

On Ablaut in Tri-Consonantal Verbs in Arabic ⁽¹⁾

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Abstract

This article examines the Stem Vowel of the primary stems of tri-consonantal verbs in Arabic. Two basic forms exist in Arabic; The perfect which has the shape of $CaC\left\{\begin{smallmatrix} i \\ u \\ a \end{smallmatrix}\right\}C-$ and the imperfect which has shape of $-CC\left\{\begin{smallmatrix} a \\ u \\ i \end{smallmatrix}\right\}C-$. These forms result in the following seven correspondences between the perfect and the imperfect:

Perfect

a

a

Imperfect

u

i

i	a
u	u
a	a
i	i
a	{ i u }

The usual practice among modern linguists, Arab grammarians, and Orientalists is to consider the perfect stem as the basic form from which the stems of other forms are derived. For example, Brame (1970: 157) recognizes only four types of alternations:

a~u, a~i, i~a, and u~u

He formulates the following rule to capture the systematic alternations for the four correspondences only:

$$\begin{array}{c} \text{v} \\ \left[\begin{array}{c} +\text{high} \\ -\text{C} \end{array} \right] \end{array} \rightarrow \left[\begin{array}{c} -\infty \text{ high} \end{array} \right]$$

$$\langle [+f] \rangle \quad \langle \left[\begin{array}{c} +\text{back} \\ +\text{rounded} \end{array} \right] \rangle$$

This article shows the limitations of this approach and proposes that the stem of the imperfect is the basic form from which other forms can be derived. The new approach is more comprehensive and adequate than previous approaches because it explains all the existing correspondences in Arabic for all kinds of verbs in Arabic. The new rules are the following:

$$1. \quad \begin{array}{c} \text{v} \\ \left[\begin{array}{c} +\text{high} \\ -\text{C} \end{array} \right] \end{array} \rightarrow \left[\begin{array}{c} -\infty \text{ high} \\ -\text{rounded} \end{array} \right]$$

2. Lexical redundancy rule:

$$\begin{array}{c} \text{v} \\ \left[\begin{array}{c} \infty \text{ front} \\ \text{B high} \end{array} \right] \end{array} \rightarrow \begin{array}{c} \text{v} \\ \left[\begin{array}{c} \text{front} \\ \text{B high} \end{array} \right] \\ \left[\begin{array}{c} +\text{stative} \\ +\text{intransitive} \end{array} \right] \end{array}$$

$$3. \quad \left[\begin{array}{c} \text{v} \\ +\text{low} \end{array} \right] \rightarrow \left[\begin{array}{c} \text{v} \\ +\text{low} \end{array} \right]$$

In this article, the vocalic nature of the primary stems of tri-consonantal verbs in Arabic will be discussed. Rules will be formulated to predict the vowels in these derivations. The imperfect will be considered the basic form from which all other forms are derived.

Two basic forms are recognized : the perfect and the imperfect. They are, respectively, $cac - \left\{ \begin{smallmatrix} i \\ u \\ a \end{smallmatrix} \right\} c -$ and $-cc \left\{ \begin{smallmatrix} a \\ i \\ u \end{smallmatrix} \right\} c -$. These yield nine correspondences for the stem vowel. Only the first six correspondences are in actual use.

Perfect	Imperfect	
1. [a] kataba	[u] Ya-ktubu	"to write"
2. [i] labisa	[a] Ya-lbasu	"to wear"
3. [a] nasaxa	[a] Ya-nsaxu	"to copy"
4. [a] kasara	[i] Ya-ksiru	"to break"
5. [u] karuma	[u] Ya-krumu	"to be generous"
6. [i] wariea	[i] Ya-rieu	"to inherit"
7. [u] —	[i] —	
8. [i] —	[u] —	
9. [u] —	[a] —	

The usual practice among linguists is to consider the perfective stem as the basic form from which the imperfective forms are derived. ⁽²⁾ The perfective stems are of the pattern /Ca cvc - / and imperfective stems are of the pattern / - ccvc - /. Consequently, the maximum number of vowel slots in a verbal stem is two and the minimum is one. Only one vowel, the stem vowel /v/, is unpredictable and has to be learned and listed in the dictionary. This treatment is the one followed in modern Arabic-English dictionaries, which list the stem vowel as well as the consonants for each verb. In contrast, traditional Arabic dictionaries list the stem consonants only. This indicates that Arabic verbal stems should be described as one continuous morpheme rather than two discontinuous ones.

M. Brame (1970:157) tries to link the two aspectual stems by predicting the vowel of the imperfect from that of the perfect with the ablaut rule. He considers the first vowel of the perfect, which is invariably (a), as original to the stem. Moreover, he recognizes only four types of alternations:- (examples on page 1).

Perfect	Imperfect
a	u
a	i

i	a
u	u

It is clear from this that there are systematic alternations between the perfect and the imperfect and that [a] in the perfect corresponds to [u] or [i] in the imperfect, [i] corresponds to [a], and [u] corresponds to [u]. Brame (1970:157) described these alternations in terms of the following ablaut rule:

$$[\infty \text{ high}] \rightarrow [-\infty \text{ high}]$$

$$[-C] \quad < \begin{bmatrix} +\text{back} \\ +\text{round} \end{bmatrix} >$$

$$<[+F]>$$

[-C] includes the first, second and third alternations listed above and excludes the fourth, since verbs of this type are assigned the feature [+C] in their lexical representations. The feature [+f] distinguishes those verbs which have [a] in the perfect and [i] in the imperfect from those which have [u] in both stems.

In addition to these alternations, Brame recognizes a group of verbs with /a/ both in the perfect and in the imperfect. The second or third consonant in these verbs is a laryngeal consonant. ⁽³⁾.

This, however, is only a surface class in which it is assumed that the stem vowel is actually and underlyingly /i/. Brame eliminates it by positing the following laryngeal assimilation rule for the forms of the imperfective⁽⁴⁾.

$$\begin{array}{lcl} \begin{array}{l} V \\ [+hi] \\ -C \end{array} & \rightarrow & \begin{array}{l} V \\ [-hi] \end{array} / \begin{array}{l} L - \text{imperfective} \\ -L \\ \text{verbs.} \end{array} \\ [-C] & \text{excludes} & /u/ \end{array}$$

However, we will argue against this analysis. The following classes represent the seven correspondences which exist in Modern Standard Arabic.

Class I: a - u Correspondence

	Perfect	Imperfect
Class II:	fa'ala i-a fa'ila	Ya-f'ulu Yaf'alu
Class III:	a-i fa'ala	Yaf'ilu
Class IV:	u-u fa'ula	Ya-f'ulu
Class V:	i-i fa'ila	Yaf'ilu
Class Vi:	a - a fa'ala	Ya-f'alu

Class VII: a - [u] : These are homophonous verbs which have one stem vowel in the perfect and two different vowels in the imperfect. Examples are:-

jazar-a	ya-jzur-u	"to slaughter"
	ya-jzir-u	"to sink"
xatar-a	ya-xtir-u	"to swing"
	ya-xtur-u	"to occur"
'azab-a	ya-'zub-u	"to be single"
	ya-'zib-u	"to be far"
'azaf-a	ya-'zif-u	"to play a musical instrument"
	ya-'zuf-u	"to turn away from"
qaraš-a	ya-qruš-u	"to gnash"
	ya-qriš-u	"to earn money"
qafal-a	ya-qful-u	"to come back"
	ya-qfil-u	"to shut"
hadara	ya-hdir-u	"to roar, to rumble"
	ya-hdur-u	"to waste"

We have therefore seven types of alternation of stem vowel in the perfect and the imperfect and not, as Brame claims, only four. These alternations are: (see examples on p. 1,5,8-9).

	Perfect	Imperfect
1.	a	u
2.	i	a
3.	a	i
4.	u	u
5.	i	i
6.	a	a
7.	a	{ i u }

If we take the perfect as the basic form and try to derive the imperfect from it as Brame did, there is no problem for the first three alternations; the /a/ in the perfect

becomes { $\begin{smallmatrix} i \\ u \end{smallmatrix}$ } and /i/ becomes /a/. We still have the problem of determining the

conditions under which /a/ becomes /i/ or /u/. Brame's solution is to add a feature [+f] to prevent /u/ verbs from becoming /a/. These must be marked in the lexicon by this feature [+f]. The fourth alternation: /u ~ u/ in both aspects is marked with the feature [+C]. Most of the verbs which have this kind of alternation are stative, i.e. they denote permanent or lasting state. The fifth alternation is not recognized by Brame. These verbs which have the alternation /i ~ i/ in the perfect and the imperfect are generally intransitive and stative (Brame, 1970:184 (note 3); and Wright, 1859:29-31). These verbs can also be grouped with those which have the /u ~ u/ alternation, and like them, they are marked with the feature [+C] in their lexical representations.

The sixth alternation /a ~ a/ has its own particular problems. First, as indicated before the /a/ of the perfect alternates with /i/ and /u/. /u/ is excluded by the feature [+f] from the lexical representation, but this does not explain the alternation /a ~ a/.

In this analysis, /a ~ a/ verbs have a pharyngeal or laryngeal consonant in either the /C₂/ position or the /C₃/ position. These back consonants /ʔ, h, ʕ, H, x, / have the effect of changing the quality of a neighboring vowel. Brame assumes that the original vowel of the imperfect is /i/, while Sibawayyah assumes that it is either /i/ or /u/. In both analyses it becomes /a/ because of the back consonants. Brame, as indicated before, postulates a laryngeal assimilation rule for such verbs.

V	V	
[+high] →	[-high]	/L-/ imperfective
[-C]		-L

This solution is unacceptable for the following reasons. First, there is no evidence to support the conclusion that originally the vowel was /i/. It could, in fact, be /u/ or /a/. Second, there are verbs which have in their C₂ or C₃ position one of these back consonants, but have either /i/ or /u/. Examples from the "Qur?ān" are:

Perfect	Imperfect	
nakaHa	ya-nk{ i u }Hu	"to marry"
naza'a	ya-nzi'u	"to pull out"
raja'a	ya-rji'u	"to come back"
bala a	ya-blu u	"to reach"
qa'ada	ya-q'udu	"to sit"
za'ama	ya-z'umu	"to claim"
naḫaḫa	ya-nḫuxu	"to blow"
daxala	ya-dxulu	"to enter"
ša'ara	ya-š'ura	"to feel"

One wonders why Brame's rule is not also applicable to these verbs which are similar to class VI. Moreover, he restricts his rule to exclude verbs that have an alternation /i ~ a/ with /a/ in the imperfect and considers these regular verbs as being subjected to the ablaut rule, even though they have /i/ in C₃ position. In order to avoid confusing these verbs with the verbs that have an alternation /i ~ u/, he assumes that the latter are marked with a special feature which indicates that they do not undergo laryngeal assimilation. He assumes that a verb such as /sami'a/ - /ya-sma'u/ "to hear" on the other hand, has underlying /i/ which becomes /a/ as the result of L - assimilation, and that L - assimilation affects verbs with /i/ but not those with /u/ verbs. Moreover, L - assimilation applies only to imperfect stems and not to perfect stems or finally weak verbs, although those with stem vowel /i/ are subject to the ablaut rule.

There are, however, verbs which have an alternation /i ~ a/ and an alternation /a- { i u }/ and have similar meaning. For example:-

qanaṭ a: ya-qn { i u } tu "to despair"

or qaniṭ a : ya-qnaṭ u

Brame's rule does not predict the forms of these verbs as well as the forms of class VII, which have homophonous verbs in the perfect but not in the imperfect. These forms can be used as a strong argument against using the perfect as the basic form because the stem vowel of the imperfect cannot be predicted; [a] in the perfect becomes { $\begin{smallmatrix} u \\ i \end{smallmatrix}$ } and [i] becomes [a]. So, we can not tell when /a/ becomes [i] or [u].

In the following pages, we will propose an alternative analysis; the imperfect will be considered the basic form from which all other forms are derived.

Taking the imperfect as the base form, we get the following seven alternations (examples, pp.1,5,8-9):

	Imperfect	Perfect
1.	u	a
2.	a	i
3.	i	a
4.	u	u
5.	i	i
6.	a	a
7.	{ $\begin{smallmatrix} u \\ i \end{smallmatrix}$ }	a

Excluding for the moment the last four alternations, one may notice that in the first alternations a high vowel becomes non-high ($u \rightarrow a$), in the second alternation, a non-high vowel becomes a high front vowel ($a \rightarrow i$), and in the third alternation a high vowel becomes non-high ($i \rightarrow a$). We may then write the following ablaut rule for these alternations as follows:

$$\left[\begin{array}{c} V \\ \alpha \text{high} \end{array} \right] \longrightarrow \left[\begin{array}{c} V \\ \alpha \text{high} \\ -rd \end{array} \right] \left[\begin{array}{c} +\text{perfect} \\ +\text{stem vowel} \end{array} \right]$$

$\left[\begin{array}{c} -rd \end{array} \right]$ "rounded" includes /i/ and
 excludes /u/

This rule is more general than Brame's rule because it describes the class that Brame marked [+C] without requiring the lexical redundancy condition imposed by Brame. According to this rule, all high vowels become the low vowel /a/, and the low vowel /a/ becomes [+high] and [+front] /i/. The reverse is not true. This rule also describes the alternations among class VII which Brame's rule does not properly predict because the verbs in this class are homophonous in the perfect but not in the imperfect. Moreover, the rule given above covers those verbs which have an alternation /a~i/, in which /a/ occurs adjacent to one of the previously mentioned back consonants. However, we still have to solve the problem of the remaining three alternations, and these are:

- 4 u~u
 5 i~i
 6 a~a

Alternations (4) and (5) - (i~i and u~u) can be explained either by using lexical redundancy rules as Brame did with his feature [+C] (and this is perhaps the most efficient way), or by making the distribution of the stem vowels/i~i/ and /u~u/ contingent upon the semantic and syntactic properties of the stems to which they belong.

For example, the alternation /i~i/ indicates a temporary state or condition or a merely accidental quality in persons or things and /u~u/ indicates a permanent state or a naturally inherent quality. (see examples on p. 1).

We still have to explain the sixth alternation /a~a/. As indicated above, the assumption that the stem vowel of these is /i/ in the imperfect which becomes /a/ by L-assimilation is inadequate. Moreover, as one can see from the previous alternations, if the imperfect stem has /i/, /u/ or /a/ which

becomes /a/ in the perfect, then those which have { $\begin{smallmatrix} \text{ } \\ \downarrow \end{smallmatrix}$ } may be derived easily, but there is no way to explain those with /a~a/.

Furthermore, it is impossible to predict which verbs have an alternation /a~a/ and which have /a~i/ alternation under this assumption.

A careful examination of these two last alternations reveals that the /a~i/ alternation generally occurs if /C₁/, /C₂/ or /C₃/ is /l/ or /r/ and if /C₂/ or /C₃/ is /m/ or /n/, while the /a~a/ alternation generally occurs in most of the other cases. Verbs with /a~a/ generally occur if /C₂/ or /C₃/ is a glottal stop or a pharyngeal except if one of the /a~i/ conditions exists. For example, this is usually the alternation found with verbs which have /ʔ/ in position /C₂/ or /C₃/ even if they otherwise meet the conditions for /a~i/ alternation.

The following verbs are exceptions to these rules and should be marked as such in the lexicon.

ya-jma'u	jama'a	"to collect"
ya-dma u	dama ∞ a	"to brand"
ya-jraHu	jaraHa	"to wound"

One can see, then, that it is more economical to use the imperfect as a basic form. This solution also has advantages over Brame's ablaut rule in that it includes all the strong verbs and the weak ones, while some of these are excluded by Brame.

The rules used in our derivation may be summarized as follows:

1. Ablaut rule:

$$\left[\begin{array}{c} \text{V} \\ +\text{high} \end{array} \right] \longrightarrow [-\alpha\text{high}] / [+ \text{perfect}]$$

$$[-\text{C}] \qquad [-\text{rd}] / [+ \text{stem vowel}]$$

a: Conditions for /a~i/ alternation : if /C₂/, /C₃/ or /C₁/ is [+liquid] , and if /C₂/ or /C₃/ is [+nasal]. These conditions do not apply if /C₂/ or /C₃/ is /?/ even if the conditions for /a~i/ are met.

b: [-C] feature excludes rule (2) below.

2. Lexical redundancy rule:

$$\left[\begin{array}{c} \text{V} \\ \alpha\text{front} \\ \text{B high} \end{array} \right] \longrightarrow \left[\begin{array}{c} \text{V} \\ \alpha\text{ front} \\ \text{B high} \end{array} \right] / \left[\begin{array}{l} +\text{perfect} \\ +\text{stem vowel} \\ +\text{stative} \\ +\text{intransitive} \end{array} \right]$$

3.

$$\left[\begin{array}{c} \text{V} \\ +\text{low} \end{array} \right] \longrightarrow \left[\begin{array}{c} \text{V} \\ +\text{low} \end{array} \right] / \left[\begin{array}{l} \text{perfect} \\ +\text{stem vowel} \end{array} \right]$$

condition: (-a) condition above in rule (1). The perfect therefore is derived by inserting /a/ between /C₁/ and /C₂/ and the stem vowel is determined by the rules discussed above. In other words:

— C₁C₂VC₃— : imperfect stem.

— C₁C₂VC₃— : rule (1), (2), or (3) V: perfect stem vowel.

- $C_1aC_2VC_3$ – : $\emptyset \rightarrow a/C_1 - C_2/ +$ perfect.
- $C_1aC_2VC_3$ – suffix: perfect affix
[+ perfect].
- $C_1C_2VC_3$ – suffix: perfect.

Notes:

1. The term Arabic is intended to include both Modern Standard Arabic and Classical Arabic. See M. Brame (1970:1-2) for a discussion of the two forms.
2. Arab grammarians and orientalists treated it this way. For more information on older approaches, see W. Wright (1859) and I. Anis (1975:45-50). For a recent discussion, see M. Brame (1970:134-187).
3. According to Brame (1970:159) "laryngeal includes those sounds produced in the area extending from the larynx to the upper regions of the pharynx".
4. Brame, loc. cit. "However, the L-assimilation rule is no longer operative in Arabic, as is evidenced by the fact that there are some verbs with laryngeals that exhibit the alternations /a~u/ and /a~i/. For example: /Sa'ara ya-s'uru/ "to feel./raja'a ya-rji'u" "to return".

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