	*voiceless pharyngeal fricative (ح)*
x	*voiceless uvular fricative (خ)*	*ṭ*	*emphatic voiceless denti-alveolar plosive (ط)*
ġ	*voiced uvular fricative(غ)*	*ṣ*	*emphatic voiceless alveolar fricative (ص)*
š	*voiceless palatal fricative(ش)*	*j*	*voiced lamino-palatal affricate (ج)*

   q   *voiceless uvular plosive*   *đ* *emphatic voiced denti-alveolar plosive*
   (ق)   *(ض)*

2. In MSA orthography, gemination is indicated by the optional diacritic symbol [w] (*?at-tašdi:d*) rather than by doubling the consonant.
3. One of the universal principles of syllabification is that every [+syllabic] segment is placed in nucleus of a syllable. Consequently, the number of syllables in any particular utterance is equal to the number of [+syllabic] segments in that utterance (Kahn 1976 – as quoted by Abu-Salim 1998: 296).
4. Mahadin (1996) claims that there are six syllable patterns in Arabic, rather than the five patterns cited in (2). He adds the long closed syllable /CV:CC/. This pattern, however, never exists in MSA.
5. The MSA loanword *?al-kunturu:l* from English 'control' has come to mean 'a section or department of examination/evaluation in school, university, or even in the Ministry of Education' in many Arab countries such as Egypt, Yemen, etc. This particular meaning, which does not exist in English, has most probably undergone a partial semantic shift, i.e. the word *?al-kunturu:l* has taken on a partially new but related meaning.
6. In the Egyptian dialect, however, an anaptactic /i/ is insertedafter /k/ in the loan /*banknu:t*/.
7. The last two examples in (6) are also reported in Shahin (1986: 322).
8. In older loanwords from Greek, Latin and other languages, the mechanism in (6b) is the most frequent and is followed in loanwords like (see Ali 1987: 108).
       i. *?afla:ṭu:n* < 'plato' (Greek)
      ii. *?isṭabl* < 'stable' (Latin)
     iii. *?uṣṭu:l* < 'fleet' (Greek), etc.
9. The term 'Al-Sham' refers to the following Arab countries: Palestine, Syria, Jordan and Lebanon.
10. Sometimes one-vowel element is omitted to avoid the two-vowel sequences. The case at point is the omission of /∂/ in the English sequence 'diphthong +∂' like /∂ı∂/ and /aY∂/ as in *fayru:s* from /vaı∂r∂s/ 'virus'.

About the author:
Anwar A. H. Al-Athwary is an assistant professor at the Department of English, Faculty of Science and Arts, Najran University, KSA. He received his B. A. in English from Taiz University, Yemen, and his M.A. in Linguistics from Jawaharlal Nehru University, India. He got his Ph.D in Contact Linguistic and lexical borrowing from Aligarh Muslim University, India. He has been lecturing there since 1996. His special areas of interest are contact linguistics, phonetics and phonology, linguistic landscape, and translation.

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