Blackwell
Reference Online

---

27. Phonology of Ethiopian Languages

GROVER HUDSON

0 Introduction

There are about 70 Ethiopian languages (Bender et al., 1976, pp. 10-16), and most of these are spoken in a 100,000 square-mile area of the Ethiopian south-central highlands, so each language averages a territory of only some 2,000 square miles. Ethiopia is the eastern edge of the linguistic "fragmentation belt" (Dalby 1970, p. 162) which extends, only about 700 miles in width, across the breadth of Africa south of the Sahara desert. Despite the number and diversity of languages, Charles Ferguson identified Ethiopia as a "linguistic area," most languages of which "tend to share a number of features which, taken together, distinguish them from any other geographically defined group of languages in the world" (Ferguson 1976, pp. 63-64). Their rather rich inflectional systems and, in the case of the Semitic languages, their root and pattern morphologies, the presence of neighboring and closely related languages and, again in the case of the Semitic languages, a long written record, typically make possible thorough testing of synchronic phonological hypotheses against considerable evidence from internal and comparative reconstruction.

Discussion in this paper will concern the phonology of two families of Afroasiatic languages well represented in Ethiopia: Semitic and Cushitic. There are good bibliographies of the literature on these languages, very complete at the time of their publication: Leslau (1965) on the Semitic languages of Ethiopia, and Unseth (1990) on the non-Semitic languages (Cushitic, Omotic and Nilo-Saharan). The Ethiopian Semitic languages have recently been the object of considerable theoretical phonological interest, especially in the work of John McCarthy. The eight topics discussed below include cases of assimilation, metathesis, and epenthesis, including effects at a distance, followed by some aspects of morphology of relevance for phonology, root and pattern morphology, reduplication, and a language "disguise."

1 Assimilation, Epenthesis, and Metathesis in Sidamo

In the four Highland East Cushitic languages Gedeo, Hadiyya, Kambata, and Sidamo, the combination of consonant-final (lexical) stems of form CVC(C) and consonant-initial suffixes leads to syllable contacts disallowed by the phonotactic structure of the languages. Only two consonants are allowed intervocalically in the languages, and these must be a geminate "cluster," a glottal stop followed by a sonorant consonant, or a sonorant consonant followed by an obstruent. There results a "conspiracy" in which epenthesis, assimilation, and metathesis interact to provide acceptable contacts at suffix boundaries.

In Sidamo, when the verb stem ends in a cluster and the suffix begins with a consonant, an epenthetic vowel (–*i*–) separates the morphemes, as in (1), which presents the perfective paradigm of the verb *gurd*– "knot" (v. trans.).

		Singular	Plural
1		gurd-ummo	gurd-i-nummo
2		gurd-i-tto	gurd-i-tini
3	masc.	gurd-i	
	fem.	gurd-i-tu	gurd-i-tu
(1)	pol.	gurd-i-ni	

When the stem ends in a single sonorant consonant, as in *ful–* "go out", this fully assimilates suffix-initial *n* of the 1pl. and 3sg. polite: *ful–nummo > fullummo, ful–ni > fulli*. When the stem ends in a single obstruent, as in *ag–* "drink", this fully assimilates suffix-initial *t* of the 3fem.sg. and 2pl.: *ag–tu > aggu, ag–tini > aggini*, and metathesizes with suffix-initial *n*, with the nasal agreeing in place of articulation with the following obstruent: *ag–nummo > a [ŋ]gummo* "we drank", *ag–ni > a[ŋ]gi* "he (pol.) drank". Rice (1992, p. 73) offers an under-specification analysis of Sidamo nasal metathesis according to which nasality is delinked from the nasal and relinked to the preceding stop. Sidamo's siblings Gedeo, Hadiyya, and Kambata have almost identical rules with different, noncognate suffixes, suggesting that the rules are independent, natural innovations in each. In Kambata, a difference is that a stem-final sonorant consonant is fully regressively assimilated by suffix-initial *n*: e.g., *ful–noommi* "we went out" → *funnoommi* (Hudson 1980).

2 Velar Spirantization in Tigrinya

In Ethiopian Semitic Tigrinya the voiceless velar stops *k* and ejective *k'* alternate with spirants *x* and *x'*, respectively, which appear in postvocalic environments. The significance of this rule for the analysis of geminates was noted by Schein (1981) and further discussed by Kenstowicz (1982). In the Semitic languages, ideal and typical roots consist of three consonants, which form stems with different vocalization depending on grammatical environment. In (2), consider four 3masc. forms of three regular Tigrinya triconsonantal roots, whose first, second, and third consonants, respectively, are historic velar stops.

	Sg. perfect	Sg. imperfect	Pl. imperfect	Sg. jussive	Gloss
	k'ətəl-ə	yi-x'əttil	yi-x'ətlu	yi-x'təl	"kill"
	nəxəs-ə	yi-nəkkis	yi-nəxsu	yi-nkəs	"bite"
(2)	bətəx-ə	yi-bəttix	yi-bətku	yi-btəx	"cut"

The perfect stem is CHəCHəC and the 3masc.sg. imperfect stem is CHəCᵻC (CHəCC before epenthesis of the high central vowel ɨ), with gemination of the second consonant. The 3masc.pl. imperfect stem is CHəCC (no gemination), with plural suffix – *u*, and the jussive stem is CCHəC. Assuming underlying velar stops, the environment of spirantization appears to be postvocalic except that postvocalic geminate velars are unspirantized. When a sequence of velar obstruents arises in suffixation, however, the first is spirantized, e.g., bHətHəx–*ku* "I cut" (perfect), suggesting to Hayes (1986, p. 337) and Lowenstamm and Prunet (1986, pp. 191–193) that spirantization takes precedence over the Obligatory Contour Principle (OCP), according to which the underlying *k+k* sequence should be replaced by a geminate, which would resist spirantization.

Hayes (1986) and Schein and Steriade (1986) noted the significance of Tigrinya velar spirantization for their general accounts of geminates and geminate formation in autosegmental phonology, in which

on the CV tier geminates are represented $\underset{x}{\overset{CC}{\vee}}$ (see chaps. 5 and 8, this volume). Hayes's account is based on his "Linking constraint": "Association lines in structural descriptions are interpreted as exhaustive" (p. 331). His rule of Tigrinya velar spirantization (which lacks [–voiced]; according to his evidence *g* is also affected) is shown in (3). Since the affected velar must be referred to as following a vowel, it must be referred to on the CV tier as well as on the segmental tier, thus with an association line. Since there is one association line (though nothing, in principle, requires only one), according to the Linking Constraint the velar must be nongeminate.

$$(3) \quad \begin{bmatrix} -\text{son} \\ +\text{back} \end{bmatrix} \rightarrow [+\text{cont}] / \underset{\underline{}}{\overset{\displaystyle V \quad \overset{\textstyle C}{\big|}}{}}$$

In the proposal of Schein and Steriade (1986), the failure of spirantization to affect geminates is explained by their "Uniform Applicability Condition," which requires that a condition on the rule like right adjacency must be met by every member of the set of Xs (Cs and Vs) to which the target of the rule is linked. Their rule conditions spirantization by a preceding nuclear (vowel or glide) X. "Therefore, a geminate velar, one of whose Xs cannot be postnuclear, will block the rule" (p. 728). They consider (p. 731) that the Uniform Applicability Condition and not the Linking Constraint can explain other facts, including Tigrinya vowel rounding by geminate and nongeminate [w]: *yɨwˈHəd → yuwˈHəd* "may he father", *yɨsˈɨwwHər → yɨsˈuwwHər* "he is carried", apparently assuming that Hayes's Rounding Rule must be complicated by reference to both single and double association lines. But the rule for such vowel roundings would refer to vowels next to [−consonantal, +round], without referring to the CV tier, so there is no need for association lines, and both geminates and nongeminate round glides will cause rounding.

It appears that both proposals will explain a detail of Tigrinya spirantization, that it does not affect the labialized velar *k^w* (Leslau 1978 / 1988, p. 179), which would presumably be one C doubly linked on the segmental tier (similarly Amharic *k^w*; see sec. 4 below).

A number of complicating facts suggest that the alternation of velar stops and spirants in Tigrinya may be at least somewhat morphologized: (1) Spirantization preempts geminate formation when a stem-final velar precedes a suffix-initial velar (noted above). (2) The spirants often appear in word-initial position (Bender et al. 1976, pp. 108–109; Schein and Steriade 1986, p. 711) and occasionally in postconsonantal position, particularly suffix-initial in certain suffixes which frequently follow vowels (Leslau 1978 / 1988, p. 179). (3) The spirants are frequently found after glides and laryngeals as well as after vowels (Leslau, 1978 / 1988, p. 178). (4) The spirants are written with special characters provided in the Tigrinya syllabary, suggesting that they are not allophones with the stops as the spirantization rule would have it (though Sampson 1985, p. 108ff.) mentions cases in which writing systems may provide separate graphs for allophones). (5) The orthographic distinction makes it possible to see in texts that the spirants are often absent in postvocalic environments of words not all of which are apparently borrowings. (6) Finally, in "broken" plurals formed, historically, with gemination, the velars may be degeminated but the stop articulation remains (Palmer 1962, pp. 141–143; cf. Hebrew in which, after postvocalic spirantization of stops, degemination has produced a regular contrast of spirants and simple stops).

3 Palatalization in the Ethiopian Semitic B-type

Geʕez shows the earliest stage of a palatalization whose most advanced stage is seen in Amharic. In Geʕez, a common lexical class of roots, termed "B-type," is characterized by gemination of the second consonant of the root in the perfect stem (and, like roots of other types, also in the imperfect stem) and additionally by a front vowel after the first consonant of the root in the imperfect stem. In (4), consider comparisons of 3masc.sg. forms of B-type roots in three languages.

	Perfect	Imperfect	Jussive		Root
Geʕez	tʼəyyəkʼə	yitʼeyyikʼ	yitʼəyyikʼ	tʼykʼ	"examine"
Chaha	metʼərə	yimetʼir	yəmətʼir	mtʼr	"choose"
Chaha	čʼənəmə	yičʼənim	yətʼənim	tʼnm	"get dark"
(4) Amharic	čʼəlləmə	yičʼəllim	yičʼəllim	čʼlm	"get dark"

The facts, basically, are these: consonant gemination was lost in Chaha by a regular sound change, but the B-type vowel characteristic is extended to the perfect stems. In Chaha, roots with initial coronal obstruents have palatalization of this obstruent with corresponding centralization of the

vowel; other roots preserve the front vowel. In Amharic, palatalization was extended to jussives (identical for this type to the imperfect) and all other stems of B-type roots with historical initial coronal obstruents (Leslau 1957; Hudson 1974; exceptions can generally be explained as dialect borrowings). This and the comparative evidence of other languages make it reasonably clear that Ge ʕez reflects earlier stages of Chaha and Amharic. (Geʕez, unknown as a spoken language since at least the 18th century, is not, however, the ancestor of the modern languages; see Hetzron 1972.)

In Amharic, as in Chaha, palatalization must also have been extended to both the perfect and imperfect stems. In Amharic, imperfects express the habitual, the present, the future, and even the past of many subordinate verbs, so the palatalization was presumably an exponent of the majority of forms of roots with initial coronal obstruents. Thus the palatalized consonant would have become the basic or lexical exponent of these roots in Amharic and so naturally extended to jussives and other forms. In Chaha, perhaps the alternation is preserved by factors such as the employment of the nonpalatalizing jussive rather than imperfect stem in the expression of the future. An interesting question is whether, even at a stage like that of Chaha, in which the front vowel characteristic is evident in nonpalatalizing verbs such as *mt'r* "choose", the alternation is phonological (conditioned by underlying *e*), or grammatical (conditioned by the category "imperfect").

Grammatically conditioned phonological alternations, of course, occur. Kenstowicz and Kisseberth (1979, pp. 223-225) discuss a case in the Ethiopian Semitic language Harari. The 2fem.sg. suffix of verbs is *-i*, which historically palatalizes stem-final dental consonants: *ti-kHəfč-i < ti-kHəft-i* "you fem. open". There is also epenthesis of *i* after word-final clusters: *ti-kHəft-i* "you (masc.sg.) / she open(s)", but no palatalization by epenthetic *i*. A phonologically conditioned palatalization rule may be ordered before epenthesis. But Kenstowicz and Kisseberth argue that additional evidence favors an analysis with grammatical conditioning: as seen in (5), there is optional palatalization of non-stem-final dentals when the 2fem.sg. suffix follows. They say of palatalization that it "appears to be exploited as a sign of the 2nd sg. fem ... and is being extended to mark the root as a whole in this particular grammatical category. If the rule were purely phonologically based, it would be difficult to account for this (phonetically unnatural extension) of the palatalization further back in the root" (p. 225).

	2 masc. sg.	2 fem. sg.	
	ti-sabr-i	ti-šabr-i	"break"
	ti-katb-i	ti-kačb-i	"vaccinate"
	ti-k'adm-i	ti-k'ajm-i	"precede"
(5)	ti-sagd-i	ti-sagǰ-i	"prostrate oneself"

An interesting case of grammatical conditioning concerns gemination in the Amharic reflexive / passive imperfect stems (Hudson 1978). These stems historically took the reflexive / passive prefix *t-*, which was regressively assimilated fully by the first consonant of the root (e.g.,*yɨ-t-s* "it will be broken" > *yɨ-ss*, *yɨ-t-w* > *yɨ-wwHəsHəd* "it will be taken". Comparative and internal reconstruction makes this history clear. It seems reasonable, synchronically, to derive the stem-initial gemination by regressive assimilation, but this will not account for stems like *yɨ-ttamm* "he will be believed", *yɨ-ttaggⱽx* "he will be patient", which, on the Geʕez and other comparative evidence, come from *yɨ-t-ʕammHən, yɨ-t-Həs*, with historical laryngeal and pharyngeal consonants otherwise lost in the language without effects in assimilation. On the comparative evidence, that is, these imperfect stems should have a simple rather than geminate *t*. This suggests that the assimilation was reanalyzed as grammatically conditioned gemination, which was then extended to vowel-initial stems in which there had been no assimilation.

4 Amharic Epenthesis

Epenthesis is extensive in word-formation in the Ethipian Semitic languages, since many morphemes, both roots and affixes, consist only of consonants. In Amharic, epenthesis may be said to provide almost all occurences of the high central vowel ɨ (Hetzron 1964; Hayward 1986b; Hayward 1988). In (6) are shown various constructions of the imperfect stem *sHəbr* "break" in which, as the

parenthesized presumed forms show, all occurrences of i̵ may be considered epenthetic.

yisəbral	(y-səbr-al)	"he breaks"
aysəbri̵m	(a-y-səbr-m)	"he does not break"
saysəbi̵r	(s-a-y-səbr)	"when he does not break"
(6) si̵tsəbi̵r	(s-t-səbr)	"when she breaks"

Employing the notion "extrasyllabic consonant" and a morpheme boundary, Hayward (1988, p. 157) provides two epenthesis rules which, assuming a universal principle of geminate integrity (which blocks epenthesis within a geminate), account for all but a small minority of occasions of internal i̵ in Amharic, including aki̵st "aunt" (*aksi̵t) and beti̵š" your (fem.sg.) house" (*betŠ). In the derivation of an Amharic word like i̵ddi̵l "luck" (*di̵di̵l), he attributes the absence of epenthesis, allowing prothesis to apply, to geminate integrity (chap. 6). (In fact, consonant epenthesis within geminate vowels is reported in the Ethiopian Cushitic language Arbore (Hayward 1986a, p. 72): "the second mora of a long vowel and an immediately following laryngeal are transposed when the latter is followed by an obstruent or nasal. Though optional, the process is usual," e.g., *zeehs–e* zehese "I caused to melt", *kee?–te ke?e–t–e* "she planted".)

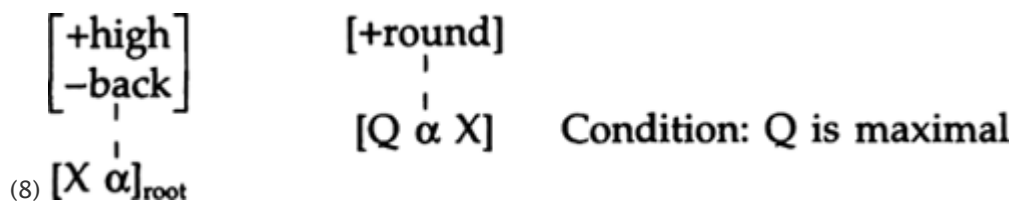Hayward (1988, p. 151) notes that the representation of the Amharic labialized consonants (k^w, b^w,

$$\begin{array}{c} C' \\ \diagup\diagdown \\ X \quad X \end{array}$$

etc.) as two-tiered, i.e., X   X, can explain the appearance of these as onsets, where no other clusters appear, and the interpretation of these, in epenthesis, as one segment. Hayward's analysis (1986b, pp. 317–322) also shows how, consistent with underspecification theory (chap. 4, this volume, and Archangeli 1984), epethetic i̵ may be understood as the minimal (i.e., maximally underspecified) vowel, and he notes (1988, pp. 158–162) the relevance of the sonority scale to an aspect of epenthesis in Chaha: whether a jussive stem is formed as CCi̵C (e.g., yHəfk'i̵d "let him permit") or C i̵CC (yHək'i̵ms "let him taste"); the greater sonority of d than k' disallows the final cluster *k'd*. In Amharic, likewise, epenthesis is generally not necessary when the sonority of the peripheral consonant is less than that of the more nuclear consonant. Thus two obstruents may close the word-final syllable of, e.g., yi̵wHək't "he winnows" (root wk't), but epenthesis must separate a stop followed by a liquid in yi̵gHədi̵l "he kills" (root *gdl*). Generally, however, the only allowable final clusters are geminates and those of which one is a coronal obstruent, as in Chaha yi̵k'i̵ms and Amharic yi̵wHək't, just noted, or *mist* "wife", so perhaps the special status of coronals in addition to sonority is relevant (see Paradis and Prunet 1991).

5 Palatalization and Libialization in the Chaha Impersonal
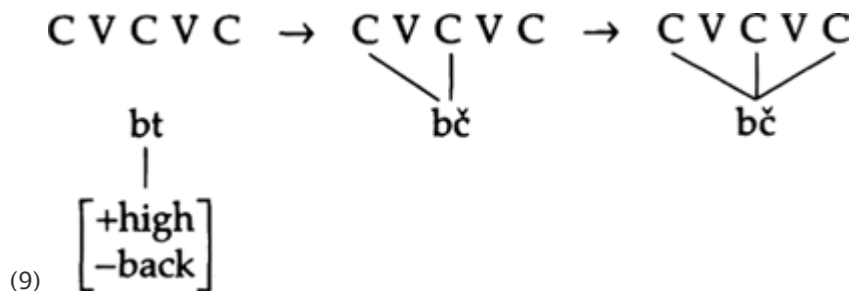
In the Ethiopian Semitic language Chaha, there are regular and morphologically significant rules of palatalization and labialization which interact in the formation of the impersonal stem of verbs. The impersonal is used in contexts in which other languages would employ the passive stem. Only labials and velars may be labialized, and only dental obstruents may be palatalized. A few examples of perfective impersonal stems contrasted with personal stems are seen in (7). The right-most labializable consonant is labialized, as in the first three examples, which have a labializable root-final, root-medial, and root-initial consonant, respectively. As in the fourth example, only the right-most labializable consonant, here root-medial, is labialized. There are no palatalizable consonants, but in the first four examples. In the fifth example there are no libializable consonants, but the right-most consonant is palatalizable. If, as in the sixth example, the stem-final is palatalizable, and there are also labializable consonants, both are affected. If none of these conditions are fulfilled, as in the seventh example, the impersonal stem is identical to the personal stem.

Personal	Impersonal	Root meaning
dənəg	dənəgʷ	"hit"
čʼəfər	čʼəfʷər	"put in the mouth"
bənər	bʷənər	"demolish"
bəkər	bəkʷər	"lack"
arəs	arəš	"build"
dəməg	dəmʷəǰ	"join"
(7) nətʼər	nətʼər	"separate"

These facts may be understood according to the analysis of McCarthy (1983a), in which palatalization and labialization apply on the root tier; subject to the OCP, application of the rules is constrained by structure preservation, according to which only noncoronal consonantals may be labialized and only anterior coronal obstruents may be palatalized, and labialization takes precedence over palatalization. The rules (McCarthy 1983a, p. 180) are shown in (8).

$$\begin{bmatrix} +high \\ -back \end{bmatrix} \qquad [+round]$$
$$(8)\ [X\ \alpha]_{root} \qquad [Q\ \alpha\ X] \quad \text{Condition: Q is maximal}$$

These palatalizations and labializations give evidence for the OCP when roots with repeated second consonant, so-called "122" types, are considered, e.g., Chaha "be wide" and "place a peg", the perfect stems of which are respectively *bHətHət* and *sHəkHək*. In the impersonal stems of these roots, the palatalizations and labializations appear twice, on the repeated consonants: *bʷHəčHəč* and *sHəkʷHəkʷ*. This result is consistent with the OCP, which requires these roots to be biradical *bt* and *sk*. Palatalization and labialization take place on roots, not stems, and are spread with the association of root consonants to the stem-template, CV-tier, as shown in (9), for the palatalizations of "be wide".

$$C\ V\ C\ V\ C \rightarrow C\ V\ C\ V\ C \rightarrow C\ V\ C\ V\ C$$

(9) below the first: bt | $\begin{bmatrix} +high \\ -back \end{bmatrix}$; below the second: bč ; below the third: bč

However, expressed as biconsonantals, such 122 roots must still select the stem-forming pattern of triconsonantals, as in (9), unlike traditionally recognized "true" biconsonantal stems such as *sn* "arrive" and *fč* "grind", which select patterns without repetition of the second consonant, i.e., perfect *sHən* and *fHəč*, respectively. The impersonal stems of these "true" biconsonantals have peculiarities (e.g., impersonal perfects with w: *sHənHəw* and *fHəčHəw*), so it might be argued that they are lexically triconsonantals with third *w*, enabling the requirements of the OCP to be honored in the 122 types. The root *w* would have to be deleted in most stems, but this might be seen as partial expression of the fact that, indeed, glides are generally absent as third root consonants in Chaha and other Ethiopian Semitic languages.

There is another complication: Chaha has undergone sound changes of geminate obstruent devoicing and degemination. This is apparent in perfective stems, which often in Ethipian Semitic languages are characterized by gemination of the second consonant; thus cognate with Amharic *sHəbbHərHə* "he broke", Chaha has *sHəpHərHə*. Verbs of the 122 type are, however, exceptions to devoicing, though they show degemination, e.g., *nHədHədHə* "it burned", *fHəgHəgHə* "it died" (of cattle). By reference to the OCP and Hayes's Linking Constraint, McCarthy (1986a) provides an explanation of these

exceptions: since according to the OCP these verbs are biconsonantal, before degemination the

$$\begin{array}{cccc} C & C & C & C, \\ | & & \searrow\!\!\!\swarrow & \end{array}$$

second consonant is triply linked in the perfect stem, e.g., $n \quad d$, and a devoicing rule which refers to a doubly linked element will not, by the Linking Constraint, refer to such triply linked consonants.

Exceptional to this set of exceptions are 122 roots with a labial stop in the environment of devoicing, e.g., čHəpHəbHə "close halfway". Voicing in the labial stop is not otherwise contrastive in Chaha (or, more generally, in Afroasiatic), and on this basis McCarthy (1986a) argues that these exceptions may be understood in terms of lexical phonology, the distinction of neutralizing and nonneutralizing rules, and tier conflation. This extensive argument cannot be taken up here; the interested reader may see McCarthy (1986a) and also additional arguments of McCarthy (1986b) concerning tier conflation, from Chaha's sibling language Ennemor (pp. 229–230), and for the OCP, from a case of "anti-gemination" in the Ethiopian Cushitic language Afar (pp. 220–222).

If the OCP is rejected, an alternative expression of the 122-type roots would stipulate the repetition, e.g., $b\,[t]_\alpha\,\alpha$ "be wide" and $s\,[k]_\alpha\,\alpha$ "place a peg", where the subscript α identifies the second consonant of the root and the following alpha the repetition of this. This makes apparent the traditionally recognized triradical as well as repetitive aspect of the 122 types. Such representation could also provide for spreading of palatalizations and labializations, and, with a limitation of the identity reference to contrastive, or lexical, features, and thus not to the allophonic feature [voice] in labial stops, account for the exceptionality of labials to devoicing.

6 Amharic Root-and-pattern Morphology

The Ethiopian Semitic languages have a root-and-pattern morphology much like that of Arabic, but with considerably more lexical variation of roots and associated lexical conditioning of patterns. Amharic for example, in the classification of Bender and Fulass (1978, pp. 24–25), has eleven root-types, each with its associated pattern of stem formation. In (10) are exemplified seven of the eleven types, each by one root in its perfect, imperfect, and imperative stems.

Perfect	Imperfect	Imperative	
səbbər	səbr	sibər	"break (v. trans.)"
fəlləg	fəllig	fəllig	"want"
k'ərr	k'ər	k'ir	"remain"
ləyy	ləyy	ləyy	"separate (v. trans.)"
sam	sim	sam	"kiss"
hed	hed	hid	"go"
(10) mot	mot	mut	"die"

These paradigms raise interesting questions for morphophonological theory (Broselow 1984, 1985). The eight types may be understood to derive historically from triconsonantal roots as preserved in the first two examples: *sbr* and *flg*. Stems of the second type (e.g., *flg*) are characterized by gemination of the second consonant of the root in all stems. Many verbs of the third to seventh types can be related by comparative and internal reconstruction to historical triconsonantals which have lost one consonant. Laryngeal and pharyngeal consonants were lost, leaving behind their traces in most environments as vocalizations in *a* (for the outcome of these phonemes elsewhere in Ethiopian Semitic, see Leslau 1971); *y* as second or third consonant of the root was lost leaving behind palatalization of a preceding dental and, sometimes, vocalization in *e* or *i*, and *w* in this position was lost leaving behind labialization of the preceding consonant and vocalization in *o* or *u*.

It has frequently been proposed that the generalization of triconsonantal roots be synchronically preserved by positing the historically lost consonant or its reflex, a "morphophoneme," as lexical in roots of the third to eighth types (cf. Bender and Fulass 1978; Podolsky 1980): *h* which is replaced by *a* (e.g., *shm* "kiss" < **sʕm* whose imperfect stem *sam* < *sHəam* < *sHəhm* by regular vowel coalescence and vowel lowering), *y* which conditions palatalization and is replaced by *e* or deleted (e.g., *hed* <

*kHəyd), and w, replaced by o (e.g., mot < *mHəwt). The alternative view that the sound changes have resulted in lexicalization of vowels in roots is argued by Hudson (1985).

Notice that the first two types, and the third and fourth, differ in their imperfect and imperative stems by presence and absence, respectively, of gemination of the second consonant. Thus the lexical representations of the first two might reasonably be sbr and fl⁣g. In the usual model of autosegmental phonology, in which the OCP prohibits repetitions in the root tier and in which length is represented by two positions on the timing (CV) tier, the lexical representation of the latter root might be

$$
\begin{array}{cc}
\text{C} & \text{C.} \\
& \vee \\
\text{f l} & \text{g}
\end{array}
$$

.

There are Amharic 122-type roots, e.g., wdd "like" and kbb "surround", whose perfect and imperfect stems are, respectively, wHəddHəd, wHədd and kHəbbHəb, kHəbb. As discussed above for Chaha, according to the OCP wdd and kbb are disallowed, and these roots must be lexically wd and kb. The resulting roots, although lexically biconsonantal, select triconsonantal stem-patterns or templates, and undergo spreading to achieve the repetition of the second consonant, as in (11), for the imperfect stem wHədd of "like".

However, as in Chaha, biconsonantal lexical representation for Amharic 122

$$
\begin{array}{ccccc}
\begin{array}{c}\text{ə}\\|\\ \text{C V C C}\end{array} & \rightarrow & \begin{array}{c}\text{ə}\\|\\ \text{C V C C}\end{array} & \rightarrow & \begin{array}{c}\text{ə}\\|\\ \text{C V C C}\end{array} \\
\quad\quad\text{w d} & & \quad\quad\text{w d} & & \quad\quad\text{w d}
\end{array}
$$

(11)

types appears to make them lexically identical to verbs of the third type in the list of (10), which select biconsonantal stems, e.g., perfect kHərr (cf. first type perfect sHəbbHər), imperfect kHər (cf. first type sHəbr). Unlike in Chaha, no w or other unusual characteristics appear in stems of these biconsonantals. Furthermore, there are traditionally recognized 4-consonant roots, e.g., mzgb "register", in some of which the fourth is a repetition of the third, e.g., dnzz "be dull, blunted". If the latter, by the requirement of the OCP, is lexically represented as dnz, it merges with the type of sbr "break", although it must be lexically distinct in order to select a quadri-consonantal stem-pattern.

Lowenstamm (1986) argues that the gemination which characterizes the types of flg and ly in comparison with the types of sbr and k'r, respectively, can be understood as the product of a compensatory lengthening deriving from vowel centralization. He notes that in other Ethiopian Semitic languages the stems formed with gemination of the second consonant of the root are characterized by both the gemination and by a front vowel following the first consonant of the root (e.g., the verbs of (4) above), and that centralization of the vowel characteristic may be reconstructed for Amharic from internal and comparative evidence (Leslau 1957). For example, the Geʕez perfect / imperfect stems parallel to Amharic fHəlHəg/fHəllg are fHəlHəg/fellg. Lowenstamm notes that if, as generally the case in Amharic, e is nucleus of an open syllable and Hə nucleus of a closed syllable, centralization of e of hypothetical earlier Amharic stems felHəg/felg might naturally be compensated for by consonant gemination, to close the syllable of the secondary, centralized vowel. Synchronically, then, the same feature can characterize the geminating stems without need for lexical gemination in violation of the OCP. Some additional understanding would still be required, however, for those Ethiopian Semitic languages like Geʕez (and Masqan and Gogot, mentioned by Lowenstamm (p. 162)), at least one of whose stems of this type are characterized by both the front vowel and gemination. (The history of the Ethiopian Semitic geminating stems is controversial; see Hudson 1991 for a review of the evidence that the contrast of geminating and nongeminating roots may be reconstructible for

Semitic and perhaps Afroasiatic.)

Gemination appears in the perfect stem of all the Amharic verbs of the first four types as shown in (10) and in others not shown. In triconsonantals of the first two types (and in 4-consonant roots like *mzgb* "register", perfect stem *mHəzHəggHəb*), this gemination is of the next-to-last consonant of the root, so ordinary right-to-left spreading cannot accomplish it, and a special association rule is required in the formation of the stem, or a dissociation which would feed right-to-left association. Thus for the perfect of *sbr* "break", steps in the derivation might be as in (12), with dissociation as the fourth step and reassociation as the fifth.

(12)
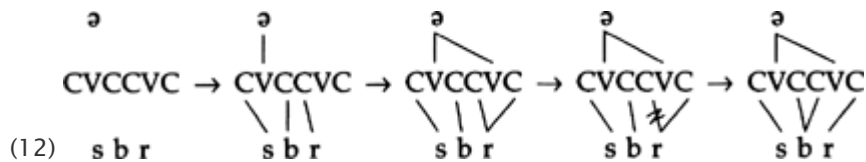
Goldsmith (1990, pp. 87-90) suggests a treatment of such geminations according to which association with the third C position may be blocked – the notation he suggests for this is the parenthesis – leading to regular left-to-right associations followed by a conventional association to the left by the segment associated to the right of the parenthesized position; see (13).

(13)
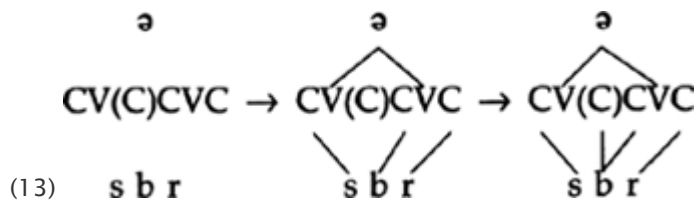
Hudson (1986, pp. 104-105) employs an identity sign in the expression of such a stem in Arabic – so-called form II, also with doubled second consonant: $CVC_\alpha C_\alpha VC$. This is not in violation of the OCP, which is typically interpreted to apply only on segmental or "melodic" tiers (McCarthy 1986b, p. 208).

Based on Arabic and Hebrew facts, Lowenstamm and Kaye (1986) argue that the stem-forming classes of Semitic root-and-pattern morphologies "must observe syllabic homogeneity," i.e., that syllable structure is a necessary and sufficient expression of such classes, so the CV-tier is redundant. However, Hayward (1988) shows that some stems of Ethiopian Semitic root-and-pattern morphology belie this claim. He presents cases from Amharic, Chaha, and Tigrinya in which CV-patterns of single morphological classes are syllabically heterogeneous. The Amharic minor-clause imperfect presents an additional example: the stem is CHəCC when a vowel-initial suffix follows, as in *si-sHəbr-u* "when they break", but CHəCiC when epenthesis is necessitated, as in *si-sHəbɨr* "when he breaks". Hayward's least controversial example is the Tigrinya imperfect, which in unsuffixed forms has gemination of the second root consonant (*yisHəbbɨr* "he breaks"), but with suffix vowels lacks gemination and epenthesis (*yisHəbr-u* "they break").

7 Reduplication in Chaha

One of the characteristics of the Ethiopian linguistic area identified by Ferguson was a reduplicative intensive. This formation appears, at least vestigially, in almost all the Ethiopian Cushitic and Semitic languages. In Sidamo, in which, as in the other Cushitic languages, lexical verbs are typically monosyllabic stems, the intensive is formed by repeating the stem, with regressive assimilation in the resulting syllable-contact, e.g., *kad-* "kick", *kakkad-* "kick repeatedly", *gan-* "hit", *ga [ŋ]gan-* "hit repeatedly, smash", *dar-* "split (wood)", *daddar-* "split repeatedly". In Amharic, a "frequentative" of triconsonantal roots is expressed by a reduplicative stem, if often with idiomatic narrowings and extensions of meanings, in which the second consonant of the root is geminated and preceded by the vowel *a*, thus (examples limited to regular triradicals to avoid complications): *sbr* "break", perfect stem *sHəbabbHər-* "break repeatedly, smash", *kfl* "pay", perfect stem *kHəfaffHəl-* "divide, classify", *wrd* "descend", *wHərarrHəd-* "recite".

McCarthy (1983a) noted an interesting interaction of reduplication with the palatalizations and labializations of the Chaha impersonal stem formation (see the rules in (8), above). Many reduplicated biconsonantal verbal roots have a meaning of repetitive action (e.g., *nk'nk'* "shake", *sbsb* "gather"); many are semantic causatives of intransitive notions (e.g., "shake"). In stem formation of roots of this type, the palatalizations and labializations which mark the impersonal stem and which affect a stem-final dental obstruent and a rightmost labial or velar, respectively, are repeated according to the reduplicative pattern of these verbs, as in (14), which shows the personal and impersonal imperative stems of three such roots.

Personal	Impersonal	
bɨtəbət	bʷɨčəbʷəč	"dissolve"(v. trans.)
sɨbəsəb	sɨbʷəsəbʷ	"gather" (v. trans.)
(14) nɨk'ənək'	nɨkʷ'ənəkʷ'	"shake" (v. trans.)

In McCarthy's analysis (p. 184), such Chaha verbs are provided biconsonantal lexical form (bt, sb, nk') and an associated reduplicative template, [μ μ]$_μ$, as argued for in his analyses of reduplications of other languages (McCarthy 1982b). In derivation of the impersonal stem bʷɨčHəbʷHəč, for example, palatalization and labialization directly affect the root tier, and are projected by the reduplicative template to the CV-tier as in (15). The template assures that palatalization and labialization are appropriately copied. Notice that the reduplicative template is not strictly required by the OCP, since the root pattern 1212 (e.g., *btbt*) does not properly violate the principle; however, the template analysis expresses the reduplication of the root pattern and accounts for the spread of palatalization and labialization as well.

(15)
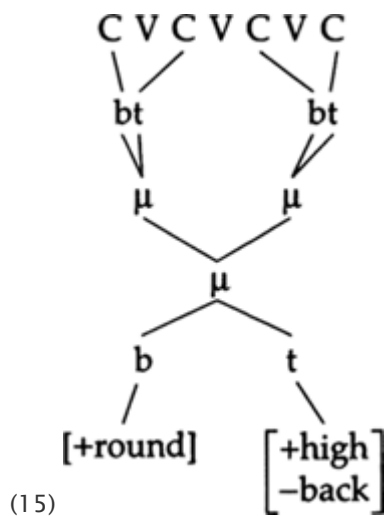
Alternative representation for these verbs would parallel that suggested in section 5 for Chaha verbs of the 122 type (e.g., *btt* as *b [t]*$_α$); a 1212-type root like *btbt* employing such identify reference would be represented as [*bt*]$_α$. This may seem like a notational variant of the reduplicative template as in (15). However, we saw in section 5 (and, implicitly, for Amharic in sec. 6) that such notation for the 122 types avoids the problematic merger of true biconsonantal and 122-type verbs which results when the latter, though represented as biconsonantals, must select the stem-forming patterns of triconsonantals. The identity notation also expresses the reduplicating parallelism of the 122 and 1212 types.

8 An Amharic Speech Disguise

Leslau (1964) described a number of argots of Ethiopian Semitic languages. For example, an argot used by a ceremonial group of Chaha involves vocabulary replacements (for example, words for names of wild animals), phonological modifications including reduplicative stems (e.g., *kinanna* from *k*Hə*nna* "prevent", Hə*žažž*Hə from *ažž*Hə "see"), root augmentations (HərebbHə from *ab*Hə "give", *w*

ɨ*radd*HəʕHə from *w*Hə*dd*HəʕHə"fall down"), and augmentation plus palatalization (*s̚*ɨ*radd*Hə*b*Hə from *s*Hə*dd*Hə*b*Hə "insult", *č'raffa* from *t*Hə*ffa* "be destroyed") (Leslau 1964, pp. 16-22).

Teshome and Bender (1983) present an argot clearly intended as "speech disguise" by its users, young women "hosts" in Addis Ababa bars, who employ it to exchange comments with each other without being understood by clients. The argot employs a special verb formation and a particular CV-pattern for other words derived from Amharic and, occasionally, English words. In (16) some disguise words are compared with their presumed Amharic sources (Teshome and Bender 1983, pp. 343-345).

Disguise word	Amharic word	
gaynən	gɨn	"but"
k'ayldəd	k'əld	"joke (n.)"
daygəg	dəgg	"kind (adj.)"
kayfəf	kɨfu	"cruel"
t'ayfəf	t'əffa	"he disappeared"
gʷayrər	gʷaro	"area back of house"
wayštət	wɨšət	"lie (n.)"
(16) saydbəb	səddəbə	"he insulted"

McCarthy (1984) discusses this speech disguise as exemplifying an unusual case of "manipulation of the CV-skeleton while the root phonemic melody remains unaltered" (p. 305), in contrast with such forms of other languages "where the CV-skeleton is ignored by the process of speech disguise." He suggests an analysis in which the CV-tier template supplied by the disguise is CV(C)(C)CVC, so that, because of the OCP, "any reference to the number of *different* consonants in a surface form is equivalent to referring to the number of consonants in the root itself" (pp. 307-308). To assure this outcome, he suggests a universal requirement that "optional skeletal slots are expanded only when some phonemic material would otherwise remain unassociated" (p. 309) or a stipulated association (formalized in McCarthy 1986b, p. 212) of the two final C-positions of the template to one element on the segmental tier.

The glottal stop is not contrastive word-initially in Amharic, but argot words derived from Amharic words with initial vowels, e.g., disguise *aymr*Hə*r* "Amhara" / Amharic [ʕ]*amara*, appear to give evidence that the allophonic glottal stops are treated like other consonants in argot word formation (Teshome and Bender give the possible but less common Amharic source *amhara* for this, making the output appear irregular). McCarthy (1984, p. 311, after Bender and Fulass 1978) suggests initial *h* for such roots, however, *h* is contrastive in Amharic and appears as *h* in disguise forms (*hayd*Hə*d* / *hed*Hə "he went").

Labials and velars in Amharic tend to be labialized before the labial (round) vowels *o* and *u* (there are also labialized velars appearing before the nonround vowels Hə and *a*: *k*ᵂHə*ss*Hə*l*Hə "he was wounded", kᵂ as "ball"). McCarthy notes that disguise forms like *g*ᵂ*ayr*Hə*r* / *g*ᵂ*aro* "area back of house" *m*ᵂ*ayzk*Hə*k'* / *muzik'a* "music" argue that this labialization, like the glottal stop, must be "underlying (redundantly)" (McCarthy 1984, p. 310).

From the examples *waylgd*Hə*d* / *t*Hə-*w*Hə*lagg*Hə*d*Hə "stagger" and *maynk*Hə*k* / mankiya "spoon", in which, respectively, the consonants of the reflexive-passive prefix and instrumental suffix are absent in the disguise form, the argot word-formation rule may be said to be insensitive "to any aspect of the base word other than its root" (McCarthy 1984, p. 307). But the examples are problematic. Teshome and Bender note (p. 347) that the source of the first might lack the prefix; the Amharic verb *w*Hə*l*Hə*gg*Hə*d*Hə is uncommon but exists, and the adjective *w*Hə*l*gadda* "staggering, drunk" is frequent. Indeed, the etymological reflexive-passive prefix *t–* of the Amharic source is retained in another argot word: *taymr*Hə*r* / t*Hə-*mar*Hə "learn(ed)". As for *maynk*Hə*k* "spoon", input is probably not *mank-iya* but the colloquial pronunciation of this word, *manka*. For additional discussion of this argot, see Hudson (1993).

The context for field work on the data of this section, it may be noted, is suggestive of the richness of Ethiopia as a source for phonological research.

Cite this article

HUDSON, GROVER. "Phonology of Ethiopian Languages." *The Handbook of Phonological Theory*. Glodsmith, John A. Blackwell Publishing, 1996. Blackwell Reference Online. 31 December 2007
<http://www.blackwellreference.com/subscriber/tocnode?
id=g9780631201267_chunk_g978063120126729>

Bibliographic Details

The Handbook of Phonological Theory

Edited by: John A. Glodsmith
eISBN: 9780631201267
Print publication date: 1996