

The Syllabic Scrutiny of Word Stress in Najdi Saudi Arabic

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Abstract—This study will provide a brief description of the stress in Najdi Arabic dialect as well as Modern Standard Arabic. Beyond the analysis of stress patterns, this paper will also attempt to deal with two important phenomena that affect stress, namely epenthesis/insertion, vowel shortening, and consonant (the glottal stop) deletion.

Keywords—Epenthesis, Najd, stress, vowel shortening.

I. INTRODUCTION

ARABIC language belongs to the Semitic group of languages. Arabic is the native language of over 150 million Arabs living in the area that extends from Morocco in the northwestern part of Africa to United Arab Emirates and Oman in the eastern coast of the Arabian Gulf. Formally, Arabic has a morpho-syntactic structure that is unrelated to English or any of the Indo-European languages. For example, Arabic enjoys a rich inventory of consonants. Arabic has two variants or languages: Classical Arabic (the language of Islam's holy book) and Modern Standard Arabic (the modern descendant of Classical Arabic, unchanged in its syntactic elements, but very much changed and still changing in its lexicon). Standard Arabic is the official language used in all seventeen Arab countries. It is used in formal situations that include political speeches, sermons, lectures, news broadcasts, conference discussions, and most written activities. Colloquial Arabic, on the other hand, is the actual language of everyday activities, mainly spoken, and it varies not only from one Arab country to another, but also from one area to another within counties [1].

Modern Standard Arabic has twenty-eight consonants. It has also three short and three long vowels. Furthermore, it has a rich inflectional system of case for nouns and verbs including and plural forms for verbs, nouns, and pronouns. It is endowed with a rich vocabulary characterized by a multiplicity of synonyms. In contrast, the phonological system of the colloquial varies extremely, but all of these share a simplified inflectional system case and dual forms. Phonemically, when we consider the several colloquial dialects of Arabic that exists in the Arab countries, the number of consonants would be thirty one and here the reference is to the Arabic sounds as they are used orally. The sound system of Modern Standard Arabic is not very distinct from that of the colloquial.

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Very few sounds that exist in the Modern Standard Arabic are not used in the colloquial, and vice versa [2]. Verbs and nouns are main word classes. Nouns are derived from verbs and verbs sometimes are derived from nouns. Therefore, the Arabic language has a very distinct and complicated conjugated system.

There are three root types: strong, hollow, and weak. The strong root does not contain glides (ktb “to write”). The hollow root has a glide as the second letter (nwm “to sleep”). The hollow has a glide as the third letter (rmy “to throw”) [3].

In Arabic writing system, the short vowels are not written; only the long vowels are. For example, the word /kataba/ consisting of three consonants would be in the Arabic system as follows: ktb.

The vowels in transcriptions will be short vowels a, i, u and the long vowels will be a:, i:, u:. Using English transliterations, we will use the Arabic writing system in most cases here Najdi inventory of vowels include three short vowels and five long vowels (i, a, u, i:, a:, u:, e:, o:) [4].

Najdi Arabic (spoken in the central part of Saudi Arabia) is similar to Modern Standard Arabic to some extent. However, there are some sounds that exist in Modern Standard Arabic, but are not found in Najdi Arabic. For instance, the phoneme /d/ which is a voiced dental fricative exists in Modern Standard Arabic, but is not there in Najdi Arabic. The phonemes /z/ and /d/ has been merged and pronounced as /z/. On the other hand, the voiceless affricate allophone [ts] of the phoneme /k/ is found in Najdi Arabic, but not in Modern Standard Arabic [5]. In general, the morphology of Najdi Arabic is similar to that of Modern Standard Arabic with the exception that Najdi Arabic exhibits more elaborate morphology.

To the best of the researcher's knowledge, there are few studies (such as Egyptian, Palestinian, Lebanese, Sudanese, and San'ani) that describe the stress of Arabic dialects, which is perhaps due to the fact that many educated Arabs do not encourage research on the dialects for fear of damaging the status of Modern Standard Arabic especially when doing written research on the colloquial.

II. MODERN STANDARD ARABIC SYLLABLES

Like the English language, the Arabic language has two kinds of syllables: an open syllable and a closed syllable. Every syllable begins with a consonant, not a vowel. And if the word begins with a vowel (the definite article *al*), it is recognized in Arabic as beginning with the glottal stop /ʔ/. In Modern Standard Arabic language, the open syllable consists of a consonant and a vowel (CV) or a consonant followed by

two vowels (CVV). The closed syllable consists of a consonant followed by a vowel and followed a consonant (CVC) or a consonant followed by two vowels and a consonant (CVCC). The latter syllable (CVCC) occurs word finally [6]. Additionally, Modern Standard Arabic does not allow initial consonant clusters (double onsets) and even if they appear close to each other, the first consonant of the cluster belongs to the coda of the first syllable and the second acts as a second of the second syllable [7]. For example, mak.tab (desk) can be illustrated in Fig. 1 to clearly show the point.

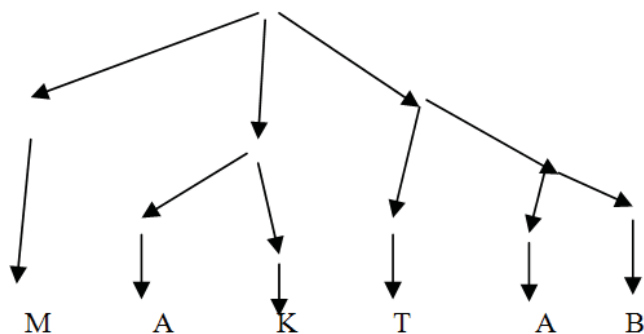


Fig. 1 Tree Diagram of maktab

III. SYLLABIC STRUCTURE OF MODERN STANDARD ARABIC

The syllabic structure of Modern Standard Arabic has shown that the possible types are as in the following:

- Light syllable: CV (ka.ta.ba) (wrote). This syllable comes word initially, medially, and finally.
- Heavy syllable: CVV. This occurs word initially (ka:tb “writer”), medially (ka.li.maa.ti “my words”) and finally (ramaa “threw”). CVC occurs in all positions (e.g yik.tub “he writes”) and it is light word finally.
- Superheavy syllable: The following super heavy syllables occur at word end.
 - CVVC (nu:m) (sleeping).
 - CVCC (barq) (lighter).
 - CVVC (shaabb) (young).

In some cases, the syllabic structure consists of CVCCV. Since speakers of Modern Standard Arabic delete short vowels in the word final position upon pausing, the final structure is CVCC. For example, ?a.kaltu tufaha (I ate an apple).

Pausing on the word (?a.kaltu) would yield (?a.kalt). Here the word final short vowel /u/ is deleted/ apocopated [6]-[8].

IV. SYLLABIC STRUCTURE OF NAJDI ARABIC

In general, the syllabic structure of Najdi Arabic is not much different from that of Modern Standard Arabic. In Najdi Arabic, there are three basic types of syllables:

- Light syllable (CV). This syllable occurs word initially, medially and finally. For example, ik.ta.bu (they wrote). Here the syllable (CV) appears word initially, medially, and finally.
- Heavy syllable (CVV). This syllable occurs word initially but usually comes word medially. It does not appear word

finally. That means that Najdi Arabic dialect diverges from Modern Standard Arabic in disallowing CVV word finally.

- ka:tb (writer). Here it is word initially.

Like the light syllable, this syllable (CVC) occurs in all positions. This syllable, however, is regarded in the final position as a light syllable. For instance, the underlined is the CVC syllable.

- mak.ta.buh (his office).
- ki.tab.tuh (I wrote it).

In the previous examples / h/ is added to the final words. This insertion/addition makes Najdi Arabic remarkable among all Saudi dialects.

c. Superheavy syllable in Najdi Arabic, as in Modern Standard Arabic and most Arabic dialects, superheavy syllables appear in the word final positions:

- CVVC (nu:m) (sleeping).
- CVCC (barq) (lighter).
- CVVC (shaabb) (young).

The super heavy syllables are bimoraic. The CVV is bimoraic too. As for the syllables CVV and CVC are equally bimoraic in medial position. However, CVC is light word finally.

Unlike Modern Standard Arabic, Najdi Arabic allows initial consonant clusters (double onsets). For examples, fla.mu.hum “their movies”, gla.mu.hum “their pens”. In this case, Najdi Arabic would not encounter a problem in pronouncing an English word such as “street”. Other dialects in Saudi Arabia would face difficulty in pronouncing such clusters. To solve this dilemma, speakers of these dialects resort to epenthesis. They insert a vowel to resyllabify the English word to conform to the syllabic structure permitted in these dialects [9]. Applying the same example, they would utter (sitreet) instead of pronouncing (street).

In Najdi syllabic structure (CVCC), Najdi speakers insert a vowel to split the final cluster. For example, the word (gidr “pot”) is pronounced without inserting a vowel in Modern Standard Arabic whereas in Najdi Arabic a vowel is epenthesized to break up the final cluster (gidr). / i / is usually chosen as the epenthetic vowel. Taking this as an example, we could say that Najdi Arabic is sensitive to the Sonority Sequencing Principle that dictates that sonority level should drop as we move from C1 to C2 [10]. Based on this, only consonant clusters that agree with the Sonority Sequencing Principle are accepted. We notice here that the consonant cluster [dr] has a sonority peak, rather than a sonority fall which makes Najdi native speakers insert a vowel [dir]. If we look at a contradictory example in Arabic, we notice that the words (gird “monkey”) or (?akalt “ I ate”) are pronounced the same because the coda clusters conform to the Sonority Sequencing Principle. That is the sequences [rd] and [lt] are permitted whereas [dr] and [tl] are not because the sonority level rises as we move for instance from /d/ to /r/.

In Modern Standard Arabic, it is possible to obtain a string of five light syllables: ja.ga.ra.tu.hu.ma: “their (dual) tree”. Such a form does not exist in Najdi Arabic. It can be observed

that Najdi Arabic has a maximum of four syllables (e.g., *if.ga.rat.hum* “their (dual) tree”).

V. NAJDI ARABIC STRESS

Stress refers to the intensity with which the syllable is pronounced and it is used as a cover term for pitch, duration, and intensity [11]. Unlike English, Arabic stress is predictable. There are constraints on the location of the stress. In English dissyllabic words, for instance, the default stress falls on the penultimate (e.g. *agent*) (From here on STRESS is shown in **BOLD**). In some exceptional cases, stress falls on the ultimate (e.g. *appeal*). Thus, English is not like Arabic which has “a surprisingly common stress rule” [11]. Arabic is also non-phonemic. That is, stress does not change the grammatical category nor does the meaning of the word (6). In English, the noun (*permit*) is distinguished from the verb (*permit*) via stress. Even although Najdi Arabic deviates from the Modern Standard Arabic and stresses words like (*ka.ta.bat* “she wrote”) as (?*k.ta.bat* “she wrote”), stress does not affect the meaning of the word. Additionally, Arabic carries a primary stress like most languages. Every word possesses only one stress. A few languages such as English have a primary and a secondary stress. For instance, the English word (*photographic*) has two prominent syllables. The first one (pre-antepenult) is the secondary stress and the third (penultimate) is the primary stress [10].

One major aspect of Arabic is that syllables, long or short, are pronounced. They do not disappear or get rendered because they are unstressed. If we look at English as a counter-example, we notice that the schwa /ə/ in *absent* is so weakened that it almost disappears. And this is what makes an Arab speaker pronounce an English word with an Arabic accent. For instance, [hi: went **tu**: sku:l] [12].

Before delving into Najdi stress, a brief description of the stress of Modern Standard Arabic would be useful to compare and understand the stress patterns of Najdi Arabic.

Stress in Modern Standard Arabic as well as Saudi dialects including Najdi Arabic is governed by syllable weight. A heavy syllable attracts stress and light syllable does too in the absence of a heavy syllable. The stress rules of Modern Standard Arabic are as follows [6]:

1. Only one of the last three syllables is stressed. For example,
 - *mak.ta.ba.tun* “library”.
2. The stress falls on the ultimate syllable, it is super heavy. For examples,
 - *ja.di:d* “new”, *ri.jaal* “men”.
3. In monosyllabic words, the ultimate syllable attracts stress. For example,
 - *gad* “already”.
4. In dissyllabic words, stress falls on the penultimate. For examples,
 - *wa.lad* “son”, *ka:tib* “writer”.
5. In polysyllabic words, stress falls on the penultimate if it is heavy. For examples,
 - *Ja.di:dun* “new”, *ka.tab.tum* “you write”.

6. If the penultimate is light, stress moves to the antepenultimate. For examples,
 - *ka.li.ma* “word”, *mak.ta.ba* “library”.
7. In longer words, the final syllable is not stressed if it is not super heavy. The syllable CVC is not stressed word finally. For example,
 - *Ka.li.ma.tun* “word”

In fact, the stress rules of Najdi Arabic are slightly distinctive from Modern Standard Arabic.

The stress generalizations of Najdi Arabic are as:

1. One of the last three syllables attracts the stress. For examples,
 - *ma.la.bis.hum* “clothes”, *mrd.ri.sih* “school”, *ki.ta:ba.tuh* “his writing”
2. Stress falls on the final syllable if it is superheavy (CVCC, CVVC, CVVCC, CVCVC). In most Arabic dialects, super heavy syllables surface at the end of the words. For examples, *mu.sa.ha.ma:t* “contributions”; *li.sa.ni.ya:t* “linguistics”.
3. In a two syllable word, the penultimate syllable bears the stress. For example,
 - *ba.na* “he built”
4. In polysyllabic words, stress falls on the antepenultimate if the penultimate is light. In the following example, the penultimate is light and thus the penultimate attracts the stress.
 - *mak.ta.buh* “his office”.

If we look at another example taken from Modern Standard Arabic (*yak.tub.na* “they (fem) write”) and Najdi Arabic dialect (*yak.ti.bn* “they (fem) write”), we notice that the stress in Najdi Arabic falls on the antepenult because the penultimate is light. The stress on the other hand in Modern Standard Arabic is on the penultimate since it is heavy.

In Egyptian Arabic, the penultimate always bears the stress even if the antepenult is heavy. For examples, *mrt.nar.fi.za* “angry”, *mad.ra.sa*. Even though the penultimate is light and the antepenult is heavy, stress does not fall on the antepenult [13]. Using the same example, the antepenult carries the stress in *mad.ra.sah*, rather than the penultimate which indicates that stress prominence is assigned to heavy syllable.

5. The CVV syllables attract stress. For example,
 - *ki.ta:ba.tuh* “his writings”.

Contrary to the CVV syllable, final CVC syllables do not attract stress although they are regarded as heavy syllables. For example, *mrd.ri.sih* “school”.

There are phenomena affecting the location of the stress. Epenthesis, vowel shortening and consonant (the glottal stop) deletion affect the syllable structure and thus they can change the position of the stress.

Epenthesis

Epenthesis of a vowel is exclusively allotted to word initially as in Table I.

TABLE I
EXAMPLE OF THE ANTEPENULTIMATE

| Stress of Modern standard Arabic | Najdi Stress |
|----------------------------------|-------------------------|
| Ka.ta.bat “ she wrote” | ?rk.ta.bat “ she wrote” |
| Ka.ta.bu “ they wrote” | ?rk.ta.bu “ they wrote” |

TABLE V
LOAN WORDS

| English | Najdi Arabic |
|-------------------|----------------|
| Television | ta.la.viz.yu:n |
| Mobile | mo.ba.yaal |

As mentioned before, falls on the antepenultimate if the penultimate is light. But in these examples, the penultimate attract the stress and this change in stress is attributed to the vowel insertion.

Glottal Deletion

Glottal deletion affects the syllable structure and thus alters the location of the stress (Table II).

TABLE II
EXAMPLES OF GLOTTAL DELETION

| Stress of Modern Standard Arabic | Najdi Stress |
|----------------------------------|--------------------------|
| ?al.ki:m.ya:? “ chemistry” | ?al.ki:m.ya “ chemsirty” |
| ?al.fi:z.ya:? “ physics” | ?al.fi:z.ya “ physics” |
| ?al.ga.da:? “ lunch” | ?al/ga.da “ lunch” |
| ?al.sa.ma:? “ sky” | ?al.sa.ma. |

In the above examples, the stress in Modern Standard is on the ultimate since it is a heavy syllable. In Najdi Arabic, the stress moves to the penultimate as in “?al.ki:m.ya” because the syllable becomes light. In the last three examples, we notice that the stress moves to the antepenultimate since the penultimate and the ultimate are categorized as light.

Contrastive Vowel Length (Vowel Shortening)

The long vowel in Modern Standard becomes short in some cases in Najdi Arabic and this of course changes the position of the stress. Examples showing (a) the contrastive vowel length in final position are presented in Table III. (b) The contrastive vowel length in medial position is shown in table IV. In the following examples, the position of the stress is not affected by the syllabic structure but it still conforms to the stress rule which states that contrastive vowel becomes short.

TABLE III
CONTRASTIVE VOWEL IN FINAL POSITION

| Modern Standard Arabic | Najdi Arabic |
|------------------------|-------------------|
| ra.ma: “ he threw” | ra.ma “ he threw” |
| ra.ha: “ he went” | Rah “ he went” |

TABLE IV
CONTRASTIVE VOWEL IN MEDIAL POSITION

| Modern Standard Arabic | Najdi Dialect |
|--------------------------|-----------------------|
| ʃi:ra:? “ purchase (n)” | ʃl.ra “ purchase (n)” |
| ga:la “ he said” | gal “he said” |
| la:ma “ he blamed” | lam “ he blames” |

Loan Words

Even in loan words from English, Najdi dialect follow the same stress patterns with these loans as presented in Table V.

It is noticeable from the above examples that the syllabic structure alters the stress location. These examples display that the Arabic stress, including Najdi Arabic, is predictable and follows a certain pattern, compared to English. The stress in both examples is on the ultimate since it is a superheavy syllabus (yu:n) (CVVC),

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