Word Stress and Vowel Neutralization in Modern Standard Arabic

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Abstract

Word stress in Modern Standard Arabic is of great importance to language learners, while precise stress rules can help enhance Arabic speech technology applications. Though Arabic word stress and vowel neutralization rules have been the object of various studies, the literature is sometimes inaccurate or contradictory. Most Arabic grammar books give stress rules that are inadequate or incomplete, while vowel neutralization is hardly mentioned. The aim of this paper is to present stress and neutralization rules that are both linguistically accurate and pedagogically useful based on how spoken MSA is actually pronounced.

1 Introduction

Word stress in both Modern Standard Arabic (MSA) and the dialects is non-phonemic. Whereas in English words like the noun *permit* are distinguished from the verb *permit* by stress alone, stress cannot be used to distinguish meanings in Arabic. Thus even though Cariene speakers by influence of their dialect may deviate from the standard and stress words like كَتَبْتُهُ 'I wrote it' as /ka-tab-**tu-**hu/ rather than the standard /ka-**tab-**tu-hu/, this difference in stress does not change the meaning of the word (with rare exceptions discussed below).

Standard MSA stress is based on the dialects spoken in the Mashriq (east of Egypt and north of the Arabian Peninsula). Some fluctuations may occur in informally spoken MSA by influence of the local vernacular. For example, Egyptians may apply dialectical stress patterns that sometimes differ from standard MSA, as in مَدْرَسَة 'school', stressed as /mad-**ra-**sa/ rather than the standard **mad-**ra-sa/. Although on the whole stress in formal MSA (as for example in newscasts) is fairly uniform throughout the Arab world, it is important to note that MSA stress rules differ somewhat from those used in liturgical Arabic.

Arabic word stress and vowel neutralization rules have been the object of various studies, such as Janssens (1972), Mitchell (1990) and Ryding (2005). Though some grammar books offer stress rules that appear short and simple, upon careful examination they turn out to be incomplete, ambiguous or inaccurate. Moreover, the linguistic literature often contains inaccuracies, partially because little or no distinction is made between MSA and liturgical Arabic, or because the rules are based on Egyptian-accented MSA (Mitchell, 1990), which differs from standard MSA in important ways.

Arabic stress and neutralization rules are worthy of serious investigation. Other than being of great academic and theoretical interest, these rules have practical applications in pedagogy, speech technology, lexicography and the compilation of learning materials such as grammar books and textbooks. Unfortunately, the results of linguistic research in this area have hardly made their way into Arabic pedagogical materials, including dictionaries. Consequently, almost all grammar books give stress rules that are inadequate or incomplete, while vowel neutralization is rarely mentioned.

The aim of this paper is to present stress and neutralization rules and exceptions that are both linguistically accurate and pedagogically useful. The rules are presented from a pedagogical, rather than a formal linguistic, point of view. Based on considerable research of the literature on how MSA is actually spoken, and on informal interviews with informants, the rules given here aim to be unambiguous and complete.

2 Format and Definitions

Phonemic transcriptions are surrounded by slashes (except inside tables), while syllable boundaries, which do not necessarily coincide with morphemic boundaries, are indicated by hyphens. Parentheses indicate the second half of a long vowel or consonant that is not pronounced (neutralized), as in /ya(a)-**baan**/, or possibly pronounced half-long. **Boldface** is used to indicate the stressed syllable.

Two consecutive vowels (as in CVV or CVVC) represent either a long vowel (نُون 'the letter nuun' /nuun/) or a diphthong (يَوْم 'day' /yawm/). Similarly, two consonants (as in CVCC) represent either a double consonant, indicated by a *shadda* (حَجّ 'pilgrimage' /Haj(j)/), or distinct consonants (بَرْق 'lightning' /barq/).

Disyllabic, as is self evident, refers to words consisting of two syllables, while *polysyllabic* refers to those consisting of three or more syllables but excludes those of two syllables.

Proclitics in Arabic refer to one-letter function words such as the definite article and some prepositions attached to the beginning of a word. These include ٱلْ /'al/, وَ /wa/, فَ /fa/, بِ /bi/, لِ /li/, لَ /la/, كَ /ka/, أَ /'a/ and سَ /sa/, and are ignored in determining stress.

3 Syllabic Structure

To understand stress rules properly, it is necessary to understand how words are divided into syllables (syllabic structure). Arabic syllables are of six structural types that can be classified into the three categories defined below: **light**, **heavy** and **superheavy**.

1. A **light syllable** consists of a consonant followed by a short vowel (CV).

1. CV	كَ /ka/	consonant followed by a short vowel.
CV	بِ /bi/	consonant followed by a short vowel.

2. A **heavy syllable** consists of either a consonant followed by two vowels (CVV), or of a consonant followed by a short vowel and a consonant (CVC).

2. CVV	بَا /baa/	consonant followed by a long vowel
CVV	كَيْ /kay/	consonant followed by a diphthong

3. CVC	بَبْ /bab/	consonant followed by a short vowel and a consonant

3. A **superheavy syllable** consists of a consonant followed by one or two vowels followed by one or two consonants:

4. CVVC	نُون /nuun/	consonant + long vowel + consonant
CVVC	يَوْم /yawm/	consonant + diphthong + consonant
5. CVCC	كَبّ /kabb/	consonant + short vowel + double consonant
CVCC	بَرْق /barq/	consonant + short vowel + consonant + consonant
6. CVVCC	شَابّ /shaabb/	consonant + long vowel + double consonant

Only one superheavy syllable can appear in a word, which almost always occurs at word end. But occasionally superheavy syllables can occur in other positions, as in شَادَّ /**shaad**-da/ 'he argued'.

4 Stress Rules

1. **Stress always falls on the ultimate syllable if that syllable is superheavy**. This rule takes precedence over all others.

Arabic	Roman	English
رجَال	ri-**jaal**	men
جَديد	ja-**diid**	new
يَابَان	ya(a)-**baan**	
يَابَانيّ	ya(a)-ba(a)-**niyy**	Japanese

   Table 1: Stress on superheavy

2. **In monosyllabic words, stress falls on the ultimate syllable**.

Arabic	Roman	English
مَا	**ma(a)**	what
قَدْ	**qad**	already
لَقَدْ	la-**qad**	already
بكَم	bi-**kam**	how much

   Table 2: Stress on ultimate

   Though it is self-evident that monosyllabic words can only be stressed on the single syllable, it is necessary to keep in mind that proclitics are ignored in counting syllables, so that disyllabic words, like لَقَدْ are considered monosyllabic for stress purposes.

3. **In disyllabic words, stress falls on the penultimate syllable**.

Arabic	Roman	English
هِيَ	**hi**-ya	she
بَنَى	**ba**-na(a)	he built
وَلَد	**wa**-lad	son
اَلوَلَد	'al-**wa**-lad	the son
وَآلوَلَد	wal-**wa**-lad	and the son
بَاتَ	**baa**-ta	he spent the night
مَاذَا	**maa**-dha(a)	what
كَاتِب	**kaa**-tib	writer
نَحنُ	**naH**-nu	we
قُلنَا	**qul**-na(a)	we said
شَادَّ	**shaad**-da	he argued
أجَل	'a-**jal**	indeed

Table 3: Penultimate stress in disyllabic words

- Every possible structure of disyllabic words, including those with short vowels, long vowels, diphthongs and clitics, is shown above. In principle, stress is always on the first syllable of disyllabic words. However, some words that seem disyllabic, like بِكَمْ, are actually monosyllabic with a proclitic attached. Since proclitics are not stressed, this must be pronounced /bi-**kam**, not **bi**-kam. On the other hand, though /'al-**wa**-lad/ and /wal-**wa**-lad/ are obviously polysyllabic, they are stressed like disyllabic words because the proclitics /wa/ and /'al/ are ignored in counting syllables.
- The stress on the ultimate syllable of /'a-**jal**/, a rare exception, is explained below.

4. **In polysyllabic words, stress falls on the penultimate if that syllable is heavy.**

Arabic	Roman	English
جَدِيدٌ	ja-**dii**-dun	new
كَتَبْتُمْ	ka-**tab**-tum	you wrote
كَلِمَاتِي	ka-li-**maa**-ti(i)	my words
يَابَانِيّ	ya(a)-**baa**-ni(yy)	Japanese
يَابَانِيٌّ	ya(a)-ba(a)-**niy**-yun	Japanese
يَابَانِيُون	ya(a)-ba(a)-ni-**yuu**-na	Japanese

Table 4: Penultimate stress on heavy syllables

5. **In polysyllabic words, stress falls on the antepenultimate if the penultimate is light.**

Arabic	Roman	English
كَتَبَ	**ka**-ta-ba	he wrote
كَتَبَا	**ka**-ta-ba(a)	they wrote
كَاتَبَ	**kaa**-ta-ba(a)	he corresponded
بَتْكَّدَ	**ka**-ta-bat	she wrote
كَلِمَة	**ka**-li-ma	word
كَلِمَةِ	ka-**li**-ma-ti	my word
كَلِمَة	ka-**li**-ma-tun	word
عَاصِمَة	`**aa**-Si-ma	capital
عَاصِمَة	`aa-**Si**-ma-tun	capital
مَكْتَبَة	**mak**-ta-ba	library
مَكْتَبَتِي	mak-**ta**-ba-ti(i)	my library
مَكْتَبَةٌ	mak-**ta**-ba-tun	library

Table 5: Antepenultimate stress

5 Applying Stress Rules

Below are some points to keep in mind when applying the stress rules.

5.1 Syllabification

In standard pronunciation of MSA only the last three syllables are relevant for determining stress, which means that stress never falls on the pre-antepenultimate syllable or before that. Thus if a word consists of four or more syllables, only one of the last three is stressed. Dividing words into syllables and counting the number of syllables correctly is essential for determining stress. To do so properly, it is necessary to understand the structure of light, heavy and superheavy syllables. For example, جَدِيد /ja-**diid**/ 'new' (CV-CVVC) is disyllabic because it consists of one light and one superheavy syllable, whereas جَدِيدٌ /ja-**dii**-dun/ (CV-CVV-CVC) polysyllabic because it consists of one light and two heavy syllables).

5.2 Ignoring Proclitics

Proclitics are not stressed and must be disregarded when applying stress rules. For example, وَلَد /**wa**-lad/ 'boy', stressed on the penultimate according to Rule 3, maintains the stress on the وَ /wa/ even when combined with the definite article; i.e., ألْوَلَد is stressed /'al-**wa**-lad/, not /'**al**-wa-lad/, as one would expect from Rule 5. To rephrase, although /'al-wa-lad/ consists of three syllables, the first is ignored so that stress rules are applied as if it were a disyllabic word (Rule 3).

There is a small set of disyllabic words that consist of a proclitic followed by a single syllable. For example, بِكَمْ /bi-kam/ 'how much' consists of the proclitic بِ /bi/ and كَمْ /kam/ 'how much'. If proclitics were not ignored, this word would be stressed on the penultimate as /**bi**-kam/ according to Rule 3. Ignoring the proclitic means that it should be pronounced /bi-**kam**/, so that it is stressed as if it were monosyllabic according to Rule 2 though in fact it is disyllabic. By exactly the same logic, لَقَدْ 'already', which consists the proclitic لَ /la/ combined with قَد /qad/ 'already', is pronounced /la-**qad**/ according to Rule 2, not /**la**-qad/ according to Rule 3.

5.3 Stress Shift

The number of syllables is determined by how the word is *actually* pronounced, not by how it "should" be pronounced. Even in highly formal spoken MSA case endings and some final vowels are often omitted, which cause the syllable count to decrease and the stress to shift backwards. For example, if the case ending ةٌ /tun/ of مَكْتَبَةٌ 'library', pronounced /mak-**ta**-ba-tun/ according to Rule 5, is omitted, the syllable count decreases from four to three. This causes the stress to shift backwards from /ta/ to /mak/ according to Rule 5 so that the word is pronounced /**mak**-ta-ba/.

On the other hand, when words like كِتَابٌ 'book', pronounced /ki-**taa**-bun/ according to Rule 4, are shortened to كِتَاب /ki-**taab**/, the stress shifts forward by one syllable according to Rule 1 (stress on superheavy). Interestingly, though the stress shifts from the penultimate /taa/ to the ultimate syllable /taab/, the stress is still on the same long vowel /aa/.

5.4 Nisba Adjectives

The *nisba* is a type of adjective that indicates relation or pertinence, such as nationality. The masculine is formed by adding the suffix يّ /iyy/ and the feminine by adding يَّة /iyya/. For example, the nisba for اَلْيَابَانُ /'al-ya(a)-**baa**-nu/ 'Japan' becomes يَابَانِيّ /ya(a)-ba(a)-**niyy**/ 'Japanese' in the masculine and يَابَانِيّة /ya(a)-ba(a)-**niy**-ya/ in the feminine/. Strictly speaking, in formal MSA يَابَانِيّ should be pronounced /ya(a)-ba(a)-**niyy**/ (or يَابَانِيٌّ /ya(a)-ba(a)-**niy**-yun/ if the case ending is pronounced). Note that the stress is on the /niyy/ according to Rule 1 because /niyy/ is a superheavy syllable consisting of CVCC. In reality, however, the masculine nisba suffix is often pronounced /ii/ or /iiy/ (normally shortend to /i/), rather than the formal /iyy/, causing the stress to shift to the penultimate -- in this case /ya(a)-**baa**-ni(yy)/ -- according to Rule 4 (see more below). In short, يَابَانِيّ can have at least two pronunciations: the formal /ya(a)-ba(a)-**niyy** and the more common /ya(a)-**baa**-ni(yy)/.

Note that none of these subtleties regarding nisba pronunciation constitutes an exception to the stress rules. As long as the rules are applied strictly based on how the word is pronounced, the stressed syllable can be predicted by the rules. The reason that nisba adjectives can have two different stress patterns is because they can have two (or more) different pronunciations. Since the syllabic structures for these different pronunciations are not the same, different rules need to be applied (Rule 1 or Rule 4).

5.5 Final Long Vowels

Final long vowels, which are normally neutralized, are not stressed. Thus هُمَا 'they two' is pronounced /**hu**-ma(a)/, not /hu-**maa**/. This is neither a rule nor an exception, but a logical corollary derived from the rules. For /**hu**-ma(a)/, applying Rule 3 yields the correct stress.

Arabic	Roman	English
هُمَا	**hu**-ma(a)	They
هُنَا	**hu**-na(a)	Here
بَنَى	**ba**-na(a)	he built
مَاذَا	**maa**-dha(a)	What
قُلْنَا	**qul**-na(a)	we said

Table 6: Final long vowels

Seeming exceptions to this corollary include words ending in a ء hamza-on-the line. For example, إلى ٱللِّقَاء 'goodbye' sounds like it is pronounced /'i-lal-li-**qaa**/, with the last long /aa/ stressed, but in fact its precise pronunciation is /'i-lal-li-**qaa'**/ (Rule 1), with the final unvoweled hamza inaudible or hardly audible. The reason that this word does not contradict the rules or the corollary becomes clear if we look at how the word is formally pronounced with the case ending, i.e., إلى ٱللَّقَاء/'i-lal-li-**qaa**-'i/.

5.6 Exceptions to Stress Rules

There are some relatively rare exceptions to the word stress rules, especially to stressing the penultimate of disyllabic words.

1. Some disyllabic words formed by the suffixation of a pronominal enclitic directly to the proclitics لَ /la/ or بِ /bi/ do not follow the normal rules of ignoring proclitics when counting syllables. For example, لَكُمْ 'for you' consists of the enclitic كُمْ /kum/ suffixed to the proclitic لَ /la/. Normally Rule 2 would apply, the proclitic would be ignored, and the word would be pronounced as /la-**kum**/ with stress on the ultimate, just like بِكَمْ is pronounced /bi-**kam**/. In fact لَكُمْ is pronounced /**la**-kum/, just like any normal disyllabic word. What is exceptional here is that the proclitic is not being ignored and Rule 3, rather the Rule 2, is applied. Below are some more examples.

Arabic	Roman	English
لَكُمْ	**la**-kum	for you
لَهَا	**la**-ha(a)	for her
لَهُ	**la**-hu	for him
بِكَ	**bi**-ka	for you

Table 7: Exceptions to Rule 2

2. The word أَجَل in the sense of 'indeed' is normally stressed as /'a-jal/ according to Rule 2, but in the sense of 'more sublime', a shortened form of أَجَلُّ /'a-**jal**-lu/, it is stressed on the ultimate syllable since /jal/ is the originally stressed syllable. This is a minor phenomenon and can be safely ignored.

3. Many dual forms end in long /aa/, such as هُمَا كَتَبَا /hu-ma(a) ka-ta-ba(a)/ 'they two wrote'. According to Rule 3, these should be pronounced /**hu**-ma(a) **ka**-ta-ba(a)/. However, some speakers pronounce these words with a final half-long /a(a)/ that sounds as if there is weak stress on the ultimate syllables, i.e., /hu-**ma(a)** ka-ta-**ba(a)**/, contradicting Rule 3. Other speakers sound as if they pronounce both syllables with more or less equal stress. The most common pronunciation probably follows rules 2 and 3, with primary stress on the /hu/ and /ka/ and the final half long final vowel carrying secondary stress. The stress of dual forms is a borderline case that requires further research.

6 Vowel Neutralization

Long vowels and double consonants in spoken MSA are normally shortened or *neutralized* in unstressed syllables. Though in carefully enunciated formal MSA, especially in liturgical Arabic, long vowels and double consonants may be fully pronounced, in normal spoken MSA vowel neutralization is a firmly established phenomenon.

Neutralization is almost totally ignored in reference works such as grammar books and dictionaries. Even such common words as أَنَا 'I' and هٰذَا 'this' are incorrectly transcribed as /'anaa/ and /haadhaa/, misleading one to think that the final vowel must be pronounced long, whereas in fact these words are pronounced /'**a**-na(a)/ and /**haa**-dha(a)/. Some authors describe neutralization inaccurately. For example, Holes (2004) states that pronominal enclitics are generally kept long in pausal pronunciation, but we could find no evidence to support this claim.

It should be noted that neutralization may not always result in a fully shortened vowel; that is, a long vowel may be shortened somewhat but not entirely, so that it would be about 1.5 times the length of a short vowel. This is referred to as a *half-long vowel* and the process may be called *semi-neutralization*. Neutralized or semi-neutralized long vowels are indicated in this paper by enclosing the second part of the long vowel in parentheses, i.e., /**hu**-na(a)/.

Neutralized long vowels are generally phonetically indistinguishable from the corresponding short vowels. For example, in a word like هُنَا, theoretically pronounced /**hu**-naa/, the final /aa/ is neutralized to /a/ and it sounds just as if it were pronounced /**hu**-na/. It is difficult to predict when a long vowel is to be fully neutralized as opposed to semi-neutralized. There is a tendency to pronounce vowels half long in unstressed syllables when the long vowel has phonemic value,

such in the dual forms of verbs like كَتَبَا /**ka**-ta-ba(a)/.

The sections below describe the neutralization rules for spoken MSA. Unlike stress rules, the neutralization rules cannot be said to provide a full and objective account of how MSA is pronounced by all speakers. There is some variation among speakers, especially when long vowels have phonemic value and in dual forms.

7 Neutralization Rules

Below are the rules for neutralizing long syllables in standard spoken MSA. These rules are basically for words of Arabic origin and do not always apply well to loanwords and foreign names.

1. **Long vowels in stressed syllables are never neutralized.**

Arabic	Roman	English
كَلِمَاتِي	ka-li-**maa**-ti	my words
جَدِيد	ja-**diid**	new
يَابَان	ya(a)-**baan**	Japan
رجَال	ri-**jaal**	men

Table 8: Long vowels rule

Superheavy syllables are always stressed, so they can never be neutralized because neutralization only occurs in unstressed syllables.

2. **Final long vowels are normally neutralized**.

Arabic	Roman	English
هُمَا	**hu**-ma(a)	they
بَيْتِي	**bay**-ti(i)	my house
يَابَانِيّ	ya(a)-**baa**-ni(yy)	Japanese
مَا	**ma(a)**	what
مَاذَا	**maa**-dha(a)	what
كَتَبُوا	**ka**-ta-bu(u)	they wrote

Table 9: Final long vowels

This stems from the fact that long vowels at word end are not stressed, and holds even for monosyllabic words or pronominal enclitics. However, in formal MSA and liturgical Arabic the final /a(a)/ of dual forms is often pronounced as a half long vowel or even as a full long vowel.

3. **All long vowels are neutralized, except for the one *nearest* the end.**

Arabic	Roman	English
يَابَان	ya(a)-**baan**	Japan
مَاذَا	**maa**-dha(a)	What
سَافَرْتُ	saa-**far**-tu	I travelled

Table 10: Long vowel nearest end

The *except for* part above applies to long vowels literally *nearest the end,* not *at* the end, since final long vowels are neutralized according to Rule 2. Thus the /maa/ in مَاذَا /**maa**-dha(a)/ is kept long (Rule 3) but /dha(a)/ is neutralized (Rule 2). If there is only one non-final long vowel, it should not be neutralized, *even if unstressed.* Thus /saa-**far**-tu/ is pronounced with long /saa/ since it is the long vowel nearest the end, though some speakers may pronounce it half long or even neutralize it completely.

4. **If a word ends in a double consonant, the last consonant is often neutralized.**

Arabic	Roman	English
حَجّ	Haj(j)	pilgrimage
كَبّ	kab(b)	overthrow

Table 11: Double consonant neutralization

Some speakers may pronounce final double consonants, but on the whole they tend to be omitted. This even happens in unstressed syllables in non-final positions, such as in تَتَكَلَّمِينَ /ta-ta-ka(l)-la-**mii**-na/.

8 Applying Neutralization Rules

Below are principal points to keep in mind when applying the neutralization rules.

8.1 Unstressed Syllables

There is a tendency, especially among Egyptian speakers of MSA, to neutralize all unstressed long vowels. In casual or rapid speech this tends to occur even in formal MSA, but not in liturgical Arabic. In formal MSA, such words as لِسَانِيَّات 'linguistics' are normally pronounced /li-sa(a)-ni(i)-**yaat**/, with /saa/ pronounced long or half-long and /nii/ (formally /niyy/) completely neutralized. In Egyptian-accented MSA unstressed long vowels are probably almost always neutralized.

8.2 Half-long Vowels

Probably the strongest motivation for pronouncing unstressed long vowels as long or half-long is homophonic clash. Such words as سَافَرْتُ 'I traveled', even in Egyptian MSA, "should" be pronounced as /saa-**far**-tu/, with long or half-long /saa/ according to Rule 3, otherwise this word would be indistinguishable from سَفَرتُ /sa-**far**-tu/ 'I removed the veil'. Other cases in which there is a strong tendency to pronounce half-long vowels include words like مَكَاتِيب /ma-ka(a)-**tiib** 'writing', in which /a(a)/ is pronounced half-long. In dual forms ending in long /aa/, such as in كَتَبَا هُمَا /**hu**-ma(a) **ka**-ta-ba(a)/ 'they two wrote', the final vowel is normally pronounced half-long since it is phonemic; if it were not, كَتَبَا /**ka**-ta-ba(a)/ 'they two wrote' would be pronounced identically to كَتَبَ /**ka**-ta-ba/ 'he wrote'.

8.3 Nisba Adjectives

In formal MSA, nisba adjectives (which end in a superheavy syllable, not a long vowel) are stressed on the ultimate syllable. For example, يَابَانِيّ is pronounced /ya-ba-**niyy**/, with double /y/ at the end, though it may sound like /ya(a)-ba(a)-**nii**/. In less formal MSA this is pronounced /ya-**baa**-ni/, but not /ya(a)-**baa**-nii/ (rules 2 and 3).

8.4 Loanwords

Loanwords, especially foreign names, are normally written with long vowels. This is a technique to indicate vowels, since short vowels are not normally written in unvocalized Arabic. It does not generally mean that the vowels are actually pronounced long.

For example, the Japanese name تَانَاكَا is pronounced with short vowels as /ta(**a**)-na(a)-ka(a)/, though the *'alifs* seem to indicate long vowels. This actually contradicts stress Rule 4 which requires stress on the penultimate if the penultimate is heavy, and proves that the three syllables of تَانَاكَا, though they appear to be long, are only *orthographically* long and must be considered short both for stress and pronunciation purposes. On the other hand, some foreign names do contain real long vowels, as in وكِيُوطْ 'Tokyo' and اَلْيَابَاب 'Japan', which are pronounced /**Tuu**-ki-yu(u)/ (or /**Too**-ki-yo(o)/) and /'al-ya(a)-**baan**/.

The stress and neutralization rules for loanwords differ from those of etymologically Arabic words and require further research.

9 Conclusions

The stress rules described in this paper may seem more complicated than they actually are. Disregarding the rare exceptions, the rules can be concisely stated as follows:

1. If the last syllable is superheavy, it is stressed.
2. If not, stress the penultimate if it is heavy or if the word is disyllabic.
3. Otherwise, stress the antepenultimate.

The neutralization rules can be summarized as follows:

1. Neutralize long vowels except for the one nearest the end.
2. Never neutralize stressed vowels.
3. Almost always neutralize final long vowels.

Though stress and neutralization rules are often ignored in pedagogical materials and dictionaries, they are of great importance to both pedagogy, speech technology and lexicography. Our institute has launched a project based on the research done for this paper to compile the world's first Arabic-English dictionary that indicates both stress and neutralization in the transcription of each entry. Stress and neutralization deserve more attention from linguists and educators, and lexicographers should incorporate the fruits of linguistic research into textbooks, dictionaries and CAL applications.

References

Clive Holes. 2004. Modern Arabic Structures, Functions and Varieties. Georgetown University Press. Washington, D.C.

Gerard Janssens. 1972. Stress in Arabic and Word Structure in the Modern Arabic Dialects. Peeters. Belgium.

T.F. Mitchell. 1990. Pronouncing Arabic. Oxford University Press. Oxford, U.K.

Karin C. Ryding. 2005. A Reference Grammar of Modern Standard Arabic. Cambridge University Press, Cambridge, UK.