

## The Cost of Change: Plural Formation of Loan Words in Arabic

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This study examines the formation of plural forms of borrowed nouns in Palestinian and Jordanian Arabic. Arabic has two types of plurals, suffix-based sound plural (e.g. *mat<sup>ʕ</sup>a:r* – *mat<sup>ʕ</sup>a:ra:t* ‘airport sg.–pl.’) and template-based broken plural (e.g. *maktu:b* – *maka:ti:b* ‘letter sg.–pl.’). These two types of plurals are found also in borrowed nouns, as exemplified in (1).

(1) Plural forms

	<u>Singular</u>	<u>Sound plural</u>	<u>Broken plural</u>	
a.	faks	faksa:t		‘fax’
b.	blog	bloga:t		‘blog’
c.	film		afla:m	‘film’
d.	folder		fala:dir	‘folder (in a computer)’
e.	malyo:n	malyo:na:t	mala:yi:n	‘million’

The nouns in (1a-b) take the sound plural and those in (1c-d) take the broken plural. However, the noun in (1e) takes either plural. The question addressed in this study is: How does the morphological mechanism select between the two formation strategies? I show that the selection of plural forms can be partially predicted, based on morpho-phonological constraints, as well as a semantic criterion.

The study is based on a collection of 153 examples of foreign plural nouns provided by native speakers of Palestinian and Jordanian Arabic. While in most cases the *-a:t* suffix is selected as the default plural marker, there is a noticeable number of cases where plural templates are selected. From the morpho-phonological point of view, I argue that properties of the loan word like stress, vowels and the number of syllables, as well as resemblance to existing Arabic nouns, determine which word formation strategy is selected and within the templatic plural forms, which ones are favored over others. On the semantic dimension, I show that when the foreign noun denotes human being, broken plural are almost exclusively selected.

**Plural formation in Arabic.** There are two main plural formation strategies in Arabic: Suffix-based ‘sound plural’ (SP) and template-based ‘broken plural’ (BP). There are two SP suffixes in Arabic. The suffix *-i:n* is attached to masculine nouns that denote humans only. It is also restricted with regard to the form of the singular base. This suffix is attached to participle forms like *maCCu:C* as well as other templates like *CaCCa:C*. Feminine formation in Arabic is performed by attaching the suffix *-e* to the masculine form, e.g. *m<sup>ʕ</sup>alleme* ‘teacher’. The plural formation of such nouns is performed by attaching the SP suffix *-a:t* (*m<sup>ʕ</sup>allema:t* ‘teachers fem.’). The broken plural involves internal modification of the singular base, e.g. *maktab*-*maka:tib* ‘office’. BP formation manifest diversity, but at the same time there is a great extent of regularity that allows partial prediction about the selection of one template and not another (Levy 1971, McCarthy 1983, Hammoud 1988). McCarthy & Prince (1990) show that there are structural properties that are drawn from the singular base, which cannot be attributed to the root or the template. This is attested when properties like vowel length are transferred from the singular stem to the plural and when derivational morphemes survive derivational processes. This study also supports their claim, showing that most cases where BP templates are selected for borrowed words can be explained based on properties on the borrowed singular base.

**Plural formation of loan words in Arabic.** Out of 153 foreign plural nouns, 108 (71%) take the *-a:t* suffix, 34 (22%) are formed as a template and 11 (7%) have two possible plural forms. While Arabic loan words prefer the SP *-a:t* as their plural marker (71%), the cases where BP is used does not seem accidental and can be accounted for by faithfulness constraints and a semantic constraint.

**Faithfulness constraints.** Faithfulness constraints require identity between a base and its derived form. I show that they play an important role in the selection of a plural form.

Selecting the SP suffix *-a:t* is the default strategy, as it allows keeping the structure of the base as is without any internal modifications. Syllable structure, number of syllables and the vowels and consonants of the base all remain intact (*komyuter- komyutera:t* ‘computer’). The selection of BP templates occurs almost exclusively in cases where the foreign base is mono-syllabic (*film-afla:m* ‘film’) or bi-syllabic (*banšer-bana:šer* ‘puncture’). In such cases the loan word has a syllabic structure of Arabic words that take themselves BP template. The word *bank*, for example (*CVCC*) has the same structure as the Arabic noun *bayt* ‘house’. The latter has the BP form *byu:t* (*CCV:C*) and the plural of *bank* takes the same template (*bnu:k*). The existence of a *CVCC- CCV:C* paradigm in plural formation allows the implementing the same strategy on loan words. When the loan nouns exceed the minimal word size, none of the BP are selected. This is because the morphological mechanism cannot adjust such words into any of the Arabic templates without deletion of syllable and some of the consonants. A quarto-syllabic word like *karburater* ‘carburetor’ cannot fit any of the existing BP templates.

**Stress preservation** also plays a role in the selection of BP forms. The suffix *-a:t* always takes stress and therefore changes its position. Selecting some of the BP forms allows keeping the same stress pattern. The selection of one of the BP forms *CaCa:Ca:CiC* and *CaCa:Ca:Ci:C* is not random. *CaCa:Ca:Ci:C* is selected when the base has ultimate stress (*kartu:n-kara:ti:n* ‘cartoon’). The stress pattern in the plural form remains in tact, as well as original position of stress in the loan. When stress is penultimate, *CaCa:Ca:CiC* is selected (*tánker-taná:kir* ‘tanker’). The position of stress does not remain intact, as it is on the first syllable in the loan. However, the stress pattern remains the same. Adding the SP suffix would alter the stress pattern completely as it falls on the suffix (e.g. *folder -\*folderá:t*, instead of *falá:dir*).

Such cases demonstrate the central role of stress in word formation. Generally, the findings provide further support to the claim that properties of the base are taken into account in word formation. The morphological mechanism tries to keep the derived form as faithful as possible, and in the case of plural formation of loan words, the competition is between two faithfulness constraints: keeping the base structure in tact or keeping the same stress pattern, while taking into considerations templatic restrictions on word formation in Arabic. This is supported by previous studies, where faithfulness constraints have been shown to play a role in adapting foreign words (Boložky 1978, 1999, Bat-El 1994, 2002, Ussishkin 1999, 2005).

**The [+/- human] distinction.** The SP *-i:n* suffix is rather unproductive within Arabic existing words. Its use is restricted to nouns and adjective of certain templates like *mCaCCeC*. Since the *-a:t* suffix is hardly ever used for plural of [+human] masculine nouns, it cannot be used for the foreign nouns in (2). The only option that is left for plural formation is the use of the BP forms that are also used in Arabic words and that can also denote human being. This provides further evidence that the +/- human (or animate) distinction is relevant for the grammar, as have been shown in various studies.

(2) Plural forms of [+human] nouns

Singular	Plural	
kábtin	kabá:tin	‘captain’
daktu:r	daká:tra	‘doctor’
imbráto:r	abá:tira	‘emperor’

**Variation in plural formation.** Plural formation of Arabic loan nouns is subject to variation, where the same noun takes both a SP and a broken plural form. The noun *ballo:n* ‘balloon’, for example, takes both the *-a:t* SP suffix (*ballo:ná:t*) and the BP *CaCa:Ca:Ci:C* template (*bala:li:in*). This variation is found between dialects of Arabic and in some cases within the same dialect. This happens mainly in nouns with ultimate stress. The existence of few plural forms result from the two competing faithfulness constraints discussed above.

Examining the morphological behavior of loan nouns provides direct access to the process of word formation and shows how different types of constraints are taken into consideration. Specifically, this study provides further support for a word-based approach, as it demonstrates another case where elements from the base, in addition to the consonants, are transferred to the derived plural form.