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The Vocalism of Strong Verbs in Afar

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1. Introduction

Afar is a Cushitic language spoken in the Horn of Africa. In this study, I aim to show that Afar strong verbs have specific structural characteristics that account for their particular conjugation. The examination of their vocalism reveals a correlation between the structure of strong verbs and their lexical vowel. The behaviour of long vowels in closed syllables leads me to propose a specific status for such vowels. This hypothesis allows us to account for their behaviour and unify the strong verbal class into a unique template. All the surface patterns and their vocalism can be derived from this template according to the nature of the root. The relationship between structure and vocalism is a crucial point in my analysis.

This work follows the theory of Generative Phonology with the *CVCV* option (cf. Kaye et al. 1990, Lowenstamm 1996) that reduces the syllabic constituency to a strict succession of onsets and nuclei, respectively linked to consonantal segments and vocal segments. I use the Theory of Elements (cf. Kaye et al. 1985) to represent vowels: a vowel corresponds to an expression in Elements that are the final constituents distributed on autosegmental lines.

2. Characterization of Strong Verbs

Two different types of conjugation exist in Afar (following Hayward 1978, Bliese 1981, Parker and Hayward 1985). On the one hand, the predominant verbal class consists of weak verbs. It exclusively uses suffixes as shown in the following examples (throughout the text, examples are spelled as in Parker and Hayward 1985, that is the A.P.I., except: *y*<->palatal glide, *x*<->voiced post-alveolar retroflex occlusive, *c*<->voiceless pharyngeal fricative and *q*<->voiced pharyngeal fricative):

- (1) Perfect 1s: fak-e 'I opened'
- Perfect 2s: fak-t-e 'you opened'
- Imperfect 1s: fak-a 'I open'
- Imperfect 2s: fak-t-a 'you open'

On the other hand, the conjugation of strong verbs is characterized by prefix personal markers and by a particular determination of aspect based on a vocalic alternation on the first vowel of the stem:

- (2) Perfect 1s: uktub-e 'I wrote'
 Perfect 2s: t-uktub-e 'you wrote'
 Imperfect 1s: aktub-e 'I write'
 Imperfect 2s: t-aktub-e 'you write'

The derivational morphology of strong verbs also exhibits a strategy of prefixation whereas suffixation is always used for weak verbs. In (3), the position of the causative morpheme exemplifies this difference:

- (3) Weak verb: fak-e 'I opened' > fak-is-e 'I caused to open'
 Strong verb: uktub-e 'I wrote' > us-kutub-e 'I caused to write'

Beyond these specificities in conjugation and derivation, the surface patterns of strong verbs have the following distinctive characteristics:

- The root always starts by a vocal.
- The lexical vowel, which spreads in the stem, is never /a/: it must be one of the other vowels of the Afar vocalic system, that is /i/, /e/, /o/ or /u/.

The examination of the derivation of strong verbs provides another indication concerning the restriction of the lexical vowel quality. As shown in (4), the timbre of the lexical vowel of a verb with an initial long middle vowel changes in the causative forms:

- (4) eeqete 'walk' > iysiqite 'cause to walk'
 eedeqe 'be pregnant' > iysiqide 'make pregnant'
 ooqore 'cover' > uysuqure 'cause to cover'
 ookome 'come' > uysukume 'cause to come'

In these examples, the middle vowels /e/ and /o/ alternate with their corresponding high vowels, respectively /i/ and /u/. But this vocal mutation is not the only difference: the structure of the verbal stem is also modified. It can be seen that there is an absence of long vowels in the derivative forms.

Based on this fact, I will argue that there is a relationship between the quality of a lexical vowel and the structure of a strong verb.

3. The Vocalic Distribution

3.1. Surface Patterns of Strong Verbs

From an exhaustive list of strong verbs compiled by Parker & Hayward (1985), 19 surface patterns can be identified. Table (5) below shows the distribution of the lexical vowel as a function of the surface pattern of strong verbs. For each pattern, this table gives the number of verbs exhibiting a particular surface structure and

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vocalism (C positions represent the consonants and v position are identified by the lexical vowel; the final e is a suffix; a long final ee corresponds to an underlying eye).

(5) Vocalic distribution

#	Patterns	I	U	E	O	Examples
1	vCvCvCe	0	4	0	0	uqurufe 'rest'
2	vCvvCvCe	0	0	4	0	ebeereke 'surrender'
3	vCee	0	0	1	0	ecee 'give'
4	vCCvCvCCe	0	0	2	0	essecekke 'criticize'
5	vCCvCCe	0	0	8	0	endebbe 'return'
6	vvCCe	0	0	0	2	oobbe 'hear'
7	vCvCCvCe	30	6	0	0	iqiggibe 'be amazed', ucussule 'size'
8	vCCvCvCe	4	1	0	0	imsicise 'be rubbed out', umbudude 'cover'
9	vCCvCCvCe	17	6	0	0	itqissife 'be sad', umcugguye 'help'
10	vCCvCvvCvCe	0	0	5	4	emrequeeqede 'stretch', onkonoonoce 'burn'
11	vvCvCe	0	0	7	7	eeqete 'walk on', ootoke 'hit'
12	vvCe	0	0	1	2	eexe 'suck the breast', oofe 'reach'
13	vCvCCee	2	3	2	0	igibdee 'be hard', uqusbee 'become new', ekexxee 'become old'
14	vCCvCe	64	35	5	0	icfide 'memorize', uktube 'write', embexe 'be finished'
15	vCCe	0	1	13	1	uble 'see', erde 'run', okme 'eat'
16	vCCvCvvCe	0	1	1	3	unsumuume 'be diluted', enfedegee 'relax', omcoroore 'become thin'
17	vCvvCe	5	8	5	5	idiike 'faint', uduure 'return', egeere 'bail out', odoore 'turn'
18	vCCvvCe	1	3	2	2	illiile 'be bold', usguude 'slaughter', exxeere 'become long', obboode 'give up hope'
19	vCCvvCvCe	1	1	8	1	ingiicile 'fight', uybuuruce 'fan', endeecere 'appear', ongoorowe 'meet'

The examination of this distribution provides the following information:

(i) The four vocal qualities (/i/, /e/, /o/, /u/) are only present in three structures (17, 18, 19). Although this might have been expected, it concerns only 42 verbs out of 284.

(ii) Within the 15 other patterns, representing 242 verbs, one or more vowels are excluded. This absence could occur by chance in certain patterns representing only a few verbs, but it cannot explain the absolute absence of some timbres in highly represented patterns. So, the vocalism of strong verbs is not free. Furthermore, neither semantics nor syntax conditions the choice of the vocalism: these restrictions seem to coincide with prosodic verb structures.

(iii) Another characteristic of this vocalic distribution lies in patterns 7, 8, 9, 10, 11 and 12, which only harbour two timbres. There is a partition between verbs with a high lexical vowel (/i/ or /u/) and verbs with a middle lexical vowel (/e/ or /o/), depending on their prosodic structure. The above six patterns exhibit a complementary distribution between verbs with a high vowel and verbs with a middle vowel.

(iv) At first sight, this complementary distribution doesn't seem to account for the important pattern 14 (104 verbs) which harbours three timbres (/i/, /e/, /u/). However, the number of verbs with a vocalism in /e/ is very low (only 5 verbs). A sharp analysis of these verbs shows that their structure differs from the structure of verbs with a high lexical vowel. Indeed, these verbs have only two root consonants whereas the others have three. In fact, their initial consonant is a prefix that can alternate with other consonantal derivational prefixes, as in (6):

(6) embexe 'be finished' vs esbexe 'cause to finish'

Consequently, pattern 14 is completely in accord with the complementary distribution and harbours only high lexical vowels.

(v) We can include patterns 1 and 13 in this complementary distribution, within the class of patterns with high lexical vowels. The exceptions with an /e/ can be explained by the presence of derivational consonants that modify the underlying verb structures, in the same way as above.

(vi) Patterns of verbs with middle lexical vowels highlight another distribution: in patterns 2, 3, 4, 5 and 15, the vowel /o/ is neutralized. The remaining patterns (6, 10, 11, 12) allow both /e/ and /o/.

Thus, from studying the distribution of the lexical vowel quality as function of the surface pattern of strong verbs, we can identify several distributional classes summarized below (7) - in order to simplify the analysis, this study has been limited to verbs with at most three radical consonants, though my hypothesis can extend to the remaining patterns (2, 10, 16, 19) for which the distinction lies at the same level as in Classical Arabic, that is between roots with three and four consonants (cf. McCarthy 1979 and Guerssel et al. 1993).

(7) Class I = patterns 1, 7, 8, 9, 13, 14	<-> high lexical vowel (/i/ or /u/)
Class II = patterns 6, 11, 12	<-> middle lexical vowel (/e/ or /o/)
Class III = patterns 3, 4, 5, 15	<-> front middle lexical vowel (/e/)
Class IV = patterns 17, 18	<-> non low lexical vowel (/i/, /u/, /e/, /o/)

Two main questions arise from this distribution. First, what are the characteristics shared by the patterns of each class which can trigger the same kind of vocalic

restrictions? Second, how can differences in prosodic structure account for distinct vocalism?

3.2. Characterization of the Distributional Classes

First, the examination of the vowels reveals that long vowels only appear within distributional classes that harbour middle lexical vowels (class II and IV).

Second, one has to take into account the nature of the consonants: some belong to the verbal root while the derivational morphology provides others. The origin of the latter can be found in alternations with other affixes, as shown in (8). It could be the first or the last consonant or a gemination of the second root consonant:

- (8) Prefix consonant: endebbe 'return' vs eydebbe 'cause to return'
Geminate: ifrige 'unload' vs ifirrige 'empty'
Suffix consonant: uqusbuye 'be refreshed' vs uqusbuse 'refresh'

Once the derivational consonants are identified, we can look at the root consonants. Then we notice that all the verbs with three root consonants belong to class I. On the other hand, verbs from classes II, III and IV possess only two root consonants. The derivational morphology allows us to derive every pattern from the pattern that contains only the root consonants (patterns 14, 11, 15 and 17 for classes I, II, III and IV respectively).

Moreover, the presence of a long vowel in patterns of classes II and IV can be observed. We can argue that it corresponds to a compensatory lengthening when a root consonant is missing. Thus, the underlying template of these verbs is of the same size as verbs of class I. This template contains three consonantal positions to receive the root consonants. In this case, the position of the long vowel corresponds to the position of the missing root consonant:

- The initial long vowel in patterns of class II corresponds to the absence of the first root consonant.
- The internal long vowel in patterns of class IV corresponds to the absence of the second root consonant.

This analysis suggests that the relationship between the presence of long middle vowels and the absence of radical consonants is crucial in order to understand vocalic distribution. The presence of a long vowel is related to the absence of a root consonant, whereas the presence of three root consonants restricts the vocalism to the high vowels /i/ and /u/.

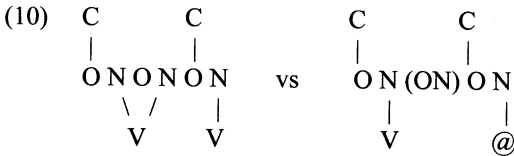
4. Nature of Long Vowels

Independently, the vocalic length in Afar raises a problem. There are two types of long vowels according to their behaviour within closed syllables, that is, depending on whether or not they can be abridged, as shown in the examples in (9):

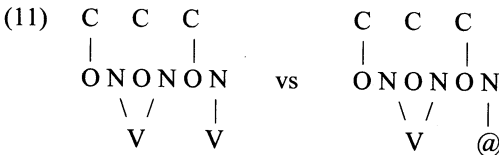
- (9) daqaara 'the waterfall-SUBJECT' vs daqar 'the waterfall-OBJECT'
 musaana 'the shawl-SUBJECT' vs musaan 'the shawl-OBJECT'

If the behaviour of long vowels differs in the same context, we have to assume that what we see as long vowels on the surface correspond in fact to two different phonological configurations: these imply different properties. Thus, I suggest that their phonological representations have to be different.

In the context of Generative Phonology with the *CVCV* option, a long vowel is represented by a vocalic segment that spreads on two nuclei; an underlying onset remains empty in between. This vowel can be long if Proper Government licenses its second nucleus. Thus, it has to be in an open syllable. Within a closed syllable, the following nucleus is empty and cannot properly govern the preceding one: the long vowel must be abridged and the second *CV* position drops without license. The example in (10) shows the representation of an abridgeable long vowel (a nucleus linked to @ is an empty nucleus that cannot properly govern the preceding nucleus, *C* a consonant, *V* a vowel, *O* an onset and *N* a nucleus):



This representation accounts for abridgment within a closed syllable. In order to account for long vowels that are never abridged, I propose that their representation also corresponds to the spreading of a vocalic Element on two nuclei but with an added consonant Element. This consonant Element remains in the underlying structure and cannot be linked to the prosodic structure - and so cannot be heard. Though a following empty nucleus cannot govern properly the second nucleus of the long vowel within a closed syllable; the latter is licensed by the underlying consonant. As a result, the vowel is able to spread on the two nuclei and remains long within closed syllables. The representation of a long unabridgeable vowel is given below (11):



My hypothesis ties the impossibility of abridging to the presence of an underlying consonant. The immediate effect of this consonant is to block shortening. However, we assume that its presence might produce secondary surface effects. In

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particular, following the Theory of Elements, this can alter a vocalic timbre by supplying a vocalic Element.

Now the long vowels in strong verbs are never found to be abridged in closed syllables, as exemplified below (12). Thus, following our hypothesis, strong verbs with a long vowel must contain an underlying consonant.

- (12) oobbe 'I heard'
egeer 'bail out!'
ifiil 'pick up!'
uduur 'come back'

In fact, it is possible to observe the missing consonant: among strong verbs, Afro-Asiatic loans exhibit the missing radical consonant. These could be consonants that don't exist in Afar (such as certain gutturals) or glides that drop in a post-consonantal context. Some examples are given in (13):

- (13) eemene 'believe' <-> ?mn (Semitic root)
osoome 'fast' <-> Swm (Semitic root)
iqiide 'celebrate' <-> qyd (Semitic root)
uduure 'come back' <-> dwr (Semitic root)
oobbe 'hear' <-> Hub (Oromo)
oome 'become bad' <-> Cum (Somali)

In the context of the Theory of Elements, the glides /y/ and /w/ are respectively the Elements I and U linked to an onset and a guttural is able to transmit the Element A (cf. Ségéral 1995). These vocalic Elements, originally within the missing consonant, can modify the quality of the lexical vowel. The presence of an Element such as I, U or A accounts for the presence of middle vowels because these correspond to expressions containing A and I or U (E=I.A and O=U.A). Thus, on the one hand, we expect to have no middle vowel when the three root consonants are present. This is indeed the case in class I, which contains verbs with three root consonants. On the other hand, this hypothesis explains the presence of long middle vowels that are expected in class II and IV, which miss a root consonant.

Moreover, glides drop in a post-consonantal context. We would therefore expect to find high long post-consonantal vowels but never in the initial, position where glides take place. This is indeed the case: verbs of class II never have a high vowel whereas any vowel, high or middle, can appear in verbs which miss a second root consonant (see class IV verbs).

This hypothesis on the phonological representations of long vowels allows us to account for their behaviour in closed syllables and to derive the vocalism of strong verbs according to the nature of the root.

5. The Template of Strong Verbs

This hypothesis on the nature of long vowels and the vocalism of strong verbs leads me to argue for a unique template shared by every strong verb.

The verbal roots contain at most three consonants. I therefore assume that the simple stem comprises three *CV* positions which onsets receive the root consonants (noted *R* below).

There also exists for every strong verb a specific position in the initial where personal and aspectual markers are found, namely $[CV]_{p/a}$. Personal markers correspond to a set of consonants that are linked to the onset, *C* (see example 2). The aspect marker is an alternation on the nucleus *V* between the lexical vowel in the perfect tense and an /a/ in the imperfect, whatever the lexical vowel as shown in (14):

(14)	<i>Perfect</i>	vs	<i>Imperfect</i>	
	egeere	vs	ageere	'bail out'
	icfide	vs	acfide	'learn'
	oogore	vs	aagore	'beat'
	uktube	vs	aktube	'write'

As long as the Perfect marker always corresponds to the lexical vowel of the verbs, we can suppose that there is no marker for Perfect and so that the alternation between the Perfect and the Imperfect is @/a. Since a nucleus cannot remain empty in this position (because initial consonant clusters are forbidden in Afar), it copies the lexical vowel in the Perfect tense.

Elsewhere, the vocalic positions are identified by the lexical vowel of the verb in accordance with the phonotactic strategies of Afar and Proper Government.

Thus, the simple stem of strong verbs is:

(15)		R ₁	R ₂	R ₃
	$[CV]_{p/a}$ -	$[CV]$	$[CV]$	$[CV]_{root}$

However, this simple stem doesn't account for all verbal patterns. Nevertheless, the derivational morphology allows us to identify other positions and to construct an extended stem as follow. Three possibilities are offered, exemplified in (16) below: the adjunct of a prefix, the adjunct of a suffix and the gemination of the second radical consonant (which often comes with prefix adjunction). These possibilities can be combined.

(16)	Prefix:	uktube 'write'	<->	uskutube 'cause to write'
	Suffix:	ifdige 'release'	<->	ifdigise 'cause to release'
	Geminate:	irgide 'dance'	<->	iyriggide 'cause to dance'

Thus, I believe we can construct an extended stem by adding three *CV* positions to the simple stem in order to account for these derivations. In doing so, we obtain a $[CV]_{pref}$ in front of the root, a $[CV]_{suff}$ after the root and a $[CV]_{gem}$ inside the root, between the positions of the first and the second root consonants (it makes sense to think that derivational positions are closer to the root than the inflexional position $[CV]_{p/a}$). The representation of the extended stem is given in (17):

$$(17) [CV]_{p/a}-[CV]_{pref}-[CV[CV]_{gem}CVCV]_{root}-[CV]_{suff}$$

This extended stem constructed on the basis of derivation allows us not only to account for this kind of morphology, but also allows us to derive all the strong verbal patterns given in table (5). Even in case of derivation, strong verbs that filled the whole template with root and derivational consonants never outsize this template - non-root consonants alternate with other derivational consonants (see example in 6). When $[CV]_{pref}$, $[CV]_{gem}$ and $[CV]_{suff}$ are not identified by any derivational consonants and are consequently not licensed, they drop. The other prosodic positions of the template must be identified or licensed to remain empty. Thus, when a root consonant is missing in the surface, there is a vocalic lengthening in order to maintain the size of the template given above. Then, the underlying consonant can modify the quality of the vowel.

The representation of long unabridgeable vowels and the template proposed above allow us to unify the verbal class of strong verbs not only according to their conjugation but also based on their shared underlying prosodic structure.

6. Conclusion

The new data gathered by the observation of a distribution of lexical vowel as a function of strong verb surface patterns leads us to argue for two different phonological representations of long vowels depending on their behaviour in closed syllables. On the one hand, this hypothesis allows us to account for the vocalism of strong verbs; on the other hand, it makes it possible to unify strong verbs within a unique underlying template from which every existing surface pattern can be derived.

Furthermore, this analysis suggests that the only phonological vowels are the three cardinals, /i/, /a/ and /u/. The occurrence of a middle vowel on the surface seems to be conditioned by the prosodic structure. In strong verbs, middle vowels have to be long, they are derived from the lexical vowel and a missing root consonant. Our phonological representation of long vowels account for their behaviour in closed syllables and highlights the relationship between the prosodic structure and the sound of a vowel.

References

- Agostini F. & A. Puglielli & C.M. Siyaad 1985. *Dizionario Somalo-Italiano*. Cooperazione allo Sviluppo, Roma, G. Gangemi Editore.
- Bliese L. F. 1981. *A Generative Grammar of Afar*. Ph.D. dissertation, Austin, Texas.
- Fulmer S.L. 1997. *Parallelism and Planes in Optimal Theory: Evidence from Afar*, Ph.D. Graduate College, University of Arizona.
- Guerssel M. & J. Lowenstamm 1993. *Classical Arabic Apophony*. manuscript, Université Paris VII.
- Hayward R.J. 1974. The segmental phonemes of Afar. In *BOAS* 37-2: 385-406.
- Hayward R.J. 1978. The Prefix Conjugation in Afar. In *Atti del Secondo Congresso Internazionale di Linguistica Camito-Semitaica*, Firenze 16-19 aprile 1974: 355-368, P. Fonzaroli ed.
- Kaye J. & J. Lowenstamm & J.R. Vergnaud 1985. The Internal Structure of Phonological Elements; a Theory of Charm and Government. In *Phonology Yearbook* 2: 305-329.
- Kaye J. & J. Lowenstamm & J.R. Vergnaud 1990. Constituent Structure and Government in Phonology. In *Phonology Yearbook* 7: 301-330.
- Lowenstamm J. 1996. CV as the Only Syllable Type. In *Current Trends in Phonology - Models and Methods*: 419-441, Durand J. & B. Laks ed., Salford, Manchester, ESR.
- McCarthy J.J. 1979. *Formal problems in Semitic phonology and morphology*. PhD, M.I.T., New-York, Garland.
- McCarthy J.J. 1986. OCP effects: Gemination and Antigemination. In *Linguistic Inquiry* 17-2: 207-263.
- Parker E.M. & R.J. Hayward 1985. *An Afar-English-French Dictionary (with Grammatical Notes in English)*, London, SOAS.
- Ségéral P. 1995. *Une théorie généralisée de l'apophonie*. Thèse de doctorat, Université Paris VII.
- Stroomer H. 1995. *A grammar of Boraana Oromo (Kenya)*. Kuschitische Sprachstudien, Köln, Rüdiger Köppe Verlag.
- Wehr H. 1980. *A dictionary of Modern Written Arabic, Arabic-English*. Ed. Milton Cowan J., Librairie du Liban.

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