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THE ADAPTATION OF LOANWORDS IN CLASSICAL ARABIC: THE GOVERNING FACTORS

Noor M. Bueasa
University of Kentucky, no0or-_-11@hotmail.com

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THESIS

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By

Noor Mohammed Bueasa

Director: Dr. Gregory T. Stump, Professor of Linguistics

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ABSTRACT OF THESIS

THE ADAPTATION OF LOANWORDS IN CLASSICAL ARABIC: THE
GOVERNING FACTORS

Loanwords are integrated into Classical Arabic from various languages such as Latin,
Greek, Persian, Syriac, Turkish, and others. When such words get borrowed into Arabic,
they either get adopted, remaining as they are in the source language, or get adapted by
undergoing certain phonological and morphological alterations. Such
morphophonological changes would be defined within an adaptability scale which
exhibits three different positions. The first position is occupied by merely adopted (MA)
loanwords, like *khurasān* 'cement' (Persian), the second position is assigned for partially
adapted (PA) loanwords, as *shatarandj* 'chess' (Persian *chatrang*), and the third position
is for the fully adapted (FA) loanwords, like *dirham* 'a silver coin' (Greek *dhrakhmi*)
which is analogical with the $C_1iC_2C_3aC_4$ pattern, as in *hidjradj* 'naïve'. Among these
various loanwords' alterations, the most productive ones are the ones in the third position
in the adaptability scale and they are the ones that are the most numerous. They are
productive due to their conformity with the Arabic morphological patterns in contrast
with the other ones. Many studies have been conducted to analyze the
morphophonological alterations that loanwords in Arabic undergo, yet there hasn't been a
study conducted to investigate the factors governing the degree of integration or
adaptability that loanwords in Arabic undergo. The current study, however, proposes a
number of criteria that determine the degree of alteration that loanwords in Classical
Arabic go through by analyzing an existing corpus of loanwords in Classical Arabic and
comparing between the source language and the Arabic language.

KEYWORDS: MA loanwords, PA loanwords, FA loanwords, adoption,
adaptation, adaptability scale

Noor Mohammed Bueasa

4/22/2015

THE ADAPTATION OF LOANWORDS IN CLASSICAL ARABIC: THE
GOVERNING FACTORS

By

Noor Mohammed Bueasa

<div style="text-align:right">

Gregory Stump

Director of Thesis

Gregory Stump

Director of Graduate Studies

4/22/2015

Date

</div>

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"He who doesn't thank people, he doesn't thank Allah (God)**."**

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Section 1: Introduction

Loanword or lexical borrowing is a term used to refer to the process by which a word is being transferred from one language, the source language, into another, the recipient language. Yet, this definition is too general because it doesn't state what is transferred into the recipient language. To illustrate, the process of borrowing may include lexemes, morphological patterns, syntactic patterns, or semantic patterns. For example, some languages might borrow morphological patterns; thus, in borrowing the Greek word *phenomenon*, English also borrowed its plural morphology (*phenomena*); similarly, the English borrowing *algebra* preserves the definite marking of its source, Arabic *al-djabir*. Furthermore, some languages borrow syntactic patterns like English borrowing of French word order, such as the French noun- adjective form, as in *attorney general*. In addition, others borrow semantic patterns, like German which borrows the meaning of *head* 'the main word in a phrase' from English incorporating it into its word *Kopf* 'head'.

Words when being borrowed into the recipient language are either getting adopted or adapted. Adoption is a term used to refer to the process of borrowing words from the source language, yet keeping the loanwords' original form and pronunciation as it is in the source language, as if the word is getting copied from the source language and pasted into the recipient language. Such adopted loanwords are sometimes called *foreignisms*. Examples of such adopted words can be seen in English which borrowed *café* 'coffee' from French and *kindergarten* 'children's garden' from German. In contrast, adaption refers to the process where loanwords undergo certain phonological, morphological, syntactic, or orthographical alterations. For example, English *virus*, when integrated into Arabic was phonologically changed into the Arabic *fāyrus*, that is, English /v/ is changed

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into /f/ in Arabic which is due to the lack of such phoneme in Arabic; French *metre* 'meter' was integrated into Arabic morphological patterns, which gave rise to the plural form *amtār*; and French *chauffeur*, when borrowed into Spanish, was orthographically altered as *chofer*.

1.1. Loanwords in Classical Arabic

Loanwords are incorporated into Classical Arabic from various languages, such as Latin, Greek, Persian, Syriac, Turkish, and others. The development of Arabic was enhanced by such borrowings which are mostly unavailable in Arabic, thus getting adapted or adopted into Arabic. Though it was exposed to various foreign languages, it was able to preserve its identity. Nevertheless, Arabic philologists see that before integrating a foreign word into Arabic, Arabic speakers would often rather coin a word, as they did for the English word *microscope* which is realized in Arabic as *midjhar*, and *radio* which gets the coined word *mithyāʕ* in Arabic. However, there are more loanwords than coinages in Arabic. Ancient Arabic philologists used various terms in referring to loanwords, including *al-gharīb*, *addakhīl*, and *al-aʕjami* 'foreign'. However, the most common terms for referring to loanwords in Arabic were *al-muʕarrabāt* 'Arabized loanwords' and *al-muwalladāt* 'neologisms'. Generally speaking, *al-muʕarrabāt* are Arabized or fully-assimilated loanwords that were borrowed before the middle of the second century A.H. or what is commonly known as *ʕsr al Ihtidjadj* 'authoritative age' while neologisms are words that were borrowed thereafter (Al-Qanini 2000). Ancient Arabic philologists refer to the process in which loanwords in Arabic undergo phonological and morphological modifications to fit into the Arabic phonological and

morphological patterns as *taʕrīb* 'Arabization'.   However, loanwords that don't get altered either phonologically or morphologically are considered foreign.

Section 2: Loanwords' Classes in Classical Arabic

Loanwords in Arabic have been classified by Al-Kāruri (1986), an Arabic philologist, into three classes:

a- loanwords which undergo neither segmental nor analogical alterations

Kurkum 'turmeric', *khurasān* 'cement' (Persian), *Ɂibrahim* 'person name' (Hebrew)

b- loanwords which undergo segmental alterations but no analogical alternations

shaṭrandj 'chess' (Persian *chatrang*), *djund* and *qund* 'testicle' (Persian *gund*)

c- loanwords that undergo both segmental and analogical modification to correspond to Arabic word patterns.

dirham 'a silver coin' (Greek *dhrakhmi*) analogical with *hidjradj* 'naïve' ($C_1iC_2C_3aC_4$)

dīnār 'money' (Latin *denarius*) analogical with *dīmās* 'toilet' ($C_1i:C_2a:C_3$)

Section 3: Arabic Phonology Briefly

Standard Arabic is the language that is used in the Holy Qur'aan, newscasts, formal writings and speeches. It has 28 consonants and their long correspondents that are marked with *shaddah* 'gemination', and three basic vowels: /a/, /i/, and /u/ and their corresponding long variants: /ā/, /ū/, and /ī/. Generally speaking, Arabic is characterized by its guttural consonants, including the laryngeals /Ɂ/ and /h/, the pharyngeals: /ʕ/ and /ḥ/, and the velar fricatives /kh/ and /gh/.

Table 1. Arabic IPA

Arabic IPA Chart										
	Bilabial	Labiodental	Dental	Alveolar	Palatalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Stop	b		t tˤ	d dˤ				k g	q		ʔ
Nasal	m			n							
Trill				r							
Tap or flap				ɾˤ							
Fricative		f	θ ð ðˤ	s sˤ z	ʃ		ʒ		χ ʁ	ħ ʕ	h
Lateral fricative					dʒ						
Approximant	w						j				
Lateral approximant				l ɫ							

Section 4: Arabic Morphology

Arabic is a highly inflected language. It is identified by its rich non-concatenative morphology. Nouns in Arabic get inflected for person (1st, 2nd, 3rd), gender (masculine, feminine), number (singular, plural), and case (nominative, accusative, genitive). There are eight major grammatical categories in Arabic: tense/aspect, person, voice, mood, gender, number, case, and definiteness. Tense/aspect, person, voice, mood, gender, and number apply to verbs while nouns and adjectives inflect for gender, number, case, and definiteness. Pronouns, however, inflect for person, gender, number, and sometimes case.

4.1. Arabic Word's Structure

Words in Arabic are built upon morphological patterns known in Arabic as *ʔawzān*. Patterns are templates that include sequences of consonants and vowels. To identify the morphological pattern (*wazin*) in Arabic, Arabic scholars use the root *faʕal* 'did', which consists of three consonants. Such morphological patterns help in determining which consonants in a word are basic radicals and which are not. A number of words can be formed from one root by following particular patterns and attaching affixes and clitics to them. For example, the words: *kitāb* 'book', *kutub* 'books', *kātib* 'writer', *kuttāb* 'writers', *ya-ktub* 'he writes', *ta-ktub* 'she writes ', etc. are all derived from the root *k-t-b*. The patterns that these derived words follow are associated with various semantic and morphological features. Through the derivation process, the basic root consonants may undergo some significant changes, such as assimilation, deletion and gemination.

Section 5: Literature Review

Haspelmath (2009) has defined loanword or lexical borrowing as a word that has been integrated into a language's lexicon through a process of borrowing or transfer. His Loanword Typology project is the first research project that aims at addressing the issue of lexical borrowing typologically. He makes a distinction between two types of borrowing; material borrowing and structural borrowing. Material borrowing refers to the copying of "sound-meaning pairs" such as lexemes or particularly lexemes' stems, affixes, or the whole phrase whereas structural borrowing refers to the borrowing of syntactic patterns, morphological patterns, or semantic patterns.

Haspelmath also illustrates the term "adaptation and integration of loanwords". He states that a loanword in any language is adapted if it has phonological, morphological, syntactic and orthographic properties that don't conform to the recipient language structure. He illustrates that by giving examples from Russian and French. For instance, the French word *résumé* [ʁezyme] 'summary', when integrated into the Russian language, gets altered into *rezjume* in which the French /y/ gets replaced by the Russian /ju/ due to the lack of such front rounded vowel in Russian. Furthermore, because French has grammatical gender, the English word *weekend*, which is genderless in English, gets the default masculine gender (*le weekend*) in French. Haspelmath also points out that the degree of adaptation varies according to certain factors, such as the age of the loanword, speakers' knowledge of the donor language and their attitude toward the donor language. If the speaker knows the donor language well, he may keep the loanword's pronunciation as it is and may borrow inflections. For example, English borrowed the plural forms of Greek and Latin words such as *fungus*/*fungi*, *crisis*/*crises*. All in all, Haspelmath's focus was on lexical borrowing in general sense and basic concepts and issues about it rather than studying loanwords in individual languages.

Considerable research, however, has been devoted to study loanwords in individual languages. For instance, loanwords in Arabic and the phonological and morphological modifications incorporated into them has been an issue tackled by many Arabic philologists. Sibawayh (1317 A.H.), an ancient Arabic grammarian, points out that "The Arabs change those foreign words which are absolutely incongruous with their own, sometimes assimilating them into the structure of their words, and sometimes not." In this quote, Sibawayh maintains that loanwords are remodeled to conform to the Arabic

word patterns by ways of assimilation for instance. He also claims that the Arabs often leave a noun intact when its phonology is like theirs, whether it has an Arabic structure or not as in the case of *khurasān* 'cement', *khurram* 'trees' plant', and *kurkum* 'tumeric'. Briefly, Sibawayh was focusing on analyzing and describing loanwords rather than issuing rules for their integration into Arabic patterns.

On the other hand, Al-Farra, who holds a different view from that of Sibawayh and his followers, states that a Persian loanword should be patterned in accordance with the Arabic morphological patterns (Al-Jawālīqy1969). Al-Harīri similarly believes that altering a loanword to conform to Arabic patterns is a must (Al-Kārūri 1986).

There were other classical philologists as well who have similar views to that of Sibawayh; such as Ibn Sayeda (1898), Al-Khafāji (1951) and Al-Jawālīqy (1969). For his part, Al-Jawālīqy (1969) marks the modifications that loanwords might have by using similar phrasing as that of Sibawayh "they may transform the patterns of Persian words into Arabic counterparts by replacing, adding or deleting a segment or changing the vowels, or they may leave the segment intact." For example, Arabic speakers change the /k/ into its Arabic counterpart /dj/ as in the case of Persian *kawrab,* which is changed into *djawarab* 'sock'; similarly, the /sh/ in Persian *dasht* is replaced by /s/ in the borrowing *dast* 'desert'. Al-Jawālīqy also assigns a chapter for words that are identified as foreign words in Arabic through their sounds' sequence. For instance, he claims that the /n/ in Arabic is never followed by /r/, hence, a word like *nardjis* 'narcissus' is not an Arabic word but rather a borrowed one. His book *Al-muʕarrab min Al-kalam Al-Aʕdjami* is divided alphabetically into chapters that include loanwords with their source language forms. Yet, there are a number of loanwords whose origins and source language's forms

are not identified, which makes it difficult to follow the changes that such loanwords have undergone.

Like Sibawayh, Al-Kārūri (1986) classifies loanwords into three categories: loanwords which undergo neither segmental nor analogical alterations, loanwords that undergo segmental alternations but no analogical alterations, and loanwords that undergo both segmental and analogical modification to correspond to Arabic word patterns. In his book *Al-taʕrīb fi ḍawʔ allughaha*, he tackles many issues regarding loanwords in Arabic. Among these issues is the issue of changing loanwords to fit into the Arabic morphological patterns and the Arabic philologists' viewpoints about such changes. Al-Kārūri demonstrates that most loanwords in Classical Arabic get altered to conform to the Arabic patterns. Yet, he maintains that it's not mandatory for loanwords to conform to Arabic patterns and supports that by giving examples of loanwords in Classical Arabic that get segmental alteration but no analogical alterations: Syriac/Hebrew *ʔishmāwīl > ʔismāʕīl* 'proper name', Persian *Pirind > birind/firind*, Persian *chatrang > shaṭrandj* 'chess', and so on. He also gives examples of loanwords that remain intact such as Persian *khurasān* 'cement', Hebrew *ʔibrahīm* 'person name', and others. Nonetheless, he prefers altering loanwords in correspondence with the Arabic patterns rather than keeping the loanword's foreign pattern. He believes that the less linguistic taste the Arabs have, the more foreign words enter the Arabic lexicon with no alteration.

Other philologists like Al-Harīri (1122 AD) and Al-Jawhari (1005 AD) claim that loanwords should be modified in accordance with the phonological and morphological patterns of Arabic. Al-Harīri believes that loanwords that don't correspond to the Arabic patterns cause the language to degenerate. He lists a number of loanwords that fail to

conform to the pattern of Arabic; examples are *dastūr* 'law', *sardāb* 'basement', *shaṭrandj* 'chess' (Persian), and so on. He claims that Persian *dastūr*, for example, has the $C_1aC_2C_3u{:}C_4$ pattern, which is a foreign pattern, thus, *dustūr* 'law', which is analogical with the $C_1uC_2C_3u{:}C_4$ pattern of *djumhūr* 'audience', must be used instead.

There have also been many contemporary studies about loanwords in Arabic by Arabic researchers. Al-Qinai (2000) provides a systematic analysis of the morphonological transformations that loanwords in Standard Arabic undergo and the typology for classifying such changes, supporting his discussion by giving a variety of examples of loanwords integrated into Arabic from such languages as Persian, Syriac, English, French, and others. His method of analyzing his data is essentially comparative. He compares the morphophonemic structure of the source language and that of the target language following the principles of classical and modern linguistics. For instance, he mentions some examples of loanwords, cited by Sibawayh in his book *Al-Kitab*, and the segmental alterations they undergo even though such segments have Arabic equivalents. For example, Persian *shrawīl* gets altered in Arabic into *sarawīl* 'pants', Hebrew/Syriac *Ɂishmāwīl* gets changed into Arabic *Ɂismāʕīl* 'proper name'. So, the change of the phoneme /sh/ into /s/, and the change of /w/ into /ʕ/ are considered as irregular changes of loanwords' sounds because such sounds exist in Arabic. He also gives examples of loanwords that get remodeled to conform to the morphological Arabic patterns such as the word *farmala* from Italian *freno*. This word undergoes various alternations to produce the required Arabic morphological quadriliteral pattern ($C_1aC_2C_3aC_4a$): the alterations include the insertion of /a/ after the initial /f/, the deletion of /e/, the change of /n/ into /m/,the change of the final /o/ into /a/, the addition of a syllable by the suffixation

of /l/, and the insertion of the final /a/. These are some of the examples of the alterations that loanwords in Standard Arabic undergo as illustrated by Al-Qinai (2000).

There are other studies, however, about loanwords in different Arabic dialects. Al-Saidat (2011) focuses on English loanwords integrated into Jordanian Arabic and the morphological modifications they go through such as gender and number inflections and the factors that play role in these alterations. He distinguishes between "loanwords" and "codeswitching" as terms. Codeswitching refers to the alternation between different languages by bilingual speakers. It differs from loanwords in the sense that codeswitches are incorporated momentarily and infrequently unlike loanwords which are recurrent and always present in the target language. He also states that words integrated into Arabic can be identified as "borrowings" or "codeswitches" based on their structure, that is, if the English loanword noun follows the Arabic inflection, it is considered as borrowed into Arabic but if it follows the English inflection, it should rather be considered as a codeswitch. Hence, he concludes that English loanwords integrated into Jordanian Arabic are considered borrowed words rather than codeswitches since they follow Jordanian Arabic gender and number inflection rather than English inflection. For example, the word *dakto:r* 'doctor' is used to refer to the masculine while when it's used for feminine it gets inflected by the addition of the vowel /-a/ as in *dakto:ra*. Also, such word gets inflected for number in accordance with the Jordanian Arabic pattern: thus, it is suffixed with /-ein/ (as in *daktorein*) when referring to the dual masculine, but with /-tein/ (as in *dakortein*) when referring to the dual feminine.

Similarly, in his paper, "Morphological Analysis of Jordanian Colloquial Arabic Loanwords" (unpublished), Abu Mathkour demonstrates the morphological alterations of

loanwords in Jordanian Arabic. His study concerns words borrowed from English and French and examines 100 words related to cars and transportation in Jordan. It focuses mainly on morphological transformations in gender, number, possession, word formation, and the definite article. For instance, when English words are integrated into the Jordanian Arabic, they are assigned either to the feminine gender through the suffixation of /-h/ (e.g. *cabin* > *kābīnih*) or to the masculine gender with the absence of any overt gender marking (e.g. *crank* > *krank*). Furthermore, loanwords in Jordanian Arabic are inflected for number: singular, plural, and dual. For example, the English word *tube* is changed into *tyūbih* to indicate the singular, *radar* is inflected by the addition of /-āt/ as in *rādārāt* to indicate plurality, and *two tanks* is altered into *tanaktīn* with the addition of /-t/, a feminine marker, and the suffix /īn/ which indicates duality. Abu-Mathkur concludes that the morphological analysis of loanwords in Jordanian Arabic shows that such loanwords are treated as if they are Arabic words.

Other researchers, like Sa'īd (2009), have attempted to prove the productivity of pluralization in Mosuli Arabic by analyzing a corpus of English loanwords that have been incorporated into Mosuli Arabic. He claims that among the three plural patterns in Arabic (the sound-masculine plural, the sound feminine plural and the broken plural), the sound-feminine plural is the most productive. The sound-feminine plural can be applied not only to the feminine nouns but also to masculine nouns ; for example, the masculine loanword *hītar* 'heater' pluralizes as *hītar-āt* through the addition of the suffix /-āt/. Similarly, the broken plural in Arabic can be applied to both feminine and masculine nouns, as in the case of the loanwords *jo:kar* 'joker' (plural *jawākir* or *jawīkir*) and *filim* 'film' (plural *aflām*). On the other hand, the sound-masculine plural is applied only to

masculine nouns and is formed by the suffixation of the marker /-īn/, as in the loanword *muhandis* (sg.) 'engineer' > *muhandis-īn* (pl.). In analyzing his data, Sa'īd uses a qualitative and quantitative approach. Through the quantitative approach, Sa'īd attempts to show how the pluralization rules are applied statistically whereas through the qualitative approach, he examines the factors that lead to the lower productivity of the broken plural and the sound masculine plural in comparison with the sound feminine plural in Mosuli Arabic.

To sum up, loanwords in Arabic, whether standard or colloquial, and the various phonological and morphological alternations they undergo have been an area of interest for many Arabic philologists and researchers. Most of the contributions discussed above demonstrate the flexibility and productivity of Arabic morphology in borrowing words from different languages, yet preserving its identity by remodeling most of these words to conform to Arabic morphological patterns and structure.

Section 6: Methodology

The morphological changes that loanwords in Arabic undergo can be defined within an adaptability scale that exhibits three different positions. The first position in the scale is that of MA loanwords, which undergo no alteration but rather keep their source language's form and pronunciation as it is. The second position, however, is that of PA loanwords, which undergo phonological changes but no morphological alterations. Finally, the third position in the adaptability scale is that of FA loanwords, which undergo both phonological and morphological changes to conform to Arabic patterns. This adaptability scale coincides with a productivity scale that ranges from the least

productive loanwords to the most productive. In this regard, the most productive loanwords are the ones in the third position in the adaptability scale and are the ones that are the most numerous. They are more productive due to their conformity with the Arabic morphological patterns. On the other hand, the least productive are the ones in the first position of the adaptability scale and they are the ones that are fewest in number. Lastly, in-between these two positions is the second position whose loanwords are considered partially productive. All in all, though there have been a number of studies analyzing the morphological alterations that loanwords in Arabic undergo, there hasn't yet been a study that investigates the factors that determine the degree of adaptability of loanwords in Arabic.

In this thesis, I provide an analysis of the factors that must be assumed to play a role in the alterations that loanwords in Arabic undergo. I develop this analysis by means of a canonical approach, in which loanwords in Arabic may be classified according to whether they conform to various canonical patterns, and if not, according to the direction and extent of their deviation from these patterns. This approach has been used by many linguists, such as Spencer 2005, Stump 2005, Corbett 2008, and others, in which it proved to be helpful in tackling various topics in morphology. "An effect of this approach is to separate out coincidental overlaps in the examples that exist; we may then start to ask which characteristics happen to be the way they are and which have to be the way they are" (Corbett 2007). Finally, I analyze the factors that govern the varying morphological patterns of FA loanwords in Arabic.

Section 7: The Governing Factors for Loanwords' Varying Degrees of Adaptability

7.1 Linguistic Factors: the Criteria for Canonical alterations of Loanwords in Arabic within the Adaptability Scale

1. Canonically, words whose phonological structure doesn't conform to the Arabic phonological structure exhibit some degree of adaptation, that is, they either get partially or fully adapted.

One of the causes of a sound disharmony in Arabic is if a word's segments are very close to each other in the articulatory position, like the pharyngeals /ʕ/ and /ħ/ or very far like the /dj/ and /q/. That is, you can't see in Arabic a trilateral root that contains three segments that are close to each other in regard to the position of articulation, yet you can find two segments of a word that are near in articulation like the laryngeals / ʔ/ and /h/ in *ʔhal* 'relatives' and the /ʕ/ and /h/ in *ʕahd* 'commitment/age'(Al-Kārūri 1986, pp.353) .Also, the segments that are close to each other in articulation are preferred over the far ones in a word. Thus, if Arabic encounters words that have such a thing, it tries to reduce such disharmony by altering particular sounds. Some philologists attribute the existence of morphophonological patterns in Arabic to the tendency of Arabic speakers to achieve easiness of utterance and harmony.

The loanwords, listed in Table (2), exhibit a phonological structure that doesn't correspond to the Arabic phonological structure, hence; they get adapted. To illustrate, Greek *dhrakhmi* has been altered into *dirham*. To avoid the consonant cluster in the word's first syllable, the vowel /i/ is inserted in between the two consonants /d/ and /r/. It is also the same case with the other words in Table (2): each starts with a consonant

cluster that is contrary to Arabic phonotactics. In Arabic, consonant clusters never occur syllable-initially, that is, they are only allowed word-finally. Hence, to avoid syllable-initial consonant clusters, a vowel is inserted in between the consonants, as in (1), or at the beginning of the word after the /ʔ/, as in (2), (3), and (4). So, such examples are canonical according to Criterion 1.

Table 2. Examples of canonical loanwords according to Criterion 1

Loanword's form	Origin	Arabized form
1- *drakhmi*	Greek	*dirham* 'money'
2-*klīlo*	Syriac	*ʔiklīl* 'crown , wreath'
3- *hlīla*	Persian	*ʔihlīlidj* 'myrobalan'
4- *klīma*	Greek	*ʔiqlīm* 'region'

Nonetheless, there are a few numbers of loanwords that are noncanonical with respect to criterion 1. For example, the words: *ṣawladjān* (from Persian *chawlagān*) 'mace, hockey stick' and *djaṣ* (from Greek *gypsos*) 'plaster' are noncanonical because their phonological structure doesn't conform to Arabic phonotactic structure: each contains the phonemes: /ṣ/ and /dj/ which never appear together in a native Arabic word. Similarly, the phonemes: /dj/ and /q/ don't appear together in native Arabic words; words like *mandjanīq (*Persian *mandjanīk*) 'mangonel ', and *djawsaq* (Persian *kūshak*) 'small palace' are therefore considered noncanonical according to Criterion 1. In the same way, the word *ṭādjin* from Greek *tighnon* 'frying pan' includes the two phonemes: /dj/ and /ṭ/ which ordinarily never occur together in the same word; thus, this word too is noncanonical according to Criterion 1.

2. Canonically, words whose stress pattern doesn't conform to the Arabic stress pattern are either fully or partially adapted.

The stress pattern seems to play a significant role in the alterations undergone by loanwords into Arabic. Every language has its own system in assigning stress. In Arabic, the stress always occurs on the next to the last syllable. Thus, when a loanword has stress in a different position, a stress shift occurs, possibly accompanied by other modifications, such as vowel lengthening, a phoneme deletion, or consonant doubling. For example, the /a/ in Persian *lūbyah* becomes /ā/ *in lūbyāʔ* 'bean', /i/ in Greek *kandila* becomes /ī/ in *qandīl* 'lantern'($C_1aC_2C_3i:C_4$), and /u/ in Greek *chimos* 'proper name' becomes /ū / in *khīmūs*. Furthermore, when the stress of loanwords like Persian *dukān* and *turādj* shifted into the ultimate syllable, the resulting forms, *dukkān* 'store' and *durrādj* 'pheasant' ($C_1uC_2C_2a:C_4$) exhibit gemination of /k/ and /r/. Another example of stress shift can be seen in Greek *keramis* which becomes *qirmīd* 'tile' in Arabic, that is, /a/ is omitted and /i/ is lengthened into /i:/, eventually, the stress moves to the ultimate syllable. In each of these cases, stress shift brings the borrowing into conformity with the Arabic stress pattern.

3. Canonically, words whose phonology follows a segmental pattern that has a particular function in Arabic morphology tend to dissimilate from that pattern if they are incompatible with that function.

For example, Persian *zāghir* 'a bird's name' has a morphological pattern ($C_1a:C_2iC_3$) that exists in Arabic. Because this is a pattern that is ordinarily reserved for agent nouns (*kātib* 'writer', *ʕāmil* 'worker', etc.), *zāghir* is put into a different pattern: *zaqlah*, ($C_1aC_2C_3a$), accompanied by different alteratins, such as the change of /gh/ into /q/ and /r/

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into /l/. Furthermore, Persian *ʔandām* 'attire' exhibits a segmental pattern that exists in Arabic but for plural nouns ($ʔaC_1C_2a{:}C_3$), such as *ʔaqlām* 'pens', *ʔalʕāb* 'toys', *ʔamthāl* 'proverbs', etc. , whose singular forms, such as *qalam* 'pen', *luʕbah* 'toy', and *mathal* 'proverb' are of triliteral roots. Therefore, such loanword get fully adapted into *hindām* ($C_1iC_2C_3a{:}C_4$) by the alteration of the initial /a/ into /h/ and the insertion of the vowel /i/ in between the /h/ and /n/. In addition, the Ethiopic word *haimat* 'tent' exhibits an ending that is used in Arabic to indicate the past and the feminine gender as in *katabat* 'she wrote', *nāmat* 'she slept', etc. So, to avoid such confusion, the word has been changed into *khaymah* according to the pattern ($C_1aC_2C_3ah$) similar to *nakhlah* 'palm tree'.

On the other hand, Persian *khurram* 'tree's plant' exhibits a pattern that exists in Arabic, as in *sullam* ($C_1uC_2C_2aC_3$) 'stair', yet getting adopted instead of getting fully adapted. Similarly, Persian *kurkum* appears with the pattern ($C_1uC_2C_3uC_4$) as in the Arabic word *qumqum* 'silver pot', yet, it remains intact. Such words are retained unchanged because these patterns are not associated with particular functions in Arabic. They are rather determined by the number of a word's consonants, that is, such patterns are one of the patterns for quadriliteral nouns.

4. Canonically, words that include foreign sounds, tend to get either partially or fully adapted by mainly replacing the foreign sounds by their nearest Arabic counterparts or farther replacements.

This is a common phenomenon that happens with loanwords in other languages. For example, the word *quṭun* 'cotton' when being borrowed by English, gets altered into [kɑtən] 'cotton' because the letter /q/ doesn't exist in English, thus, being replaced with its nearest equivalent in English which is /k/. Similarly, in Arabic foreign sounds are replaced by their nearest Arabic counterparts as the following tables show.

Table 3. Examples of canonical loanwords according to Criterion 4

Table 3.1. / p/ > /b/, /f/, or either one

Loanword form	Origin	Arabized form
parwāz	Persian	*birwāz* 'frame'
aprilis	Latin	*ʔabrīl* 'April'
pūlād	Persian	*fūlādh* 'steel'
spoŋgos	Greek	*ʔisfindj* 'sponge'

Table 3.2. /g/> /dj/, /gh/, /k/

Loanword's form	Origin	Arabized form
gumrik	Turkish	*djumrik* 'stream/creek'
augustus	Latin	*ʔaghusṭus* 'August'
sagrougo	Syriac	*sukrudjah* 'bowl , platter'

Table 3.3. /v/> /f/, /b/, /dj/

Loanword form	Origin	Arabized form
vergilius	Latin	*firīgl* 'virgil' (Roman poet; a Latin name)
ovrizon	Greek	*ʔibrīz* 'pure gold'
anchova	Spanish	*ʔanshūdjah* 'anchovis'

Table 3.4. / ch / > /dj/, /sh/, /ş/

Loanword form	Origin	Arabized form
kamāncha	Persian	*kamandjah* 'violin'
chānk	Persian	*djank* 'a lute'
chāy	Persian	*shāy* 'tea'
chak	Persian	*şak* 'contract, document'

Table 3.5. /ʒ/ >/ /z/

Loanword form	Origin	Arabized form
ʒīwa	Persian	*ziʔbaq* 'mercury'

However, there appear to be some cases of noncanonicity in regard to this criterion. To illustrate, some loanwords' sounds exist in both the source language and Arabic, yet they are being replaced by similar sounds of the same natural class. Such loanwords could have been remained intact since they include segments that exist in Arabic.

Table 4. Examples of noncanonical loanwords according to Criterion 4

Loanword's form	Word origin	Arabicized form
ʔabra	Persian	ḥabāra 'bustard'
ʔanzarūt	Syriac/Hebrew	ʕanzarūt 'glue'
ʔarbīg	Persian	narbīdj 'mouthpiece of a nargihile'
ʔandām	Persian	hindām' 'attire'
ʔakhathis	Persian	ʕaqīq 'carnelian'
trāg	Persian	drādj ' pheasant'
augustus	Latin	ʔaghusṭus 'August'
thiryakos	Greek	tıryāq 'potion'
kandj	Persian	kanz 'treasure'
djirāgh	Persian	sirādj 'lamp/light'
kag	Persian	djaṣ 'plaster'
sharāwīl	Persian	sarāwīl 'pants'
kafdjalīz	Persian	qafashlīl ' ladle'
khirba	Persian	ḥirbāʔ 'chameleon'

Changing the foreign phonemes seem not be determined by a clear rule in Arabic because the phonemes have been replaced by phonemes of the same natural class or equivalents. For instance, they replaced the loanwords' phonemes such as /ʔ/ by more emphatic sounds like the velar sounds /ḥ/ and /ʕ/, as shown in Table (4). Furthermore, the /t/ gets replaced by the voiced /ṭ/ or /d/, /dj/ is replaced by the /z/, /sh/ is replaced by

/s/, and so on. One assumed reason for replacing /ʔ/ by other sounds is its position at the beginning of a word. In Arabic, if the / ʔ / comes at the beginning of a word of a trilateral root, like in *ʔaʕradj* 'lame ', *ʔafḍal* 'better than', and *ʔadhhab* 'I go', it is considered as an added segment, not part of a word's root. So, to avoid such confusion the /ʔ/ is often replaced by other segments at the beginning of a word.

5. Canonically, words that contain inflectional markings that are foreign to Arabic exhibit a greater adaptation.

To explain, most words of Greek origin get either partially or fully adapted primarily through the deletion of their final segments, as shown in the following examples in Table (5.1). For instance, the endings: /-ion/, /-is/, /-os/, and /–on/ are the ones that get omitted from the words. We can justify that by the assumption that such endings are foreign endings that don't fit in the Arabic word structure. Hence, they might be used in the source language as suffixes that stand for a noun or something else. So, what is getting borrowed in such cases is not the full word but simply its stem which will recur throughout the word's paradigm, but the inflectional endings will vary. Such deletion of endings can be seen also in loanwords from Latin that end in either /–is/, /-ium/, or /–ius/, as the examples in Table (5.2) show. Another assumed reason behind such deletion is the tendency to minimize the number of syllables, which often results in getting disyllabic or trisyllabic words, eventually, uttering such words with less effort.

Table 5. Examples of canonical loanwords according to Criterion 5

Table 5.1. Greek loanwords

Loanword's form	Arabized form
archipelaghos	*ʔarkhabīl* 'archipelago'
fellinos	*fillīn* 'cork'
fanarion	*fanār* 'lighthouse'
kalopolion	*qālib* 'mold,model' (C_1a:C_2iC_3)
keramis	*qarmīd* 'roof tile' (C_1a$C_2$$C_3$i:$C_4$)
patrikios	*baṭrīq* 'penguin' (C_1a$C_2$$C_3$i:$C_4$)
narkissos	*narjis* 'narcissus'

Table 5.2. Latin loanwords

Loanword's form	Arabized form
canalis	*qanāh* 'canal'
palatium	*balāṭ* 'court'
centenarium	*qinṭār* 'kantar' (C_1i$C_2$$C_3$a:$C_4$)
denarius	*dīnār* 'coin money' (C_1i:C_2a:C_3)

However, this is not the case with Greek *enchelis* 'eel' that ends in /–is/, yet such ending hasn't been deleted when integrated into Arabic, that is, it remains but the vowel /–i/ gets lengthened as in *ʔanqalīs* 'eel'. So, this is noncanonical with respect to Criterion 5. The same can be seen in the Greek words *evenos* 'ebony' and *opion* 'opium' whose ending /–os/ and /-on/ remain undeleted, yet get a slight change, that is the vowel /–o/ gets altered into the long vowel /u:/ as in *ʔabnūs* 'ebony' and *ʔafyūn* 'opium'. Anyhow, we might wonder why these words' endings didn't get deleted as most words' of the same origin did. One of the assumed reasons might be that the deletion of such endings might lead to having words that are similar to other Arabic words. For example, the word *enchelis* 'eel' has been altered into *ʔanqalīs*, and if the /–is/ gets deleted, we will have the word *ʔanqal* which is similar to *ʔanqul* 'I transfer'. Also, *evenos* 'ebony' gets changed into *ʔabnūs*, and if /–os/ gets omitted, we will get *ʔabn* which is similar to the word *ʔibin* 'son'. Furthermore, by deleting the /-os/ in *ʔabnūs,* we will get a monosyllabic word *ʔabn,* which is a result that we have never seen in any of the words that undergo such deletion. The same applies on *ʔafyūn*, that is, by omitting the /on/, we will get the monosyllabic word *ʔafy,* which is unsatisfying result. Thus, it was necessary to keep the ending /–on/ in order to get a disyllabic word which is the case of most Arabized nouns in Table (5).

6. Canonically, proper names tend to be either merely adopted or partially adapted whether their structure is similar to Arabic or not.

For example, Hebrew *ʔibrāhīm* 'a name of a prophet' remains with no alternation because its letters are like those of Arabic though its structure is not found among the Arabic morphological patterns. Similarly, *burdān* 'a village near *baghdād*' from Persian *burda* 'slave' + *dan* 'container' has been left intact because its letters are familiar to Arabic as well as its structure which conform with Arabic word structure. However, there are other proper names whose sounds exist in Arabic, yet are replaced by their nearest equivalents, as in the following examples in Table (6). For instance, Hebrew/Syriac *ʔishmawīl* 'a name of a prophet' has been altered into *ʔismāʕīl* in which /sh/ gets replaced by /s/, which is of the same natural class, and the /w/ has been changed into the pharyngeal /ʕ/ which is a more emphatic sound. Similarly, the /k/ in Turkish *ʔankura* is changed into the more emphatic sound /q/. Also, Persian *ḥarān* has been altered into *ḥarrān* in which the /r/ gets geminated to shift the stress to the last syllable. So, you can see clearly that proper nouns are dealt with the same way as with the other borrowed nouns, yet, they tend not to get fully adapted.

Table 6. Examples of Arabized proper names

Loanword's form	Origin	Arabized form
ʔishmawīl	Hebrew/Syriac	*ʔismāʕīl* 'a name of a prophet'
ankūra	Turkish	*ʔanqarah* 'capital of Turkey'
harān	Persian	*ḥarrān* 'Carrhae: ancient Mesopotamian town'.
ʔadghān	Persian	*ʔardjān* 'an ancient Persian city'

Unfortunately, there hasn't been a study conducted particularly for proper names in Arabic or the Arabized proper names. We only find about these proper names in books that talks about Arabization or loanwords in Arabic in general as those of Al-Jwālīqi and Al-Khafāji (Al-Karuri 1986, pp.153-162). In their books, it is often mentioned that these proper names are foreign but without mentioning whether it gets adopted as it is or adapted like: *ʔabraha*, *Sabūr* and *Sinmār*. However, if they describe the proper name as Arabized or adapted, they rarely mentioned how the word is written in the source language as *Marya* which is described as 'an Arabized name of a Roman woman'. Consequently, it is impossible to tell what changes these proper names undergo.

7. Canonically, words that end in a vowel tend to get fully adapted due to syntax and gender distinction.

To fit into the Arabic gender inflection, a loanword is identified either as a masculine or feminine. For instance, the words Syriac *fadno* 'acre', Aramic *sahro* 'month', and Greek *fleghma* 'phlegm' are all identified as masculine nouns while Syriac *zorifo* 'giraffe', Syriac *ganto* 'paradise', and Turkish *dogma* 'stamp, hallmark' are regarded as feminine in Arabic. One might wonder what determines such gender assignment! However, it might be something related to the meaning of these words in Arabic. To explain, Aramic *sahro* 'month' seems to belong to a family of words , such as *yawm* 'day', *ʔusbūʕ* 'week', *ʕām* 'year',qarn 'century',etc. , that are all identified as masculine nouns in Arabic. Similarly, Greek *fleghma* 'phlegm' indicates the general meaning 'sickness' in which most native Arabic words of the same general meaning, such as *suʕāl* 'flue', *zukām* 'coldness'*, *sukkar* 'diabetes', etc. , are recognized as masculine nouns. The same can be seen in Syriac *fadno* 'acre' which belongs to a group of words of the general

meaning 'a unit of measurement', such as *dhirāʕ* 'ell, unit of measurement approximately length of an arm', *qadam* 'foot', a unit of length measurement', *qīrāṭ* 'a unit of land measurement', *dūnam* 'an ancient unit of land measurement' etc.; each of which belongs to the masculine gender in Arabic.

On the other hand, Syriac *zorifo* 'giraffe', Syriac *ganto* 'paradise', and Turkish *dogma* 'stamp, hallmark' are treated as feminine nouns in Arabic, thus, it is fully adapted into *damghah* ($C_1aC_2C_3ah$), which is a pattern used for feminine nouns. Yet, unlike in the case of the above masculine nouns, it is hard to tell from their meanings why they are assigned a feminine gender. For instance, Syriac *ganto* 'paradise', and Turkish *dogma* 'stamp, hallmark' when integrated into Arabic, they get fully adapted into *damghah* 'stamp, hallmark' and *djannah* 'paradise', hence, getting the feminine pattern ($C_1aC_2C_3ah$). However, there is no common meaning between them and other native Arabic words that follow the same pattern, such as *zahrah* 'flower', *nadjmah* 'star', *nakhlah* 'palm tree',etc., except the feminine gender as indicated by the final /h/. On the other hand, you can tell why Syriac *zorifo* 'giraffe' is assigned a feminine gender.When Syriac *zorifo* 'giraffe' is incorporated into Arabic, it gets fully adapted into the feminine pattern *zarāfah* ($C_1aC_2a:C_3ah$).It seems that it shares this pattern with other native Arabic words, such as *farāshah* 'butterfly', *ḥamāmah* 'pigeon', *dadjādjah* 'chicken', etc., based on the common meaning between them, which is "animals".

Anyhow, by analyzing the alterations that such words, the masculine and feminine, undergo, we can notice some different alteration based on gender distinction. To illustrate, when the words: Syriac *fadno* 'acre', Aramic *sahro* 'month', and Greek *fleghma* 'phlegm' incorporated into Arabic, they get altered by the deletion of the final

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vowel and keeping the final consonant. So, Syriac *fadno* 'acre' is changed into *faddān* ($C_1aC_2C_2a{:}C_3$), Aramic *sahro* 'month' is altered into *shahr* ($C_1aC_2C_3$), and *fleghma* (Greek) 'phlegm' is altered into *balgham* ($C_1aC_2C_3aC_4$), in which the /o/ in the first two words gets omitted and the /a/ in the last word too. Such deletion seems necessary to avoid confusion because in Arabic the cases are identified by adding suffixes like /-u/ which indicates the nominative case, /-a/ , which represents the accusative, and /-i/ which indicates the object of preposition. So, such alteration is syntactically conditioned.

Similarly, when the feminine nouns: Syriac *zorifo* 'giraffe, Syriac *ganto* 'paradise', and Turkish *dogma* 'stamp, hallmark' are integrated into Arabic, the first two words get altered by the deletion of the final /-o/, as in *zarāfah* and *djannah*. Nonetheless, it is not the syntax that determines such deletion of /-o/, as it is the case with masculine nouns. It is rather due to gender distinction, that is, all feminine nouns in Arabic end in /ah/, therefore, the final /-o/ in Syriac *zorifo* 'giraffe' and *ganto* 'paradise' is replaced by a final /ah/ as in *zarāfah* and *djannah.* For the same reason the final /a/ in Turkish *dogma* remains undeleted, and a final /h/ is added to it like in *damghah* 'stamp, hallmark'. In addition, compared to masculine *fleghma* 'phlegm' which turns into *balgham* with no final /a/, the final /a/ in the feminine *damghah* remains undeleted because it will not overlap with the Arabic case markers. To explain, when using the fully adapted word *damghah* 'stamp, hallmark' in the following sentence in (1), we can see clearly that the final feminine marker /-t/, which is only pronounced in context, is added and the case marker is added after such feminine marker, thus, the final /a/ won't cause a syntactic problem as it is in the masculine noun.

(1) waḍaʕ-a   Aḥmad-un   damgha-t-an.   ʕala   al-waraqa-t-i

    put-PAST   Ahmad-NOM   stamp- FEM-ACC   on   DEF-paper-FEM-OBJ of PREP

    'Ahmad put a stamp on the paper'

8. Canonically, words tend to get fully adapted to undergo a process of inflection or derivation as needed.

The need for a plural form of some loanwords, for instance, leads to their full adaptation: Aramaic *sahro* 'month' is remodeled as *shahr* ($C_1aC_2C_3$) and is pluralized as *ʔashhur* 'months' to fit into the plural pattern ($aC_1C_2uC_3$); Ethiopic *galbab* is altered into *djilbāb* 'gown' ($C_1iC_2C_3a:C_4$) and gets the plural form *djalābīb* 'gowns' according to the plural pattern ($C_1aC_2a:C_3i:C_4$). Furthermore, other loanwords get fully adapted due to the need for other parts of speech out of such borrowed words. For example, Greek *kanon* 'law' has been fully adapted into *qānūn* ($C_1a:C_2u:C_3$) from which other forms were needed to be derived based on the abstracted root q-n-n such as: *qannan* 'legislate', *muqannin* 'legislator', *qānūni* 'lawful', *qawānīn* 'laws'. Similarly, from *handasah* 'engineering' (Persian *andāze*) , other words are derived such as *muhandis* 'a male engineer', *muhandisah* 'a female enginner', *muhandisīn* 'male engineers', and *muhandisāt* 'female engineers'. So, such loanwords are dealt with as roots, hence, undergo processes of derivation where other derived words are being created.

On the other hand, it seems that the MA loanwords such as Persian *khurasān* 'cement', Persian *kurkum* 'tumeric, and Hebrew *ʔibrāhīm* 'proper name' didn't get adapted because most of these words are proper names that never undergo derivation or they are mass nouns like *kurkum* 'turmeric' and *khurasān* 'cement', hence don't need to

get pluralized for instance. Nonetheless, Persian *ʔustādh* 'teacher/ professionist' though it is merely adopted, gets the masculine plural *asātidhah* 'teachers/ professionists' and the feminine plural *ʔustādh-āt*. So, this is noncanonical in regard to criterion 9.

9. Canonically, words of high frequency exhibit a greater adoption.

Most of the loanwords that get adopted are words of frequent use through the contact between the two cultures, in trade for instance. So, the ear got used to hear these words, thus, got adopted. Due to their high frequency, they resist any change. For instance, *kurkum* 'turmeric' (643, 000) and *khurasān* 'cement' (6, 610, 000) are words that were used frequently through the contact between the Persians and Arabs in trade for example. Hence, they got adopted as they are. Also, the frequent hearing of words like Persian *ʔustādh* 'teacher, professionist' (18, 400, 000) through the contact with these cultures lead to keep the word intact.

On the other hand, infrequent hearing of loanwords and having no access to the source language style might lead to various modifications, including (for example) metathesis, which is the process of switching of two or more segments in a word as in Table (7).

Table 7. Loanwords' frequencies on Google

Loanword's form	Token frequency	Origin	Arabized form
zindjīr	417, 000	Persian	*djinzīr* 'chain, track for a tank, caterpillar'
surdār	4, 680, 000	Persian	*surādiq* 'pavilion, large tent'
djūlyāth	1, 150	Hebrew	*djālūt* 'proper name'
narmak	29, 300	Persian	*numruq* 'pillow'

Note: Google can sometimes give rather uncertain results for token frequency, since the same text containing the same loanword may be copied on dozens of different sites, potentially making the loanword look more frequent than it really is. Yet, due to the lack of a good corpus that I can draw my statistics from, I relied on Google as a source of my statistics.

7.2. Sociolinguistic Factors

1. The alterations that loanwords in Arabic undergo differ from one Arabic variety into another.

The alternative forms of a loanword indicate that the alterations that loanwords in Arabic undergo differ from one Arabic dialect into another[1]. For instance, some Arabs' variety alter the Persian /g/ into an Arabic /k/, some alter it into /q/, while others into /dj/ as in the Persian *gurbuz* 'deceptive/courageous/clever' which is modified into the Arabic *djurbuz*, *qurbuz*, or *kurbuq*[1]. Similarly, the Persian *pirind* is replaced by *firind* or *birind* 'sword', and *purkār* is realized as the MA loanword *burkār* or a PA as *furdjār* 'compass'.

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[1] However, one might attribute such alternative forms of a loanword to sound change within the dialects.

So, such different forms of one loanword suggest that loanwords realization differ according to the various Arabic varieties at that time.

2. The degree of integration of loanwords in Arabic varies according to a speaker's attitude toward the source language.

Some speakers are very conservative, thus, they resist any foreign element and try to preserve the Arabic identity by adapting such words phonologically and morphologically or even avoiding such words if there are indigenous alternatives. Most of these speakers seem to belong to the era before Islam (before 7th C, عصر الجاهلية), which witnessed numerous numbers of FA loanwords. Most Arabs at that time were very conservative about their Arabic identity, thus, they tried to resist any foreign elements that might violate the purity of the language. On the other hand, there appear to be Arabic speakers who are open to foreign languages and cultures and used to hear such languages' words frequently due to their intensive contact with the foreign languages' speakers, eventually, integrating a number of loanwords into Arabic with no alteration. Some of them might even find it prestigious to adopt the source language's words as they are even if such words have their equivalents in Arabic. Most of these speakers seem to belong to the era where the Arab's civilization reached its peak (8th- 15th C, عصر أوج الحضارة), which is the period that witnessed a number of MA loanwords compared to previous periods (see pp.34).

3. Words tend to get either partially or fully adapted due to the tendency of the Arabs to give loanwords an Arabic identity.

While some loanwords' sounds though exist in both the source language and Arabic, they are being replaced by similar sounds of the same natural class. For instance, they replaced the loanwords' phonemes such as /ʔ/ into more emphatic sounds like the velar sounds /ḥ/ and /ʕ/, as shown in Table (8). Moreover, the /t/ is replaced by the voiced /ṭ/, and /k/ is replaced by /q/. Such loanwords could have remained intact since they include segments that exist in Arabic. Yet, it seems that the Arabs tend to give the borrowed words Arabic identity and alter them from their foreign origin. Thus, they replace them with more emphatic sounds that Arabic is characterized by.

Table 8. Examples of loanwords' alterations to preserve the Arabic identity

Loanword's form	Origin	Arabicized form
ʔabra	Persian	ḥabāra 'bustard'
ʔanzarūt	Syriac/Hebrew	ʕanzarūt 'glue'
ʔakhathis	Persian	ʕaqīq 'carnelian'
ʔugustus	Latin	ʔaghusṭus 'August'
thiryakos	Greek	tɪryāq 'potion'
kafdjalīz	Persian	qafashlīl ' ladle'

Moreover, the endings: /-ion/, /-is/, /-os/, and /–on/ in Greek words, as in Table (5.1), get omitted from such words and what is left are only the stems. Such deletion of endings can be seen also in loanwords from Latin that end in either/ –is/, /-ium/, or /–ius/

, as the examples in Table (4.2) show. So, the Arabic speakers seem to resist any morphological borrowings to preserve the Arabic language identity.

4. The degree of adaptability of loanwords in Arabic varies according to time.

Al-Karmala (1903) classified Loanwords' alterations in Arabic into three phases (Al-Karuri 1986, pp.75-77):

1- In the era before Islam (before 7th C,عصر الجاهلية) all loanwords get Arabized or adapted (FA)

2- In the era that witnessed the appearance of Islam (7th C, عصر صدر حضارة العرب) loanwords are divided into two groups: the first includes MA loanwords with no alteration (MA), and the second includes loanwords that get altered to fit into the Arabic structure but that don't look very different from their origin (PA).

3- In the era where the Arab's civilization reached its peak (8th- 15th C, عصر أوج الحضارة) a number of loanwords kept the foreign patterns intact (MA).

Al-Karmala (1903) gave justifications for the Arabic civilization in the third phase that tended to keep the phonological and morphological structure of loanwords intact. He attributed that to their vast communication with the foreign world which results in getting used to hearing foreign sounds and patterns which they never heard before. In addition, he believes that they kept the foreign loanword as it is because they didn't want to corrupt the words and their original structure, in order not to lose their meanings with the passage of time.

Through his investigation, he found out that the total number of loanwords in Arabic is 7, 500; around more than 2000 loanwords follow the Arabic morphological patterns, and 5000 loanwords that don't. So, loanwords into Arabic have been dealt with differently in different stages of history.

Section 8: The Factors Governing the Varying Morphological (ʔawzān) of the FA Loanwords in Arabic

8.1 A Word's Lexical Meaning

In Arabic, some morphological patterns represent a general meaning based on the number of consonants as the list of patterns and examples in the following tables illustrate. For instance, the pattern (miCCaCah) is used to indicate a tool like *miṭraqah* in (g) in Table (9.1), and the pattern ($C_1aC_2iC_3$) indicates an agent as in the Arabic word *kātib* 'writer' in (a) in Table (9.3). Applying such a rule on FA loanwords in Arabic, we can see that it applies to some FA loanwords. For example, Syriac *qachicho* is changed into *qissīs* 'priest' to fit into the pattern ($C_1iC_2C_2i:C_3$) which indicates a greater quantity of something, that is, it might indicate that the priest gives a lot of sermons. Similarly, Persian *sangal* has been remodeled as *sidjdjīl* 'lump of clay, a very fine-grained soil that becomes very hard when fired' after the pattern ($C_1iC_2C_2i:C_3$) in (d) in Table (9.6) to indicate large quantities or exaggeration. Furthermore, the Persian *bitakhsh* 'viceroy' has been altered into *fattāsh* 'inspector' which indicates a profession as in (a) in Table (9.6). Also, the Persian *sadah* is altered into *sādhidj* 'naïve/foolish person' following the pattern ($C_1a:C_2iC_3$) in (a) in Table (9.3) which describes an agent.

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Table 9. Arabic morphological patterns according to words' meaning:

Table 9.1. Tools or machines

Patterns	Examples
a. (C₁a:C₂iC₃ah)	*rāfiʕah* 'lifter', *kāsiḥah* 'minesweeper', a*qāṭirah* 'tugboat'
b. (C₁a:C₂u:C₃)	*sāṭūr* 'a butcher's knife', *nāqūr* 'bugle', *ḥāsūb* 'computer'
c. (C₁iC₂a:C₃)	*qiṭār* 'train', *lithām* 'face cover for women'
d. (C₁aC₂C₂a:C₃ah)	*ghassālah* 'washing machine', *thallādjah* 'refrigerator'
e. (miCCa:C)	*miftāh* 'key', *minshār* 'saw'
f. (miCCaC)	*midfaʕ* °canon', *mindjal* 'scythe'
g. (miCCaCah)	*miṭraqah* 'hammer', *miknasah* 'vaccum', *midkhanah* 'chimney', *midfaʔah* 'fireplace'

  Note: There are other nouns, however, that indicate a tool but they are given different patterns that are not based on rules , such as *sikkīn* 'knife', *qalam* 'pen', *sayf* 'sword', etc.

Table 9.2. Time and place

Patterns	Examples
a. (maCCid)	*mawʕid* 'appointment', *mawqiʕ* 'location', *manzil* 'house'
b. (maCCaC)	*maṣyaf* 'resort', *markaz* 'center', *manẓar* 'view'
c. (muCCaC)	*mukhradj* 'exist'

Table 9.3. Agent/subject

Patterns	Examples
a. (C$_1$a:C$_2$iC$_3$)	*kātib* 'writer', *ʕāmil* 'worker'
b. (muCCiC)	*mukrim* 'hostess'
c. (muCa:CC)	*muqātil* 'fighter'
d. (muCaCCiC)	*muʕallim* 'teacher'
e. ``(muCCaCiC)	*mustamiʕ* ʔ'listener'

Table 9.4.Theme/ object

Patterns	Examples
(maCCu:C)	*mashrūb* 'drunk', *maksūr* 'broken', *madjbūr* 'forced'

Table 9.5. Adjectives that indicate emptiness or feeling of full

Patterns	Examples
(C$_1$aC$_2$C$_3$a:C$_4$)	*ʕaṭshān* 'thirsty', *djawʕān* 'hungry', *shabʕān* 'feeling full'

Table 9.6. Exaggeration or large quantities

Patterns	Examples
a. $(C_1aC_2C_2a{:}C_3)$	*kadhdhāb* 'a person who lies a lot', *nammām* 'a person who gossips a lot'
b. $(C_1aC_2u{:}C_3)$	*malūl* 'a very boring person ', *ʔakūl* 'a person who eats a lot'
c. $(C_1aC_2i{:}C_3)$	*raḥīm* 'a person who is full of mercy', *ḥakīm* ' a very wise person'
d. $(C_1iC_2C_2i{:}C_3)$	*ṣiddīq* ' an extremely honest person', *sikkīr* 'a very drunk person'
e. $(C_1uC_2aC_3ah)$	*humazah / lumazah* 'people who gossip a lot'

Table 9.7. Sickness

Patterns	Examples
$(C_1uC_2a{:}C_3)$	*suʕāl* 'cough', *zukām* 'cold/catarrh'

Table 9.8. Fields of study

Patterns	Examples
$(C_1iC_2a{:}C_3a)$	*ṣināʕah* 'industry', *zirāʕah* 'agriculture', *khiyāṭah* 'sewing'

Table 9.9. Profession

Patterns	Examples
(C$_1$aC$_2$C$_2$a:C$_3$)	*ḥaddād* 'smith', *sabbāk* 'plumber', *nadjdjār* 'carpenter'

Table 9.10. Sounds

Pattern	Examples
(C$_1$aC$_2$i:C$_3$)	*ṣahīl* 'cry of a horse', *nahīq* 'a sound made by a donkey ', *zaʔīr* 'roar, a sound made by a lion'

8.2 A Word's Number of Consonants

Words in Arabic follow different morphological patterns based on the number of consonants they consist of as the following patterns show. To illustrate, Greek *dhrakhmi*, when integrated into Arabic, gets altered into *dirham*, following the pattern (C$_1$iC$_2$C$_3$aC$_4$). The process of assimilating such a word into the Arabic morphological pattern involves a number of changes such as the insertion of the vowel /i/ after the /d/, the omission of the vowel /a/ after the /r/, the change of the consonant /kh / into /h/, and the insertion of /a/ between /h/ and /m/, and the deletion of the final /i/. Such a word needs such alterations not only to fit in this pattern but also the consonant cluster (d+r) in syllable-initial position is excluded in Arabic. Similarly, Greek *fleghma* 'phlegm', which consists of four consonants: *f-l-gh-m*, is changed into *balgham* as the pattern (C$_1$aC$_2$C$_3$aC$_4$) in (a) in Table (10.2). Aramic *sahro* 'month' and Sanskrit *mushka* 'musk' also get altered to fit into the suitable patterns according to their number of consonants. Such words consist of three

consonants, and are therefore adapted to one of the patterns in Table (10.1), that is, *sahro*

gets altered into *shahr* as the pattern in (a) and *mushka* gets modified into *misk* as the

pattern in (j). The same can be seen in Hebrew *gadich* 'grave', Syriac *ṣalmu* 'idol',

which get modified into *djadath* and *ṣanam*, patterned on ($C_1aC_2aC_3$) in (b) in Table

(10.1). Furthermore, Persian *rāzīk* has been changed into *rizq* 'blessing, subsistence'

based on the pattern in (j) in Table (10.1), and Persian *banafshah* 'violet' has been altered

into *banafsadj* according to the pattern in (a) in Table (10.3). Nevertheless, this factor

seems not to apply to all FA loanwords, that is, this is not the only factor that determines

the morphological pattern that a word gets. For instance, although Persian *lankar*

'anchor' consists of four consonants, it doesn't get assimilated into any of the patterns in

table (10.2) but rather gets a different morphological pattern which is ($ʔaC_1C_2aC_3$), that

is, it gets modified into *ʔandjar* which is analogical with *ʔaḥmar* 'red' for example.

Table 10. Abstracted nouns patterns according to consonants' number:

Table 10.1. Triliteral root patterns

Trilateral root patterns	Examples
a. ($C_1aC_2C_3$)	*shams* 'sun'
b. ($C_1aC_2aC_3$)	*faras* 'horse'
c. ($C_1aC_2uC_3$)	*radjul* 'man'
d. ($C_1aC_2iC_3$)	katif 'shoulder'
e. ($C_1uC_2C_3$)	*qufl* 'lock'
f. ($C_1uC_2aC_3$)	*zuḥal* 'Uranes'
g. ($C_1uC_2uC_3$)	*ʕunuq* 'neck'

Table 10.1. (continued)

h. (C₁iC₂aC₃)	$\Omegainab$ 'grapes'
i. (C₁iC₂iC₃)	ʔibil 'camel'
j. (C₁iC₂C₃)	ribḥ 'profit'

Table 10.2. Quadriliteral root patterns

Quadrilateral root patterns	Examples
a. (C₁aC₂C₃aC₄)	ʕanbar 'umber'
b. (C₁iC₂C₃iC₄)	qirmiz 'cochineal'
c. (C₁uC₂C₃uC₄)	ṭuḥlub 'alga'
d. (C₁iC₂C₃aC₄)	dirham 'coin'
e. (C₁iC₂aC₃C₄)	dimaqs 'brocade'
f. (C₁uC₂C₃uC₄)	burthun 'claw'

Table 10.3. Five consonant root patterns

Five consonants root Pattern	Examples
a. (C₁aC₂aC₃C₄aC₅)	safardjal 'quince'
b. (C₁uC₂aC₃C₄iC₅)	qudhaʕmil 'short and huge camel'
c. (C₁aC₂C₃aC₄iC₅)	djaḥmarish 'a very old woman'
d. (C₁iC₂C₃aC₄C₅)	djirdaḥl 'valley'

Table 10.1. (continued)

h. ($C_1iC_2aC_3$)	ʕinab 'grapes'
i. ($C_1iC_2iC_3$)	ʔibil 'camel'
j. ($C_1iC_2C_3$)	ribḥ 'profit'

Table 10.2. Quadriliteral root patterns

Quadrilateral root patterns	Examples
a. ($C_1aC_2C_3aC_4$)	ʕanbar 'umber'
b. ($C_1iC_2C_3iC_4$)	qirmiz 'cochineal'
c. ($C_1uC_2C_3uC_4$)	ṭuḥlub 'alga'
d. ($C_1iC_2C_3aC_4$)	dirham 'coin'
e. ($C_1iC_2aC_3C_4$)	dimaqs 'brocade'
f. ($C_1uC_2C_3uC_4$)	burthun 'claw'

Table 10.3. Five consonant root patterns

Five consonants root Pattern	Examples
a. ($C_1aC_2aC_3C_4aC_5$)	safardjal 'quince'
b. ($C_1uC_2aC_3C_4iC_5$)	qudhaʕmil 'short and huge camel'
c. ($C_1aC_2C_3aC_4iC_5$)	djaḥmarish 'a very old woman'
d. ($C_1iC_2C_3aC_4C_5$)	djirdaḥl 'valley'

Section 9: Conclusion

Through analyzing the morphophonological alterations that loanwords in Classical Arabic undergo and proposing various criteria that govern such alterations, one can see the vast productivity and flexibility of Arabic morphology .Such productivity appears more specifically in the FA loanwords due to their conformity to the Arabic phonological and morphological structure. Though a number of factors have been proposed as determining the various degrees of adaptability, a number of issues remain unresolved and require precise etymological analysis. All in all, an etymological Arabic dictionary or a dictionary that lists loanwords in Arabic with their source language's form and the Arabized form would enhance the analysis; producing such a resource will, of course, consume much effort and time.

Section 10: Future Work

I will extend my current research by addressing the issue of loanwords' adaptation through theoretic framework incorporating ranked constraints of a phonological, morphological, semantic and syntactic nature. Moreover, I will compare the morphophonological modifications that loanwords in Arabic undergo with the changes undergone by Arabic loanwords in other languages. Ultimately, this research will inform the development of a universally applicable theory of loanword adaptation.

Appendix-1 Arabic Consonants

Transliterated Arabic consonants	Arabic consonants	IPA equivalents
ʔ	أ	ʔ
b	ب	b
t	ت	t
th	ث	θ
dj	ج	dʒ
ḥ	ح	ħ
kh	خ	X
d	د	d
dh	ذ	ð
r	ر	r
z	ز	z
s	س	s
sh	ش	ʃ
ṣ	ص	sˤ
ḍ	ض	dˤ
ṭ	ط	tˤ
ẓ	ظ	ðˤ
ʕ	ع	ʕ
gh	غ	ʁ
f	ف	f

q	ق	q
k	ك	k
l	ل	l
m	م	m
n	ن	n
h	ه	h
w	و	w
y	ي	j

Appendix-2 Arabic diacritics and vowels

Transliterated Vowels	Arabic diacritics and vowels	Phonetic Transcription
a	◌َ *fatḥah*	a
i	◌ِ *kasrah*	i
u	◌ُ *ḍammah*	u
ā	ا	a:
ī	ي	i:
ū	و	u:

Appendix-3 Alphabetical ordering of loanwords in Arabic with the Arabized form

Loanword's Form	Origin	Arabized Form
anchova	Spanish	*ʔanshūdjah* 'anchovis'
ankūra	Turkish	*ʔanqarah* 'capital of Turkey'
aprilis	Latin	*ʔabrīl* 'April'
archipelaghos	Greek	*ʔarkhabīl* 'archipelago'
augustus	Latin	*ʔaghusṭus* 'August'
chak	Persian	*ṣak* 'contract, document'
chāy	Persian	*shāy* 'tea'
chimos	Greek	*khīmūs* 'proper name'
djawq	Turkish	*djawq* ' a group of people'
djirāgh	Persian	*sirādj* 'lamp/light'
djūlyāth	Hebrew	*djālūt* 'proper name'
dhrakhmi	Greek	*dirham* 'money'
dogma	Turkish	*damghah* 'stamp, hallmark'
dukān	Persian	*dukkān* 'store'
enchelis	Greek	*ʔanqalīs* 'eel'
evenos	Greek	*ʔabnūs* 'ebony'
fadno	Syriac	*faddān* 'acre'
fanarion	Greek	*fanār* 'lighthouse'
fellinos	Greek	*fillīn* 'cork'
fleghma	Greek	*balgham* 'phlegm'
gadich	Hebrew	*djadath* 'grave'

galbab	Ethiopic	*djilbāb* 'gown'
ganto	Syriac	*djannah* 'paradise'
gumrik	Turkish	*djumrik* 'stream/creek'
gund	Persian	*djund* and *qund* 'testicle'
gurbuz	Persian	*djurbuz/qubuz/kurbuq* 'deceptive, courageous, clever'
gypsos	Greek	*djaṣ* 'plaster'
haimat	Ethiopic	*khaymah* 'tent'
harān	Persian	*ḥarrān* 'Carrhae: ancient Mesopotamian town'.
hlīla	Persian	*ʔihlīlidj* 'myrobalan'
kafdjalīz	Persian	*qafashlīl* ' ladle'
kag	Persian	*djaṣ* 'plaster'
kalopolion	Greek	*qālib* 'mold,model'
kamāncha	Persian	*kamandjah* 'violin'
kandj	Persian	*kanz* 'treasure'
kandila	Persian	*qandīl* 'lantern'
kanon	Greek	*qānūn* 'law'
keramis	Greek	*qarmīd* 'roof tile'
klīlo	Syriac	*ʔiklīl* 'crown, wreath'
klīma	Greek	*ʔiqlīm* 'region'
khurasān	Persian	*khurasān* 'cement'
khurram	Persian	*khurram* 'trees' plant'
kurkum	Persian	*kurkum* 'turmeric'
kūshak	Persian	*al-djawsaq* 'small palace'

lankar	Persian	*ʔandjar* 'anchor'
lūbyah	Persian	*lūbyāʔ* 'bean'
mandjanīk	Persian	*mandjanīq* 'mangonel '
mushka	Sanskrit	*misk* 'musk'
narkissos	Persian	*narjis* 'narcissus'
narmak	Persian	*numruq* 'pillow'
opion	Greek	*ʔafyūn* 'opium'
ovrizon	Greek	*ʔibrīz* 'pure gold'
palatium	Latin	*balāṭ* 'court'
parwāz	Persian	*birwāz* 'frame'
patrikios	Greek	*batrīq* ' penguin'
philosophos	Greek	*falsafah* 'philosophy'
pirind	Persian	*firind/birind* 'sword'
pūlād	Persian	*fūlādh* 'steel'
rāzīk	Persian	*rizq* 'blessing, subsistence'
sadah	Persian	*sādhidj* 'naïve/foolish person'
sagrougo	Syriac	*sukrudjah* 'bowl, platter'
ṣalmu	Syriac	*ṣanam* 'idol'
sangal	Persian	*sidjīl* 'lump of clay'
sharāwīl	Persian	*sarāwīl* 'pants'
spoŋgos	Greek	*ʔisfindj* 'sponge'
surdār	Persian	*surādiq* 'pavilion, large tent'

thiryakos	Greek	*tıryāq* 'potion'
tighnon	Greek	*ṭājin* 'frying pan'
turādj	Persian	*durrādj* ' pheasant'
vergilius	Latin	*firgīl* 'virgil' (Roman poet; a Latin name)
zāghir	Persian	*zaqlah* ' a bird's name'
zindjīr	Persian	*djinzīr* 'chain, track for a tank, caterpillar'
zorifo	Syriac	*zarāfah* 'giraffe'
ʔabra	Persian	*ḥabāra* 'bustard'
ʔadghān	Persian	*ʔardjān* 'an ancient Persian city'
ʔakhathis	Persian	*ʕaqīq* 'carnelian'
ʔandām	Persian	*hindām* 'attire'
ʔandāze	Persian	*handasah* 'engineering'
ʔanzarūt	Syriac/Hebrew	*ʕanzarūt* 'glue'
ʔarbīg	Persian	*narbīdj* 'mouthpiece of a nargihile'
ʔibrāhīm	Hebrew	*ʔibrāhīm* 'a name of a prophet'
ʔishmawīl	Hebrew/Syriac	*ʔismāʕīl* 'a name of a prophet'
ʔustādh	Persian	*ʔustādh* 'teacher/professionist'
ʒīwa	Persian	*ziʔbaq* 'mercury'

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<p style="text-align:center">Vita
Noor Mohammed Bueasa</p>

Education:

B.A. in English Language and Literature
University of Dammam, 2009
Dammam, Saudi Arabia

Professional Position Held:

English Teacher, 2009-2011
Al Salam Private School
Al-Khobar, Saudi Arabia