

A Segmental approach to word stress in Arabic

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Stress in Modern Standard Arabic (MSA) and most modern Arabic dialects in general as well as in Libyan Arabic here after (LA) in particular has been referred to in several works. MSA and some modern Arabic dialects, such as Palestinian, Cairene and Darnasene, have been studied in Brame (1973 and 1974), McCarthy (1979b), Halle and Vergnaud (1987), Halle and Kenstowicz (1990) and Halle and Vergnaud (1990), and LA in Laradi (1982), Abumadas, (1985), El-Gadi (1986), Lagaa (1995) and others. In this Article, we are not proposing to repeat what has been said in these works. I shall give a brief introduction to the reader to the stress rules of LA, which will serve as a background to the following sections. Before proceeding to the description

of stress patterns in LA, I shall cite the following facts in (1) below about word stress in Arabic.

- I. a. Stress placement in MSA is sensitive to syllable Weight.

The following syllables appear in Arabic.

- i. Light syllable = CV (open syllable).
 - ii. Heavy syllable = CVV or CVC.
 - iii. Super heavy syllable = CVVC, CVCC.
- b. The final syllable is extrametrical unless it is super heavy, and does not contribute anything to syllable weight.
 - c. The rule of stress in MSA is similar to Latin, and proceeds as follows:
 - i. Stress the ultimate syllable if it is super-heavy. (CVVC or CVCC).
 - ii. Otherwise stress the penultimate syllable if it is heavy (CVV or CVC).
 - iii. Otherwise stress the antepenultimate syllable.

The studies cited above have examined stress in LA in the context of the Sound Pattern of English (hereafter, SPE) system of stress assignment. Stress in SPE is viewed as a feature [+ or -] attaching to segments as a result of applying the stress rules of the language to segmental strings. Vowels in underlying strings of elements in LA are assigned stress under certain conditions involving

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direction from the right edge and the number of consonants following it. These rules can be summarized as follows:

a. Monosyllabic word is always stressed, whether the vowel is long or short as in:

ʔaab "he repented".

ʔaadd "dam".

smʔn "he become fat".

grʔe "he read".

b. In words consisting of two syllables or more, a final vowel is stressed only if it is long and followed by a consonant or it is short followed by two consonants as in the following examples, for native words in (2.i) and loan words in (2.ii), where the accent mark (') is used here to represent stress:

2. i. dukkraan "shop"

ʔummaal "workers"

ʔakalt "I ate "

kaʔabt "I wrote"

ii. Saṅṅiir "jiff"

ʔalaʔʔuun "television"

c. Otherwise, the penultimate vowel is stressed under the same conditions as assigning stress to the ultimate, as in (3) below.

3. i. maʔaaʔir "shops"

	mak' aatib	"offices"
	kall' amtak	"I spoke to you"
ii.	firas'yooni	"clutch"
	sharaT'uuri	"accelerator pedal"

c. Otherwise, the antepenultimate vowel is stressed as in the examples in (4).

4. i.	Sh'arika	"company"
	glaabalu	"they met"
ii.	Kamira	"camera"

It should be noted that stress rules in LA do not look beyond the antepenultimate syllable. Words composed of more than three syllables are stressed in one of the three right-most syllables according to the three conditions above. The following examples show how stress cannot go beyond the antepenultimate syllable.

5. i.	Mu'aamal'aat	"treatments"
ii.	mul'akbaTah	"mixed up"
iii.	makar'oonah	"macaroni"
iiii.	kat afiiti	"screw driver"
ix.	mara ab'leedi	"footpath"

The words in (5) above have more than three syllables. Stress is never assigned to the preantepenultimate or any syllable preceding it. In other words, stress is not applied before the

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antepenultimate, no matter what the quality of the vowels and the following segments may be.

This antepenultimate limit is a property of the stress system of most modern Arabic dialects. (McCarthy, 1979, Broselow 1976). All these generalizations about the stress assignment process LA are captured by one rule schema formulated in ElGadi (1986:76) and Laradi (1982:35). This rule is reproduced in (6) below.

6. $V [+ \text{stress}] / C ((CVC)V)C[C]$

This rule abbreviates the following three rules in (7) which are assumed to apply disjunctively:

7. a. $V [+ \text{stress}] / CVCVC$
b. $V [+ \text{stress}] / CVCVCVC$
c. $V [+ \text{stress}] / CVCVCVC(C)$

The following three words show how the stress rules in (7) will assign stress to words in LA:

'arika	mataajir	baanaat	
-----	-----	baan'aat	(7.a)
-----	mataajir	-----	(7.b)
'arika	-----	-----	(7.c)

It must be pointed out that stress placement works in term of underlying syllable weight. Environment (7.a) places stress on final syllable as in /baan'aat/. Environment (7.b) stresses a penultimate syllable of heavy syllable as in /mataajir/. Environment (7.c) provides for stress on

antepenultimate as in /arika/.

Moreover, the rule in (6) is assumed to apply in a cyclic fashion. Chomsky and Halle (1968) made use of the transformational cycle as a mechanism for deriving stress patterns of complex words, as illustrated for [(SallaH+ta)] "I repaired it".

8. [(SallaH+ta)] Underlying representation
 sallaH first cycle stress assignment
 salla-l+ta second cycle stress assignment
 following addition of suffix.
 sallaHta surface representation

In this illustration the root word shows stress on the first syllable because of the constraint in Arabic which prevents stress from falling on a word final heavy syllable. When a suffix is added the penultimate syllable attracts stress since the final syllable is not superheavy, see the rules above.

As far as stress assignment is concerned, both subject and object suffixes may affect the placement of stress if these suffixes start with a consonant. (9) below shows stress assignment according to this principle.

9. D'arah D'arah "he hit"
 D'arab+uu D'arabuu "he hit him"
 Darabaha Darabha "he hit her"
 D'arab+ik D'arabik "he hit you,
 sing, masc"

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D'arab + ak	Darahak	"he hit you, sing, fem"
D'arab + ni	Dar'abni	"he hit me"
D'arab + hum	Dar'abhum	"he hit them"
D'arab + kum	Dar'ab+kum	"he hit you, p 1 "
D'arab + na	Dar'abna	"he hit us"

Thus, it seems that rule (6) can account correctly for stress patterns found in LA.

However, before this conclusion is accepted, it needs to be measured against the following observations:

First: the rule in (6) views stress as a feature with the same theoretical status as other segmental features, such as [+coronal] and [+nasal], etc., so that stress is looked at as a property of single segment rather than a syllable. However, this approach has been criticized in early studies of metrical phonology (Liberman and Prince 1977, Hayes, 1981, and Prince 1983).

Second: the rule in (6) must be ordered with respect to other phonological rules such as syncope and epenthesis, which has been discussed in (Laga's 1995) Briefly anticipating here, syncope deletes an unstressed high short vowel in open syllables, when affixation occurs as in the following examples:

10. 'allim + uu + kum 'alm'uukum "they teach you"
'allim + uu + hum 'alm'uuhum "they teach them"

The function of the epenthesis rule is to incorporate into wellformed syllables consonants, which cannot be properly syllabified by the rules of syllabification. Cases of unsyllabified consonants usually arise as a result of the continuation of morphemes, as shown by the following examples:

11. katab+t katabit "I wrote"
 katab++t+ha kar'abriha "I wrote it"
 katab++t+l+kum katabt'ilikum "I wrote to you"

These two rules (syncope and epenthesis) may affect the placement of stress. The word is stressed on the first syllable in the word stem. When the suffix (uu) is added there is no change in the stress placement, /9alimuu/. Further addition of a suffix such as /kum/ to the word /9alimuu/ will affect the structure of the word and the stress placement as a result of changing the number of syllables. The following example shows syncope applying in the cycle:

- [[['alim]+uu]+kum]
 12. 'alim first cycle
 'alim+uu second cycle
 a:im'uukum Stress
 alm'uu+kum syncope rule

Third: rule (6) refers to the representation of length. A long vowel in Arabic is derived from an underlying sequence of two identical vowels or morae. The stress rule in (6) predicts that a word like /banaat/ "girls" or

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/taa jir/ "merchant" are assigned stress in the following way⁽¹⁾:

/han' aat/ subrule (7.a)

/taajir/ subrule (7.b)

Finally, the rule in (6) has to apply disjunctively. The picture of the stress system given by SPE is introduced in this paper.

- 1) Brame (1973) in his discussion of two Arabic dialects assumes that long vowels in Arabic are derived from underlying sequences of at least two identical vowels by a late rule turning such sequences into a single long vowel. In my view this treatment of length is intended to simplify the formulation of the stress rule.
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