Patterns of Reinterpretation of Word Formation of Arabized Words

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This article discusses morphological adaptation showing that the degree of assimilation depends on several factors. It shows that certain morphological elements or categories are more susceptible to adaptation than others. For example, concrete lexical items, especially nouns, are more easily integrated than abstracts and grammatical elements.

One of the most important processes which can be used to incorporate newly introduced items is the simple derivation (small derivation); the stem is modified by different kinds of affixation. In this process, the morphology of the borrowed word is modeled according to the well-known Arabic "?awzan" through what might be termed a proportional analogical method of derivation or back formation.

Two main groups of borrowed words are recognized: The first group includes words which can assimilate completely and become productive for other derivations. Words in this class can be analysed into two discontinuous morphemes (consonantal roots and vocalic patterns).

The other group includes borrowed words which cannot be integrated completely because of their incompatibility with the structure of the Arabic language. Such words cannot be considered as composed of two discontinuous morphemes; instead, the one continuous morpheme approach is adopted.

Finally, a suggestion is made to generalize the one continuous morpheme analysis because it is more practical, less abstract, and more capable of avoiding the many exceptions and unresolved problems in dealing with borrowed words.

1. Generally speaking, borrowing can be defined as the process by which one language or dialect incorporates some linguistic elements from another. Loan words are either adopted or adapted. Adopted words may be taken over with the foreign elements unchanged. Adaptation means that the foreign form is altered to meet the fundamental linguistic forms or models of the recipient language either completely or partially. In other words,

there are different kinds and levels of borrowing. The over-all picture of different types of borrowing can be represented roughly in the following table which is taken from Anttila (1972: 156):

	Morphemic importation	Morphemic substitution	Sound substitution
Loan-words	+	−	+ −
Loanblends	+	+	+ −
Loanshifts (loan translation, semantic loans)	−	+	−
Pronunciation borrowing	−	−	+ −
Sound change	−	−	+ −

As one can see from the above table, a borrowed word may be completely incorporated into its new environment in the recipient language and lose whatever linguistic elements it had originally that would make it sound foreign or appropriate elements can be added that would make it sound acceptable and fit the structure of the recipient language. For example, if the word is a compound or a derivative, or has an inflectional element or thought as such, it is replaced by a corresponding element from the recipient language (Antilla, 1972: 156-158). On the other hand, the borrowed word may retain its original features in the donor language. In such cases, the treatment of such words is either marked "exceptional" in the lexicon if the number of borrowed words is limited or if the number is very large it may be reasonable to modify the system of the recipient language so as to include such words. In the latter case, a linguistic change occurs (Bynon, 1977: 226).

It is generally the case that borrowing at any linguistic level entails other changes in the other levels; that is , the change is mutual and dependent. For example, phonemic replacement in the borrowed words, in some languages, must be accompanied by other changes at the other levels such as adjustment in number, gender, case endings of nouns, and moods and as-

pects of verbs. The Arabic language is a good example of such readjustment in the shape of the borrowed words (Sa'id, 1967: 39-99; Qunaiby, 1986:7-49). Folk etymology is a clear case of remodeling which is mostly called reinterpretation or adaptation in which the unfamiliar shapes are replaced by more familiar ones. For example, "A word like 'asparagus' is rather long for one morpheme in English and gave way to 'sparrow grass,' which more or less retains the number of consonants (Antilla, 1972: 92)."

2. In this article morphological adaptation will be discussed, showing the degree of assimilation and how certain morphological elements or categories are more susceptible to adaptation than others. Concrete items are more easily integrated than abstract elements, perhaps because, the need for abstract concepts is less than concrete concepts (Antilla, 1972: 155). Moreover, certain elements/morphemes differ in the degree of adaptation. For example, as we shall see later, grammatical morphemes, inflectional morphemes, and structural words (closed classes), in general, are less subjected to borrowing than lexical words (open classes: verbs, nouns, and adjectives). The difference in the degree of borrowing may be because of "… the great frequency and abstractness of such units (grammatical morphemes). They are unconscious and "too obvious" to draw attention (Antilla, 1972: 169)." Moreover, closed classes are mostly grammatical morphemes/inflectional morphemes and their usage is dictated by the syntactic rules of the language which make them resist borrowing, especially if the two languages involved are different in their syntactic rules and are unrelated genetically and typologically. Among the open classes, the nouns are the most frequently borrowed class everywhere (Bynon, 1977: 231).

3. The need-filling motive is one of the most important factors which facilitates borrowing from other languages. This is due to the urgent and immediate need to absorb a great number of modern terms for a great number of modern inventions, scientific terms, and almost every aspect of modern life (Zughoul, 1978: 215; Stetkevych, 1970: 56). Also there is a pressure of time to try to coin or to find suitable words or terms for these newly introduced objects, inventions, and scientific terms. Consequently, "one of the most important factors which contributed to the rapid modernization of the Arabic language is the assimilation of vocabulary of foreign

origin. The technical term for this process is that of "taʿrīb" (Arabization) (Stetkevych, 1970: 56).

In general, most of the borrowed elements are from European languages. So, here we speak of two unrelated languages; the donor languages are Indo-European, and the recipient language is semitic; that is, the structure of the two groups of languages is different. Arabic is well-known for its consonantal roots and vocalic patterns. "The word is defined as a stem or a stem plus any affixes (Sa'id, 1967: 25)." The stem consists of a root plus a pattern. The pattern usually is composed of a vowel or a sequence of vowels. These vocalic patterns are interlocked with the consonantal roots and derivational and inflectional affixes if any. "They (the vocalic patterns) serve to specify the lexical meaning provided by the root and assign a grammatical meaning to words; i.e., assign their form classes as verbs, nouns, etc. Also, a pattern may denote a semantic correlation other than grammatical and lexical meanings, e.g., the pattern $C_1aC_2C_2\bar{a}C_3$ in both Classical Arabic and Biblical Hebrew denotes semantic correlation 'occupation' (Ababneh, 1978: 23)." Basic stems usually consist of three consonantal roots. Stems with two or four consonants are few, rarely are there five consonants. Traditionally, the stem is analyzed into two discontinuous morphemes: a root morpheme and a vowel pattern morpheme (Harris, 1957: 285, Mahadin, 1986: 349-358).

4. The difference between the word formation processes in Arabic and the donor languages (mostly Indo-European) is great, which is supposed to make the process of adaptation face many structural difficulties (cf. section 3), especially in morphology borrowed words must be used like any other words in the recipient language, i.e. Arabic. They must follow not only the morphological rules of word formation but also the morphophonemic rules as well as the syntactic rules of the Arabic language. The diverse structure of the languages involved makes the assimilation of borrowed elements a difficult one and causes a rejection by some people who consider the use of foreign elements unpatriotic and something against the nation's pride. A decisive factor in the degree of compatibility with the Arabic language structure is the number of consonants in a given root, usually three; four consonants are limited. This explains why the compatibility of borrowings with the linguistic patterns of Arabic models ("ʔawzān") is the most

frequently discussed problem and constitutes the most general criterion applied to this word-formation procedure by the Academies of the Arabic language and by most Arab scholars. Fortunately, the morphology of the Arabic language is flexible due to the different processes that are available to the users of the language and because Arabic is an inflectional, derivational, and synthetic language. These different means make the language well-equipped to meet the challenge and incorporate new items, especially since the word is a grammatically structured unit as seen above, in which the order of the morphemes within the word is rigid, with diverse and multi-linguistic elements which have different semantic associations. In general, the derivational affixes are the closest to the stem, while the inflectional affixes tend to be in the outer layers. Moreover, most borrowed words are concrete nouns and are easier to be borrowed than abstract nouns, and there are numerous and diverse models for nouns in Arabic. Borrowing is made a little easier as Stetkevych put it: "Considering the Arabic system of word derivation as a whole, it becomes clear that the possibilities of noun derivation are much more numerous and diversified than those of verbal derivation (Stetkevych, 1970:10)."

The Arabic scholars have expressed different opinions concerning borrowing. Some of them have rejected borrowing and demanded a strict observance of the Arabic models. Others have a more open point of view. However, the resolutions of different organizations, academic, and scholars usually allow the use of foreign words, if necessary, but within certain limits. They argue that there is a great need for borrowing if they want to keep up with the rapid modernization. This is the subject matter of a paper entitled "Lexical Innovation through Borrowing as Presented by Arab Scholars" by Ladislay Drozdik (1979), in which he sums up the different opinions on this subject. Also Jaroslav Stetkevych discussed this point (1970: Chapter 3, 56-65).

An important opinion which is relevant to this paper is that of Sībawayah's because his opinion represents the general attitude held by those who discussed the issue of borrowing. I will quote Sībawayh's opinion from Stetlevych (1970: 59-60).

> They (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. As for that which they

assimilate into their forms, there is: "dirham" according to "hijraᶜ"; "bahraj" according to "salhab"; "dinar" as well as "dibaj" according to "dīmās": furthermore, they say "ʔIshāq" according to "ʔiᶜsar"; "yaᶜqūb" according to "yarbū "; "jawrab" according to "faᶜwal"; and then they say "ʔajūr" according to "ᶜāqūl"; "shubāriq" according to "'udhāqir"; "rustāq" according to "qurtās".

When they want to arabicize foreign words, they assimilate them into the structure of Arabic words in the same manner that they assimilate their letters to Arabic letters. Often they change the condition of a word from what it was in the foreign language, by assimilating to Arabic letters such as are not Arabic, and replacing a letter, even though it be like Arabic, by another one. Furthermore, they change the vocalization and the position of augmentative letters, without reaching by it the Arabic words structure, for, after all, it is a word of foreign origin whose power to attain the Arabic word structure is in their view not sufficient. To this they are impelled by the fact that the foreign words are changed by their incorporation into Arabic and alteration of their letters, and this change brings about the substituting and the changing of the vocalization, as the Arabs themselves do in the "nisbah-construction" when they say "hanī" according to "zābānī" and "thaqafī".

Frequently they shorten, as in the nisbah-construction, or they add, whereby they either attain the Arabic structure or not as in the case of: "ʔājurr", "ʔibrīsam", "ʔIsmā'īl", "sarāwīl", "fayrūz", and "al-qahramān".

This they have done with both what was incorporated into their word structure and what was not incorporated, in the way of change, substitution, addition and elision-all according to the change required.

Often they leave a noun unchanged when its letters are like theirs-be its structure Arabic or not, as the cases of: Khurasan, hurram and al-kurkum.

Frequently they change a letter which does not exist in Arabic, without changing the original Persian structure of the word, as in "firind", "baqqam", "ʔajurr" and "jurbuz."

5. Different morphological processes can be used to incorporate newly introduced items. They have been discussed by Stetkvych (1970), Sa'id (1967), and Drozdik (1979) among others. Some of the methods used by Arab scholars to assimilate foreign words are the following:

(1) "Al-istinbāt": It is to search through the classical writings of the

Arab writers and grammarians (literature and any other sources) to find a suitable term/word. It is a process that aims to rediscover and reuse some of the existing lexical resources of the Arabic Language, with eventual semantic revaluations from the classical. (Drozdik, 1979:27).

(2) Derivations from roots originally Arabic or from other languages after the borrowed words assimilate to one of the models in the Arabic Language. This last process in which the borrowed words become similar to the structure of the Arabic Language is called "ta'rīb" (Arabization) (Stetkevych, 1970:56-65). There are three kinds of derivation (Cf. Stetkevych, 1970:7).

a. The simple ("small derivation"): The stem is modified by prefixation, suffixation, infixation, or more than one of these processes according to well-structured models "?awzān"/formulas.

b. "Larger derivation" (metathesis)

c. "Largest derivation" (?ibdāl). It is a root modification.

The most important of these which has played a major role in lexical borrowing is the simple derivation. In this process, the morphology of the word is altered and modeled according to the well known Arabic models "?awzan" through what might be termed a proportional analogical method of derivation. The basic form of the word, as well as its derivatives, are formed from the basic stem by adding the appropriate affix. The added affixes modifying not only the shape or the form of the word but also its semantic denotation, and if the grammatical category of the word is changed, then, its syntactic function and consequently its position in the sentence will be changed according to its new function.

Derivations can be made from verbal roots or from nouns. In general, at least in the case of borrowing, the derivations from nouns are more numerous than for verbs. "Verbal neologisms" in modern literary Arabic, if compared with the nominal ones, are few in number and formal diversity. Totally new verbal roots are almost nonexistent, unless one takes into account the scarce number of purely colloquial verbal roots or the even rarer verbs of foreign origin which in their arabicized form have gained some mostly local-acceptance.

As a result, verbal neologisms occur either in the derived verbal forms-in cases where such forms had not been used in Classical Arabic-or as seman-

tic extensions of already existing older verbal meanings" (Stetkevych, 1970:37-38).

In short, the models for nouns are far more numerous than verbs. For example, there are forty four verbal nouns ("masdar") which can be derived from the primary stems of triconsonantal verbs only. Compared with the nouns, there are fifteen models for tri-consonantal verbs; in Modern Arabic only ten of them are in actual use.

From the above discussion, it becomes clear that the simple derivation by analogy according to the "?awzan" is an important process in incorporating borrowed words because almost any borrowed word, theoretically speaking, should obey the "?awzān". For example, if it is possible to derive a verb from a borrowed noun, then we could obtain from the same verb the other derived forms of the verb with their respective verbal nouns and other derivations with their respective meanings (Wright, 1979:251). Another example is the formation of "nisba-formation" (relative-adjective) and abstract nouns by adding certain suffixes (Stetkevych, 1970:8, 27). The following sections give more examples of such processes.

In short, the structure of the Arabic language in general and the word formation in particular make the processes of derivation and the adaptation by analogy very productive and open the door for accepting new words.

6. Three types of morphological borrowing have been recognized by Sa'id (1967:37): loan-forms, loan-shift, and loan-blend. This classification is based on whether the borrowed word shows morphemic transfer, morphemic substitution, or both.

Loan-forms, according to Sa'id (1967:38), "show morphemic transfer and are among the most common results of linguistic interference…" the phonemic shape of a simple word and its content are transfered into the recipient language, but no morphemic substitution takes place."

Loan blends are words which show in the same item morphemic substitution and morphemic transfer (Sa'id, 1967: 38). For example, the two morphemes in the word (kibrītīk) is an example of this type; (kibrīt) is a native morpheme while (īk) is a foreign morpheme (cf. Sa'id, 1967: 108-110).

Loan-shifts: These show morphemic substitution. The term indicates that

a native word has taken on a shift of context under the influence of the model. The English model "current" refers to both "water current" and "electric current". Its Arabic equivalent (tayyār), formerly meant only "water current". Its context has been brought into congruence with that of the model, and now refers also to 'electric current'. It has thus taken on a shift of context (Sa'id, 1967: 38).

In this article only loan-forms will be examined. My approach will be different from previous ones, specifically whether the borrowed word assimilates completely or partially to the usual practice among linguists to segment and consider the Arabic words, and consequently, the assimilated borrowed words, as composed of consonantal roots and vocalic patterns modeled according to the well known "ʔawzān". In other words, whether the word is considered one continuous morpheme as in the donor languages or as two discontinuous morphemes as in the usual practice among linguists, i.e. roots plus vowel patterns. The merits of the analysis might shed light on the more practical side of this problem; two discontinuous morphemes or one continuous morpheme (Mahadin, 1986: 349-358).

7. A distinction should be made first between segmentation along morpheme boundaries in Arabic regardless of the structure of the primary stem (that is, segmentation or isolation of prefixes and suffixes) and the segmentation into root and pattern. The following classes of borrowing can be stated along the lines indicated above:

(1) Borrowed words which cannot be analysed into two discontinuous morphemes, that is, a consonantal root and vocalic pattern. The reason is that the number of the consonants in the stem exceeds the number of consonants that can occur in Arabic (two consonants, three consonants, four consonants, and very rarely five consonants), or the vocalic pattern does not exist in Arabic, or both (that is, the stem does not follow any model in Arabic). In other words, the stem cannot be segmented into two discontinuous morphemes but is a solid, continuous morpheme.

In this type of borrowed words, the following sub-classes can be distinguished:

a. Words which cannot be analysed into root and vocalic pattern,

but somehow can be used as potential words in the Arabic language by their ability to have other words derived from them. In this class of words, usually the vocalic pattern of the original borrowed word does not fit the pattern. For example, the word "telephone" which is a borrowed word has the following pronunciation: (tilifōn), (talifōn), (tilifūn), (talifūn) or (talafōn). The root (t-l-f-n) can be abstracted and treated like any quadri-consonantal root, but the different vocalic patterns are not, because they do not fit any model in the language. However, other forms can be analogically formed from the word "telephone" and other similar borrowed words. The following examples of such derived forms and the Arabic models illustrate this point: (yutalfin) "he makes a telephone call". The Arabic model is (yu-CaCCiC-) as in (yu-dahridʒ)" he rolls something

(talfanah)	as in	(dahradzah)	(verbal noun)
(mutalfin)	as in	(mudahridʒ)	(active participle)
(mutalfan)	as in	(mudahradʒ)	(passive participle)
(talfin)	as in	(dahridʒ)	(imperative)

From the above examples, one can notice that the derived forms fit the Arabic scheme by vocalic modeling. Surprisingly enough, the derived forms almost have no variations in the pronunciation.

b. Words which cannot be segmented as indicated above because they do not fit the scheme of the Arabic language, and from which no other words can be derived. These accept only the addition of inflectional morphemes, usually the regular plural marker. They have to be treated as one continuous morpheme.

Examples:	(ʔimbalans)	sg.	(ʔimbalansāt)	pl. "ambulance"
	(kumbyūtar)	sg.	(kumbyūtarāt)	pl. "computer"
	tiliɣrāf	sg.	tiliɣrāfāt	pl. "telegraph"
	taliɣrāf		taliɣrāfāt	

c. Words which accept derivational morphemes as long as they do not affect the nature of the original word; i.e. words that accept only derivational morphemes as suffixes at the end of the stem. Also, these accept inflectional morphemes, but they differ from

words mentioned above (b) in their ability to accept limited numbers of derivative morphemes such as "nisba-suffix" (relative adjective).

Examples:	(?arustuqrāṭiyyah)	"aristocracy"
	(?arustuqrāṭī)	"aristocratic" sg.
	(?arustuqrāṭiyyūn)	"aristocratics" pl.
	(?akādīmiyyah)	"academy"
	(?akādīmī)	"academic" sg.
	(?akādīmiyyūn)	"academics" pl.
	(?admirāl)	"admiral"
	(?admirāliyyah)	"office of admiral"
	(?admirālī)	"Adj. of admiral"

d. Words which, in certain forms, cannot be analysed according to the Arabic root and vocalic pattern because both the consonantal root as well as the vocalic pattern do not fit the Arabic scheme. They differ from group (a) in that the number of consonants in a given root in its simple form exceeds the permissible number of consonants in native Arabic words.

Examples:	(faylasūf)	"philosopher"
	(kardīnāl)	"cardinal"

However, other forms can be derived from such words after the proper adjustment making them similar to Arabic words. The derived forms can be segmented into roots and patterns. For example, from (faylasūf) we can form the plural (falāsifa) and from (kardīnāl) we can form the plural (karādila) by omitting the (n) from the borrowed word. In both words quadri-roots can be abstracted: (f-l-s-f) and (k-r-d-l). The delation of the (y) of (faylasuf) and the (n) of (kardinal) is probably dependent of consonant compatibility and sequence permissible in Arabic. The vocalic patterns perfectly fit certain models in the Arabic language. In both examples and other similar words the plural is formed according to the plural model (CaCaCiCa) as in the native word (?asātiða) "teachers". Usually, this kind of borrowing

is common for substantives, adjectives, and especially relative-adjectives of four consonants or more (Wright, 1979: 230-231).

(2) Borrowed words which can be analysed according to the Arabic models, that is, consonantal roots and vocalic patterns. It should be noted that in all kinds of borrowing phonemic replacements of native sounds replace the non-native sounds. In this class of borrowing, two types are recognized according to the number of consonants: tri-consonantal and quadri-consonantal roots. For example, roots and vocalic patterns can be abstracted from the borrowed words. If the vocalic patterns do not follow the Arabic models, they are re-modeled to be used as native words. In such cases and such words the analogy is proportional: $X_1:Y_1::X_2:Y_2$.

X_1 = native words; singular nouns
X_2 = native words; plural nouns
Y_1 = borrowed words; singular nouns
Y_2 = borrowed words; plural nouns

8. It becomes clear from the above discussion that the degree of assimilation and the compatibility of the borrowed words depend on the extent the borrowed words can conform to.

Quadri-Cosonantal Roots

x_1	y_1	x_2	y_2	Borrowed Root	Vocalic sg.	Pattern pl.	Plural Model "?awazn"
1. ?udhī (?-d-h-y)	?uksīd	?adāhī	?akāsīd	?-k-s-d	u-ī	a-ā-ī	cacacīc
2. burᶜum	qunṣul	barāᶜim	qanāṣil	q-n-ṣ-l	u-u	a-ā-i	cacācic
--	burnus	--	baranis	b-r-n-s	u-u	a-ā-i	cacācic
--	munhul	--	manāhil	m-n-h-l	-	-	-
3. θaᶜlab	banšar	θaᶜālib	banāšir	b-n-š-r	a-a	a-ā-i	cacācic
	sandal		sanādil	s-n-d-l	-	-	-
	kanγar		kanāγir	k-n-γ-r	-	-	-
4. sayqal "a plosih of sword"	qayṣar	sayāqila	qayāṣira	q-y-ṣ-r	a-a	a-ā-i	c-a-y-ā-c-ic-a
5. dʒundab "a locust"	sukkar	dʒanādib	sakākir	s-k-k-r	u-u	a-ā-i	cācācic

(Wright, 1979: 22;)
(Wehr, 1976: 417)

Tri-Consonantal Roots

X_1	Y_1	X_2	Y_2	Borrowed Vocalic Root sg.	pattern pl.	plural Model 'wazn'	
1. himl	film mitr	ʔahmāl	ʔaflām ʔamtar	f-l-m i m-t-r	a-ā	ʔaccāc-	
2. sīra qīma	{f, v} īzā	siyyar qiyyam	viyyaz or fiyyaz	{f, v} -y-z īa	ī-a	ciccac gemination of the second consonants	(v) either is replaced by (f) or remains (f)final long vowel is shortened in final position
3. kīs īd	mīl	ʔakyās ʔaᶜyād	ʔamyāl	m-y-l i	a-ā	ʔaccāc	(ʔa) sequence is inserted to avoid consonant clusters in initial position
4. kahl	bank	kuhūl	bunuk	b-n-k a	u-ū	cucūc	
5. risāla	sigāra	raśaʔil	saga?ir	s-g-r i-ā	a-ā-i	cacāʔic	(ʔ) is inserted to avoid ā-i sequence
6. rukba hikma	numra nimra	rukab hikam	numar or nimar	n-m-r u-a n-m-r i-a	u-a i-a	cucac cicac	the plural form depends on the singular pattern
7. limma "a lock of hair	filla or villa	limam	vilal or filal	v-l-l i-a identical second and third consonant	i-a	cicāc	
8. ʤubb-	tunn	ʔaʤbāb	ʔatnān	t-n-n u identical second and third consonant	a-ā	ʔaccac	(ʔa) sequence is inserted to avoid consonant clusters in initial position
9. ʤūn "gulf, bag"	rōb	ʔaʤwān	ʔarwāb	r-w-b ū/ō	a-ā	ʔacwāc	(ʔa) sequence is added. Borrowed words with (o) is modeled like
10. sāᶜiqa	bāriʤa	sawaᶜiq	bawāriʤ	b-r-ʤ a-i-a	a-ā-i	cawācic	native words with (ū) (w) is added to avoid (a-ā) sequence

the morphology of the Arabic language, that is, the number of consonants in a given word, the arrangement of consonants, and the vocalic patterns. Also, the assimilation of borrowed words depends on the extent of segmenting the borrowed words into two discontinuous morphemes.

For example, one of the main problems involved in the assimilation of certain words is the number of consonants in a given word. If the number of consonants is more than four or five, the chance for the assimilation is very slim, that is, there is small potentiality for the derivation of other words. This is based on the fact that the Arabic language is characterized by the forming of a multiple of different words from one basic form. The reason for such a problem is that there are a limited number of consonant clusters that are permissible. Some of the examples, and there are many more, are:

(ʔimbalans)	"ambulance"
(kumbyūtar)	"computer"
(tiliɣrāf)	"telegraph"

Some of the other borrowed words, although the number of consonants is similar to that of Arabic, have vowel patterns that are not in accordance with the native models. Some of these are:

(kolōnēl)	"colonel"
(ʔantēn)	"antenna"
(ʔasīd)	"acid"
(bālōn)	"ballon"

Consequently, words of the types mentioned above should be treated as one solid stem, one continuous morpheme. However, to such words other affixes can be added. Some of these affixes are derivative or inflectional. The derivatives are very limited and can only be added as suffixes. The power of derivative suffixes in such words is limited to this position because usually derivation in Arabic is formed by changing the vocalic patterns with different kinds of affixation.

Inflectional affixes, in general, do not interact with other processes in Arabic especially suffixes because they always occur outside derivative suffixes. Consequently, inflections can be added almost to any borrowed words. Moreover, because inflections can work independently of vowel patterns,

they can be added to any borrowed words which do not involve a change in the vocalic pattern as in the case of irregular plurals in Arabic "broken plural," i.e., that is if the process is regular like regular plural formation and marking nouns for number of gender, or verbs for different moods or numbers. (Cf. Sa'id, 1967: 58-85). It should be noted that the irregular plural formation of some nouns, which are not in conformity with the structure of the Arabic language in the singular, can be analysed like any other Arabic words and other forms can be derived from them (Cf. Section 8. d), examples:

(faylasūf)	"philosopher" sg.
(falāsifa)	"philosophers" pl.

The plural has the root (f-l-s-f) and a vocalic pattern (a-a-i-a) like the native word (?asātiða) "teachers".

In addition to the above mentioned inflectional processes in which the stem remains unchanged, certain affixes can be added to them without inducing internal change in the stem, such as the derivative suffixes of "nisba -formation" "relative adjective". (Stetkevych, 1970: 7-8). Relative adjectives in Arabic are formed by adding suffixes without pattern change. Some of these suffixes are (Wright, 1979: 149-175):

(-ī) as in (tilfizyōnī) from (tilfizyōn) "television"

(-iyy): This suffix is added when another inflectional ending comes after it.

(?amrīkā)	"America"
(?amrīkānī)	"an American, male"
(?amrīkāniyyūn)	"Americans"
(?amrīkāniyyah)	"an American, female"

9. Unlike the previously mentioned words, there are certain words which can be analysed according to the structure of the Arabic language, that is, roots can be abstracted; the vocalic patterns are either similar to Arabic ones or can be considered as such because of the ability to be fitted by analogy to the Arabic models assuming that the number of consonants in a given root fits the Arabic language patterns. In these groups of words, the degree of assimilation is very high, and it is more likely that such borrowed words will become productive in the recipient language, that is, other forms

can be derived from them. Moreover, such words can be subjected to the morphological as well as the syntactic rules of the language. Words belonging to this class achieve what might be called the "pattern of congruity" or morphemic congruity (Sa'id, 1967: 85). Sa'id states that: "When the phonemic sequences of a loan form are coincidentally similar to the phonemic sequences of a native Arabic word or stem, we refer to this as "pattern congruity." ··· "Pattern congruity may be achieved consciously or unconsciously by reshaping phonemic sequences so as to achieve complete integration into Arabic word or stem structure. The reshaping takes the form of various degrees of substitution and transfer" (Sa'id, 1967: 85). In short, borrowed words of this type can be analysed into two discontinuous morphemes, consonantal roots and vocalic patterns, which fit the structure of the Arabic language and are subjected to other morphological processes. Here, we can distinguish between two classes:

A. Borrowed words which fit the structure of the Arabic language completely by their ability to be segmented into:
   1. Consonantal roots in which the number of consonants does not exceed four or rarely five consonants. Consonant compatibility is in agreement with the consonant sequences (Mahadin 1982: 68-89). And, the phonemic inventories are the same.
   2. Vocalic patterns which are identical to native words in terms of the vowel sequences and the phonemes. Complete integration involves not only the primary borrowed forms, but also the derived forms. For example, if the borrowed word is a singular and belongs to this class of words, the plural is formed according to the same rule of pluralization (Cf. 8. (2)) and the same is true of loan derivatives of different kinds (Sa'id, 1967: 89-99). For more examples see (pp. 13 -15).

B. Borrowed words which can be re-adjusted to fit the Arabic models. The re-adjustment involves the number of consonants (Wright, 1979: 230-231), the vocalic patterns, and the phonemic substitution. Similar to the previous words (words in A), the (B) words can be used as potential words for other derivations. In short, both groups (A and B) can be considered loan derivatives either through primary or secondary derivations; that is, new verbal derivatives or nominal deriva-

tives can be formed from such borrowed words (Stetkevych, 1970: 38). Examples of (B) words are:

(mākīnah) "machine" is formed according to the model (fāʕilah) as in (tāʔirah) "air-plane". This form is used to indicate an instrument or machine. The root is (m-k-n). The pattern is (ā-i-a).

From "television" the noun of instrument is formed (tilfāz) as in (miftāh) "key" according to the model "mif'al". The root is (t-l-f-z). The verb is then formed from this root with the addition of the right vocalic patterns (talfaza) "to televise". (mutalfaz) is the passive participle which is formed from the abstracted root on the analogy of the passive participle of form I of the quadri-consonantal verbs; the model for this form is (mucaccac).

From the above discussion it becomes clear that all borrowed words are nouns. Also, the productivity of the noun depends on how much the noun is similar or can be similar to a certain model in the language; that is the noun's capacity to derive other grammatical categories. Forms which can be derived from the borrowed words are termed loan derivatives (Sa'id, 1967: 89-99). Loan derivatives can be formed from tri-consonantal roots or quadri-consonantal roots.

10. Loan derivatives derived from tri-consonantal roots:

A. From the word (numra) "number" the following words can be derived by modifying the abstracted root (n-m-r) (Sa'id, 1967: 39).

(nammara)	Form II	"he numbered something"
(tanammara)	Form V	"to put number"
(yunammir)		"to number"
(tanmīr)		"numbering"
(nammārah)		"numbering machine" like the noun of instrument model (fa^{cc}ālah)
(munammar)		"numbered"
(munammir)		"one who numbers something"

(nimra) or (numra) sg. The plural is (nimar) or (numar)

B. From the word (ɣāz) "gas" the root (ɣ-w-z) can be abstracted. The root can be modified to produce other words.

(ɣawwaza) Form II "he gassified"

(taɣawwaza) Form V	"to gassify"
(taɣawwaz)	"gasification"
(ɣāziyyah)	is a relative adjective from (az)

Other words of this type which are used in certain dialects and haven't won acceptance as common forms in the formal form of the language are the following:

(buks)	"box"	
root	(b-k-s)	
Form II:	(bakkasa)	
Form III:	(bākasa)	
Form V:	(tabakkasa)	
Form VI:	(tabākasa)	
Verbal:	(tabkīs)	"verbal noun of Form II"
noun	(mubākasa)	"verbal noun of Form III"

Similarly from the word (fīza) "viza" and the abstracted root (f-y-z), the following words can be derived:

Form II:	(fayyaza)	
pl.:	(fiyyaz)	
	(tafyyīz)	"verbal noun of Form II"

From the borrowed word "freezer" (fri:zar), the abstracted root (f-r-z) can be used for other derivations:

Form II:	(farraza)	
noun of instrument:		(?ifri:zar) or (fri:zar)
active participle:		(?imfarriz)
passive participle:		(?imfarraz)

Other examples: (mattara) from (meter), (?awwat) from (out) of Form II.

Loan derivatives derived from quadri-consonantal root: From the borrowed word 'oxygen' and its derivatives, the root (?-k-s-d) can be abstracted; then, it is used as a basic form for other derivations as in the following words:

(?aksada):	Form I of quadri-consonantal verb
(ta?aksada):	Form II
(?uksīd) sg.,:	plural (?akāsīd)
(?uksīdī)	relative adjective
(?aksada):	verbal noun "masdar"
(ta?aksud):	verbal noun of Form II
(mu?aksad):	passive participle of Form I
(muta?aksad):	passive participle of Form II
(mu?aksid):	active participle of Form I
(muta?aksid):	active participle of Form II
(?uksida):	passive Form I

Similarly, the root (?-m-r-k) can be abstracted from the borrowed word (?amrīka) "America"; then other Forms are derived from it:

(?amraka)	Form I
(ta?mraka)	Form I
(?amraka(h))	verbal noun "masdar" of Form I
(ta?amruk)	verbal noun of Form II
(?amriki)	sg., relative adjective for masculine
(?amrikiyyun)	pl., relative adjective for plural
(?amrikiyyah)	sg., relative adjective for feminine
(mu?amrik)	active participle of Form I
(muta?amrik)	active participle of Form II
(mu?amrak)	passive participle of Form I
(muta?amrak)	passive participle of Form II

From the borrowed word "magnet" which has the following Forms (miγnaṭīs, maγnaṭīs, miγnāṭīs, maγnāṭīs) , the root (m-γ-n-t) or (m-γ-ṭ-s) can be abstracted.

(maγnaṭa) or (maγṭasa)	Form I
(tamaγṭasa)	Form II
(maγṭasa)	verbal noun
(mumaγṭis)	active participle of Form I
(mumaγṭas)	passive participle of Form I

The above examples are only representative ones. There are other

borrowed words which can be used to derive other Forms from them. Some of these are:

(karbana)	from	(karbōn)	"carbon"
(saflata)	from	(?isfalt)	"asphalt"
(talfana)	from	(talafōn)	"telephone"
(talfaza)	from	(tilfizyōn)	"television"
(natradʒa)	from	(naytrodʒīn)	"nitrogen"
(hadradʒa)	from	(haydrodʒīn)	"hydrogen"
(fasfara)	from	(fisfōr)	"phisphor"
(kallasa)	from	(kalisyum)	"calcium"

It should be noted that only form I is presented in the last examples. This does not mean that no other forms can be derived from them (cf. Sa'id, 1967: 89-99).

11. In conclusion, borrowed words have been discussed to see the degree of adaptation of such borrowed words to the structure of the Arabic language, specifically to the models "?awazān?". From the discussion it becomes clear that the borrowed words vary in the degree of their assimilation. Some of them assimilate completely, consequently becoming productive for other derivations. To such words not only inflectional morphemes, but also derivational morphemes can be added. Also, verbs can be formed by analogy or back-formation. The potentiality of such words to be integrated completely is due to their morphological forms which are similar to certain forms in the native language; the stems can be analysed into consonantal roots and vocalic patterns. This is one of the main features of the Arabic language: its ability to form new words by modifying and changing the vocalic patterns and keeping the same root. This process is called the simple derivation or "al-ishtigāg al-ṣaγīr" (Stetkevych, 1970: 7). Most derivative loans which belong to this class are formed by proportional analogy (Mahadin, 1987) through either primary derivation or secondary derivation (Stetkevych, 1970: 38) according to existing models in the language.

Other types of borrowed words are words which cannot be considered as composed of two discontinuous morphemes. The potentiality for other words to be derived from them is very limited; it is limited to derivative suffixes which occur outside the stem without modifying its internal struc-

ture, or they allow only inflectional morphemes to the outer layer of the stem.

Comparing the number of borrowed words that can be analysed into two discontinuous morphemes with the number of words which cannot be analysed (words which fit the structure of the Arabic language), one might say it would be better to treat the stem, at least borrowed words, as one continuous morpheme regardless of the flexibility of such words to other morphological processes (Mahadin, 1986: 355-356), instead of treating them as exceptions especially "If the number of loan-words is large and the contact last for a sufficient length of time, the borrowing language may undergo some structural change…" Exceptional patterns may become submerged in so numerous exceptions that the pattern loses its force and acquires the status of one of many sub-patterns" (Lehiste, 1979: 148-149). Moreover, the one continuous morpheme approach is more practical, less abstract, and more capable of avoiding the many exceptions and unresolved problems in dealing with borrowed words. Also, this will open the door for the absorption of many words from other languages that are badly needed by our societies and by our scientific circles as well as by the users of the language in everyday life. This will not only enrich the language but also will facilitate communication better than the use of very vague, unknown, and absolute terms/words recreated from the classical lexicon.

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