

BI-CONSONANTAL REDUPLICATION IN AMHARIC
AND ETHIO-SEMITIC

by

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DEDICATION

This dissertation is dedicated to my friends, colleagues, and students from the Linguistics Department of Addis Ababa University.

It is a joy that these categories of people overlap. I have many happy memories of you and my time there with you and it is with joy that I follow your progress. However, it is with sadness that I remember several who are no longer there. It was among all of you that this project's first seeds were planted and watered. May you profit by it and enjoy it, and forgive its shortcomings

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We are like dwarves sitting on the shoulders of giants. We see more, and things that are more distant, than they did, not because our sight is superior or because we are taller than they, but because they raise us up, and by their great stature add to ours.

John of Salisbury, 12th century

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To all of these, **እግዚአብሔር ይስጥልኝ**

March 8, 2002

ABSTRACT

BI-CONSONANTAL REDUPLICATION IN AMHARIC AND ETHIO-SEMITIC

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This dissertation is a study of the consonant reduplication process in Amharic, a process which is herein named "Bi-Consonantal Reduplication." In this process, the last two consonants of a root are repeated, a process that has never been studied in a systematic way in Amharic or any other Semitic language.

Previous authors have used a variety of labels for this process, too often writing their definitions in ways that include other types of reduplication or that exclude some genuine examples of this reduplication pattern. This dissertation provides a more precise definition for this process that includes all and only genuine examples, leading to the new label "Bi-Consonantal Reduplication" (BCR). It is shown that some additional classes of forms are clearly derived by BCR, though it had previously been assumed that these were derived by a totally different process of reduplication.

This dissertation also contains a survey of the semantic categories represented by words derived by BCR. BCR is shown to mark certain semantic categories frequently, including impairment of gait, and dressing up fancy.

It is shown that derived forms from certain types of roots can be inflected as verbs, but derived forms from other types of roots cannot. The latter can be used for verbal

functions as the non-inflected lexical bases of compound verbs or as nouns and adjectives. Also, this study has led to the discovery and identification of certain classes of roots that cannot be reduplicated by BCR.

The dissertation provides evidence that BCR was a part of Semitic at a very early stage. Evidence is presented of BCR in languages where it had been previously overlooked, and a hypothesis is given for why it has been lost in certain other languages.

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CHAPTER 1

INTRODUCING BI-CONSONANTAL REDUPLICATION

1.1 Introducing BCR

Semitic language scholars have long studied patterns in the reduplication of consonants. This dissertation will examine a pattern of reduplication that has been the subject of much less scholarly study, describing it primarily in Amharic, the language in which it appears to be more productive than others. This pattern of reduplication merits serious study for several reasons, including the very basic reason that it has never been examined in depth. Also, this reduplication pattern is of interest in that BCR reduplicates different root types slightly differently, it creates some homophones with forms derived by prefixation, and gaps exist in its distribution across Semitic. Also, it has been discovered that its productivity and its uses vary significantly across Semitic.

Semitic verbs are based on roots that are generally held to be purely consonantal, for example, in Amharic, the root of *säbbärä* 'broke something' is \sqrt{sbr} , (section 2.10 discusses alternate views of the root). By adding vowels between these consonants (traditionally called "radicals" by many) and by attaching prefixes and suffixes, person, number, tense, objects and a variety of other grammatical categories are distinguished. For example, the root \sqrt{sbr} can appear as follows *mäsbar* 'to break', *bäysäbbär* 'if it is broken', *säbərre*, 'I having broken', *səbär* 'break!'.

Reduplication of consonants in Semitic languages is very common, possibly facilitated by these purely consonantal roots. Consonant reduplication is very productive in Amharic, as it is in most (if not all) Semitic languages, indeed almost all of the languages of Ethiopia (Ferguson 1976:73). To better understand the reduplication pattern

that is the focus of this study, it is important to understand and differentiate a different and more common form of reduplication in Amharic.

Amharic's most common form of reduplication is the duplication of the next to the last consonant in a root, such as the *b* of *sābabbārā* 'break something intensively' < *√sbr*. This reduplication pattern is so common that there is a label for it in Amharic: *bahəryawi gəs*, translated approximately as 'verb of the characteristic or essence' (Kane 1990:857).

This reduplication pattern has also been described as "repetition of the 2nd radical" (Leslau 1966:607), but such a description applies only to roots with three consonants. Since the reduplication pattern also applies to roots with four consonants, it is more accurate and general to describe it as reduplicating the next to the last, the penultimate, consonant. This reduplication pattern can be characterized as "penultimate reduplication." This penultimate consonant reduplication process is well described in the literature and "attested over the whole Semitic area" (Moscati *et al*, 1964:124).

Reduplication of the penultimate consonant is commonly applied to Amharic verb roots of both three and four consonants, as seen in table 1.1. As seen there, it is the penultimate consonant that is repeated in the reduplicated form. Whether the root has three or four consonants, the result is the same: a form with one additional consonant.

Table 1.1. Examples of penultimate reduplication in Amharic

	three consonant root	four consonant root
	$C^1C^2C^3 \rightarrow C^1C^2C^2C^3$	$C^1C^2C^3C^4 \rightarrow C^1C^2C^3C^3C^4$
Root	\sqrt{sbr}	\sqrt{glbt}
non-reduplicated form	<i>säbbärä</i> 'break s/t'	<i>gäläbbät'ä</i> 'turn s/t over'
reduplicated form	<i>säbabbärä</i>	<i>tä-gäläbabbät'ä</i>
reduplicated gloss	'break s/t intensively'	'turn over and over repeatedly'

It is important to note at this point that reduplication can apply not only to consonants which are clearly discernible on the surface, such as the three consonants *s*, *b*, and *r*, in *säbbärä*, but even underlying abstract consonants are counted in the reduplication. For example, the verb 'write' is heard as *s'afä*, with only two discernible surface consonants. However, the abstract root of this verb contains three consonants, $\sqrt{s'Hf}$. A consonant *h* is not pronounced as a consonant in the verbal form, not even in the penultimately reduplicated form *tä-s'as'afu* 'they write each other', but it is clearly heard in the derived noun *mäs'shaf* 'book'.

This penultimate reduplication is used in marking verbs for intensive, repetitive, and reciprocal forms, and for derived nominals and adjectives. This process is well described in the standard references on Amharic (Bender and Hailu Fulass 1978, Cohen 1970, Dawkins 1969, Hartmann 1980, Leslau 1995, etc.).

However, E-S (Ethio-Semitic) scholars, indeed, Semitic scholars universally, have paid much less attention to a less common reduplication process in which the penultimate and ultimate consonants reduplicate together, producing forms of the shape $C^1C^2C^3C^2C^3$, traditionally called "quinquilateral," such as *səbərbari* 'small broken piece' < \sqrt{sbr} 'break'. This dissertation describes this reduplication process in Amharic in detail and introduces

the label “BCR” (“bi-consonantal reduplication,” defined more precisely in chapter 3) as a unified, more insightful way of labeling this reduplication pattern. The data in (1.1) illustrates that BCR can produce a wide variety of forms.

(1.1) Examples of BCR in Amharic; note the variety of resulting forms

root gloss	root	duplicated form	duplicated gloss
‘was weaksighted’	√ <i>dn̄gz</i>	<i>d̄n̄gəz̄gəz̄:¹ alä</i>	‘become dusk’
‘continued’	√ <i>qt’l</i>	<i>qət’əli’əl</i>	‘made up of connecting parts’
‘broke’ (v.t.)	√ <i>sbr</i>	<i>səbərbari</i>	‘small broken piece’
‘bite, erode’	√ <i>grmd</i>	<i>gärmäd̄madda</i>	‘chipped (adj.)’
‘broke open, burst’ (v.i.)	√ <i>fri’</i>	<i>tä-frät’ärrät’ä</i>	‘was squeezed out’
‘become swollen’	√ <i>nfH</i>	<i>nəfət̄fət̄: adärrägä</i>	‘cause to become greatly bloated’
‘dipped, submerged’	√ <i>t’lq</i>	<i>ä-t’läqälläqä</i>	‘flood, overflow’

As seen in (1.1), BCR can be applied to roots of three or four consonants, and the results of the reduplication can be nouns, adjectives, or verbs. For verbal forms, the conjugation for person and number and other inflectional categories can be on the reduplicated verb stems or by means of conjugating the verb *alä* ‘say’, a topic described in chapter 5.

¹The symbol [ə] is used to indicate the non-phonemic transitional vowel sound inserted to break up consonant sequences, as in *wəc’mədməd* ‘skinny’.

It will be shown in chapter 3 that the label BCR is to be preferred over several other ways that scholars have used to identify this reduplication pattern, including labels that describe results and others that describe the process. The label BCR both excludes some forms that these labels did include and also includes some forms that previous labels did not include, some of great phonological interest. It is also more precise and more reflective of the reduplication process.

Several linguists have described BCR in other Semitic languages as based on repeating the final syllables. It will be shown here that this approach is problematic in that Semitic verb roots do not have inherent syllable boundaries, as such; the final syllable of a form may not be what is repeated in a duplicated counterpart to the non-reduplicated word. Describing the process rigidly in terms of syllables misses a broader generalization that can only be captured by describing BCR purely in terms of consonants.

As this study describes BCR in greater detail than previous authors, it shows how BCR is applied to a variety of verb root types, including $C^1C^2C^3$, C^1C^2H , $C^1C^2C^3C^3$, $C^1C^2C^3H$, $C^1C^2C^3C^4$. The latter part of this dissertation shows that BCR is found in several other Ethio-Semitic languages (including some in which BCR has never been described), and demonstrating that it can be reconstructed for a very early stage of Ethio-Semitic, and even Proto-Semitic. Yet at the same time, BCR is not found in some E-S languages. A hypothesis is then proposed regarding why BCR has been lost in some E-S languages.

This dissertation will show how the results of BCR can very closely resemble the results of penultimate reduplication. In some cases, the meanings of these similar forms have become blended, such as *täsärarra* (derived by penultimate reduplication) and *täsrrarra* (derived by BCR) are both defined as 'be put in order' (Kane 1990:480).

Much of this dissertation describes original findings that have been discovered by this first-ever systematic study of BCR. Additional contributions come in the form of putting previously isolated facts into a systematic framework, showing how they are part of a larger pattern. Every effort has been made to conscientiously and ethically credit previous scholarship where others have discovered facts earlier. On any point where credit to others has not been properly given, it is a regrettable oversight.

1.2 BCR applied to different types of roots

This dissertation will examine how BCR is applied to verb roots of different phonological categories, such as $C^1C^2C^3$, C^1C^2H , $C^1C^2C^3H$, $C^1C^2C^3C^4$, an area that has barely been touched on by other authors. Though different varieties of roots produce slightly different surface forms, this dissertation puts this phenomenon into a framework where these varied forms are not anomalies, but all follow the same basic rules.

Amharic verb roots, as in other Semitic languages, are generally abstract strings of consonants, such as \sqrt{sbr} 'break'. Traditionally, Ethiopian linguists do not usually cite bare roots, but rather the perfect form of the verb, inflected for 3rd person masculine singular subject, such as *säbbärä* 'break', though the English glosses do not reflect the perfect. The 3rd person masculine has simpler morphology than any of the other persons and numbers of the perfect. Other grammatical forms, for example imperative, infinitive, imperfect, could illustrate the root consonants just as well. No particular grammatical form is privileged or basic to all others. That is, there is no single grammatical form to which rules are applied to derive all other grammatical forms; an abstract consonantal root must be posited. A small circle of scholars, including Bat-El (1989,1994), Lederman (1982), and Ussishkin (2000a,b), is disputing this traditional position, but this dissertation finds nothing to support their position. Others have responded using a variety of data to

defend the purely consonantal interpretation, Prunet, Béland, Idrissi (2000), Ravid (in press), and Nevins (2002), with Rose taking a medial position (in press).

There are many roots that appear only in their BCR forms, with no non-reduplicated forms. In some cases, such roots do not exist in modern Amharic, but cognates can be found in other languages. However, in most cases, these roots are manifested only in BCR forms even in other E-S languages, if there are cognates in other E-S languages. The verb *a-g^wrämärrämä* ‘grumble’ suggests that the root is $\sqrt{g^wrm}$, but there is no evidence of such non-reduplicated verb in Amharic today, nor in Ge’ez, Tigré, or Tigrinya. But in each of these other three languages there is a similar BCR form with the same meaning. It is fascinating to note that the same root appears in Harari, not reduplicated by BCR, rather totally reduplicated *gurm gurm baaya* ‘grumble’ (Leslau 1979:3.294).

1.3 Inflected verbs

In addition to deriving nouns and adjectives by BCR, Amharic and these other Ethiopian languages derive full transitive verb stems, as seen in *a-fläk’älläk’ä* ‘cause to spring up’. These stems can then be conjugated as verbs, with person, number, tense, mood, and so forth. It will be shown that Amharic (along with some other E-S languages) is distinct from Asian Semitic languages in that it uses BCR stems as fully inflected active verbs, not merely stative verbs, a distinction not previously noted.

1.4 Compound verbs

Roots derived by BCR can also be used to form lexical bases for “compound verbs,” a construction studied at length in chapter 5. It has been discovered that when certain classes of roots are reduplicated by BCR, they cannot be inflected as verbs. But their semantics can still be used verbally in as the lexical base in compound verb construction.

1.5 Prefixed forms that resemble BCR

This dissertation also makes an original contribution in its study of forms that are ambiguous as to whether or not they are derived by BCR. In some cases, it is not clear if the initial consonant is a possible prefix or whether the consonant is the first segment of a form derived by BCR. For example, the root-initial nasal consonant in *tā-ng^wädägg^wädä* 'thundered' could be a prefix, as in *tā-n-qäsaqqäsä* 'moved about', or it could be the initial consonant in a root $\sqrt{ng^w d}$. Also, examples are presented of homophonous forms that can result from BCR or by prefixes on roots, such as *yalgäzäggäzä*, which can be derived as either *y-a-lgäzäggäzä* 'who caused to waver' \sqrt{lgz} and *y-al-gäzäggäzä* 'who did not cut with difficulty' from \sqrt{gzgz} 'cut with difficulty'.

The study of possible prefixes included a study of both historical forms and interviews with native speakers of Amharic, probing their intuitions. The results are given in chapter 6.

1.6 Phonology and BCR

The study of BCR, by any name, in any Semitic languages, has never been the subject of a serious phonological study, though there have been brief inclusions of BCR data in phonological studies, such as by McCarthy (1981:409) and Buckley (1990:81). This study has found that the study BCR sheds light on a number of phonological issues, including vowel epenthesis, consonant spreading, the shift of labialization, and aspects of templatic reduplication. One interesting note is that verbs with two repeated consonants, such as *t'ämäzzäzä* 'wind, twist' (*v.i.*), reduplicate the consonants attached to the final two consonant slots, not merely the final two surface consonants, *t'ämäzmazza* 'sinuous', not **t'ämzäzäzza*.

1.7 Semantics of BCR verbal forms

This dissertation also breaks new ground in studying the types of meanings found with words derived by BCR, looking at semantics and sound symbolism. This will be done in three steps. First, the expected semantics of reduplicated forms in general will be compared with the semantics of forms reduplicated by BCR. Then the types of semantic categories that repeatedly appear in the lists of forms derived by BCR are examined, producing a list of semantic categories that are most frequently reflected by BCR forms. Finally, a study is made of patterns that seem to exist between certain sounds and certain meanings.

1.8 BCR in other Semitic languages

It has been said that the reduplication pattern which is here called BCR is more common in Semitic languages of Ethiopia (Gray 1934:80). This does in fact seem to be correct, and Amharic may use this reduplication pattern more than most others. In the course of the research for this dissertation, it has been discovered that BCR is/was found in a wide variety of Semitic languages, back to the earliest levels of Semitic. Semiticists have frequently characterized BCR forms as more frequent in E-S, but close examination of the data shows that they are also found in all the other major branches of Semitic. Also, it is found that BCR is used by E-S languages for active verbs, even transitive verbs, something not found in the Semitic languages of Asia. The dissertation concludes with some observations on BCR in non-Semitic Afroasiatic languages.

1.9 BCR forms appearing in other Ethio-Semitic languages

This study of BCR will show that a number of Amharic BCR forms have BCR cognates in other E-S languages such as Ge'ez, Tigré, Tigrinya, and Argobba. For example, forms of *(a)g^rrämärrämä* 'grumbled' are found in Amharic, Tigré, and Tigrinya. Evidence is presented to show that several words were reduplicated by BCR at

a very early stage in the history of E-S languages. Additionally, evidence is given that BCR is found in two additional E-S languages, languages where scholars had not noted it previously. This dissertation explores and documents similarities and differences between how different E-S languages use BCR, reconstructing some patterns for Proto-Ethiopic. From this, a hypothesis is developed to explain why BCR is not found in certain E-S languages.

1.10 BCR forms used in various registers of formality

Reduplication is often associated in the world's languages with informal speech, and/or the speech of children (Moravcsik 1978, Ferguson 1983). In addition, reduplication is often used to form ideophones, often onomatopoeic words where sounds carry certain meanings. In Amharic many words produced by BCR can also be classed as "ideophones," sound symbolism being an important part of the meaning (addressed further in chapter 8). Both ideophones and children's speech are often used in less formal registers of speech, and often not in formal writing. Indeed, Samarin, writing about Bantu languages, noted that "ideophones are less used in writing than in speech, and much less in Bible translation" than secular writings (1971:152).

There is no statistical comparison of the use of BCR in different registers of use available, but certainly Amharic words resulting from BCR are not restricted to such less formal registers. They are found in Amharic translations of the Bible produced by the Ethiopian Bible Society, such as the form *ag^rrämärrämu* 'they grumbled' (Numbers 14:2, the identical form found in both the 1962 and 1988 translations). The author has also heard forms derived by BCR used in prayer in Amharic. In any language, different words will be appropriate to different registers and certainly some Amharic words derived by BCR will not fit into formal registers. But not all the words produced by BCR are automatically classed as fit only in informal or children's speech.

Similarly, BCR forms are also found in translations of the Bible in some other E-S languages, including Gafat *sidbäläbäl sä(l)lä²* ‘while he whirls’ from the Song of Solomon (Leslau 1945a:77), Ge’ez *läng^wärg^wäru* ‘they grumbled’ (Numbers 14:2), Tigrinya *lag^wrämärrämu* ‘they grumbled’ (Numbers 14:2). By contrast, in Harari, the use of BCR is used only in children’s speech and is seen as inappropriate in proper adult speech (Hakim Mohammed, p.c. 2001).

1.11 Transcription

Every effort has been made to cite forms from various languages in a way that facilitates the comparison of data across languages. But at the same time, true differences have been preserved, allowing a reader to see what are genuine differences. For example, the symbol <ə> has been used by different writers to represent different vowels. Rose (forthcoming) uses <ə> to represent a phonemic vowel in Amharic, but Leslau has consistently used the same symbol to represent a non-phonemic epenthetic vowel in Amharic (and other E-S languages). Citing forms in the varying orthographies used in the published sources would lead readers to assume that certain forms are more similar than they really are.

Even usage of symbols by a single author may vary, for example the symbol <a> has been used by Leslau³ in Ge’ez (1991) to represent the same vowel as the symbol <ä> in Amharic, where he used the symbol <a> for a different phoneme (1976, 1995). It is not possible to say with certainty that the Amharic vowel is pronounced the same as the ancient Ge’ez vowel was, but rather that the vowels are represented by the same symbols

²The parentheses indicate that Leslau was uncertain whether the consonant was geminated, the uncertainty being a result of working with a manuscript, rather than eliciting the form verbally.

³In using the vowel symbol <a> for this vowel in Ge’ez, Leslau is not being inconsistent so much as he is conforming to the norm in Ge’ez studies, as seen in the usage of Conti Rossini (1941) and Chaine (1907).

in the Ethiopian orthography and are consistent in cognate words and in verbal paradigms, as seen in the paradigm of ‘repeat’ in (1.2).

(1.2) Simple perfect of ‘repeat’ showing the systematic match of Leslau’s Ge’ez <a> and Amharic <ä>

	Ge’ez	Amharic
1 st person singular	<i>dagamku</i>	<i>däggämhu</i>
2 nd person masc. singular	<i>dagamka</i>	<i>däggämoh</i>
3 rd person masc. singular	<i>dagama</i>	<i>däggämä</i>

Even within descriptions of Amharic, the “first form vowel,” the most common vowel of the Amharic verbal system, has been represented in print by a wide variety of symbols: <ε> (Titov 1976), <a> (Guidi 1895), <ə> (Banksira 2000, Bender and Fulass 1978), <a> with a hyphen through it (Cohen 1970), <ä> (Mittwoch 1907), <ë> (Weaver 2000), and <ä> (Hartmann 1980, Kane 1990, Leslau 1995, Mantel-Niecko 1963, Titov 1976). This dissertation will use the symbol <ä> to represent the vowel that is most commonly used in verb inflection. It may not be the most appropriate symbol in terms of phonetic symbols (Devens 1983), but as Hudson argues, it is appropriate because it is so well established in the literature (1978b:198).

For the non-phonemic, epenthetic vowel that is used to break up consonant clusters, various authors have also used different symbols, including <i> (Weaver 2000), <ĩ> (Guidi 1895), <ι> (Bender and Hailu Fulass 1978), or <ə> (Amsalu 1987, Leslau 1995). This dissertation will use the symbol <ə>.

For consonants, the problem is less acute, but there are still differences in how different authors symbolize certain sounds, especially laryngeals. Also, the representation

of ejective consonants in Ethiopian languages is not consistent, some using upper case letters (Bender 1974), some using a dot under the consonant (Guidi 1895, Cohen 1970, Leslau 1976, Hartmann 1980, Amsalu 1987), some using an apostrophe following the consonant (Bender and Fulass 1978, Taddese 1980, Wetter 2000). This dissertation uses an apostrophe following the consonant symbol (except for the ejective velar stop, as explained below). However, when an ejective consonant is geminated, the apostrophe will only follow the second of the two symbols, instead of printing an apostrophe after each of the consonant symbols (e.g., *mätt'a* 'came'), rather than the more visually complex **mät't'a*. There is no ambiguity in this style of notation, since there are never any consonant sequences in any of the languages involved in this dissertation where the first consonant of a sequence is a non-ejective stop followed by an ejective stop at the same point of articulation, **/m/ |ä/ |t/ |t' |ä/*.

In addition, the velar ejective consonant is often represented by authors with *q*, (e.g., Leslau 1995), instead of a diacritic on *k*. For the sake of orthographic simplicity, and to follow the widest established practice, this dissertation uses *<q>* for the velar ejective, seen in such a form as *aqqaqä* 'scratch, itch'.

Some authors have used a variety of transcriptions for indicating labialization of velar stops when followed by the "first form vowel" *ä*, including *ko*, *k^wä*, *k^uä*. This will systematically be marked with a raised *w* and the usual transcription for the vowel, such as in *tädk^wäläkk^wälä* 'toddle'.

Gemination of a consonant, which is a significant part of the morphology of Amharic, is represented medially by a repetition of the consonant symbol, seen in *käffätä* 'opened', *yäkäftal* 'he will open'. In the verbal paradigms, gemination is not part of the root, but part of the inflection. When a word-final consonant is geminated, this will be indicated by a colon after the consonant, *bəq: alä* 'suddenly appear (of a person)'.

Following these practices, the transcription of forms in quoting from other authors, will not always follow the exact symbols of the published sources, but will always be done in a way that seeks to preserve accuracy and clarity.

Verbs are generally cited in the customary 3rd person masculine singular, past tense, but traditionally glossed in English with a present tense form, such as *wässädä* 'take'. This is the simplest morphological form of a verb and is the universal citation form by both scholars who are native speakers of Amharic and foreigners.

Labialized velar stops in Amharic will be treated in this study as phonemes, but labialization on other points of articulation will be treated as non-phonemic, such as *wässäd^wat* 'they take her', which comes from *wässäd-u-at*. The phonemic status of labialized consonants in Amharic may not be universally agreed upon, but for the purposes of this dissertation, this is an adequate framework (Leslau 1995:4,9,10, 1997a:400). Labialized velar stop consonants in Amharic appear much more frequently than labialized consonants at other points of articulation. Bender's count of Amharic phonemes found that *k^w*, the least common of the labialized velar stops, had seven tokens in his lexical database (1974:19,20). This number is equal to the number of tokens from the rest of the points of articulation combined. Labialization will be indicated with a superscript *w*, as in the form *q^wəsəl* 'sore, wound (n)'. Again, as with the ejective consonants, when a labialized consonant is geminated, the symbol indicating the point of articulation, manner, and voicing will be repeated, but not the superscript, (e.g., *m^wamm^wa* 'be dissolved' rather than *m^wam^wm^wa*).

The consonants of the Amharic phonemic system and the symbols used in this dissertation are presented in table 1.2. Note that the ejective consonants are spelled with diacritics, except the velar ejective, which is spelled as <q>.

Table 1.2. Amharic consonant phonemes and symbols used

	labial	alveo- dental	alveopalatal	velar	laryngeal
plosives	b	d		g	
vd					
vls		t		k	
ejective	p'	t'/s'	c'	q	
fricative		z	ž		
vd					
vls	f	s	š		
liquids		l, r			
affricative			j		
vd					
affricative			c		
vls					
glides	w		y		h

There is much variation between speech forms on the use of the ejective stop *t'* and the ejective fricative *s'*. Some speakers consistently use only one or the other, other speakers use specific ones for certain words, but this is also not uniform. Though they were different historically, as reflected in the orthography and in Ge'ez, now they are in loosely constrained variation, some cases of it being markers of sociolinguistic status (Takkele 1992). For counting purposes in this dissertation, they are not treated as different phonemes, but cited forms will preserve the orthographic form of the original source.

Similarly, the voiced affricate *j* and the voiced fricative *ʒ* are in quite free variation in many speech forms. Though the Amharic orthography differentiates these two, this is not used consistently in most people's practice and Kane combines the two letters into one section of his dictionary, though preserving their orthographic differences. For counting purposes in this dissertation, they will be counted as a single phoneme.

The symbol *H* is used to indicate an underspecified segment. It is sometimes realized on the surface as [h], as in [həbrät] 'unity' from √*Hbr*. But /H/ is realized on the surface in a number of different ways, including [t], as will be shown in chapter 5.

1.12 Corpus

This dissertation is based on a corpus of BCR forms gleaned from over 550 Amharic roots (some attested in non-reduplicated form, some not) as found in Kane's monumental two-volume Amharic-English Dictionary (1990). All forms presented here without citation are from Kane (1990). Kane's work is the standard because of its breadth, being an edited compilation of all previously available Amharic dictionaries. From this dictionary, Sharon Rose has compiled a database of all Amharic verbs and has generously provided copies of relevant parts of her work. The results of the present author's search for BCR forms in Kane's dictionary are presented in table format in appendix A. These data include not only inflected verbs, but also nouns, adjectives, and lexical bases for compound verbs (a construction explained in chapter 5).

In addition to forms from Kane's dictionary, a few forms were elicited from native speakers of Amharic. This was done to check for the existence of possible reduplicated forms that were not listed in Kane's dictionary, such as those derived from roots of the shape $C^1C^2C^3H$, such as *zrgH* 'raise, extend'. When forms are given which are not found in Kane's work, they are identified as such.

1.13 “Radicals” and “consonants”

Authors writing about Semitic languages have long used the term “radical” to refer to consonants in verbs. Others have used the word “consonant” or “literal.” These terms have generally been used to refer to elements both in roots and in conjugated and derived forms.

Some writers now make a distinction, using “radical” to refer to the consonants in a root and “consonant” to refer to the number of consonantal slots in a template (Prunet 1996a, Rose forthcoming). Prunet uses this to provide labels for referring to classes of words based on the number of root or stem consonants, explaining that he uses “‘n-literal’ to refer to the number of consonants in a root and ‘n-consonantal’ to refer to the number of C-slots in a template” (1996a:620). By this method, Amharic *tä-frät’ärrät’ä* ‘was squeezed out’ (from the root \sqrt{frit}) would have three radicals but five consonants. This dissertation does not follow this specialized distinction between “radical” and “consonant,” but careful explanations of the usage of the word “consonant” in different contexts will prevent any ambiguity.

1.14 Citation of Ethiopian authors

Ethiopian and Western naming practices differ in regard to which part of a person’s name is cited in references. The Ethiopian custom is to cite the person’s first name and alphabetize names accordingly. The Western custom uses the last name. To make it easy for readers of both cultures to understand and use the references in this dissertation, a compromise has been implemented: Western authors and those Ethiopian authors published in the West will be cited in the text by Western custom, while Ethiopian authors published in Ethiopia will be cited by Ethiopian custom. The references at the end of the dissertation will cross-reference both names of Ethiopian authors so that readers from either sphere can find the names they seek.

CHAPTER 2

IN THE LAND OF THE GIANTS: REVIEW OF PREVIOUS WORK

2.1 Reviewing the wealth of previous scholarship

Chapter 1 identified the object of this study, the reduplication pattern in which the last two phonemes of a root are reduplicated together. Previous scholars have not scrutinized this specific topic in depth, but have given us many helpful insights on a wide variety of topics. This chapter will summarize and critique the relevant literature, including the fields of Semitic studies, phonology, historical linguistics, sound symbolism, and reduplication theory.

2.2 Classification of Semitic languages

While there is broad agreement on the broader outlines of the classification of Semitic languages (Hetzron 1972, 1975, 1992, Rodgers 1971, Voigt 1987), there are still questions about many details, complicated by the millennia of contact and borrowing (Ratcliffe 1998). Of particular relevance to this dissertation is the status and internal structure of Ethio-Semitic (E-S).

All Semitic scholars agree that the Semitic languages of the Horn of Africa constitute a distinct and coherent group of languages, which will be here referred to as "Ethio-Semitic" (E-S). Within E-S, the larger divisions are again clear, but there is still some uncertainty and disagreement about languages of the Southern node of E-S, specifically in relation to the use of the term "Gurage." There has been disagreement as to whether the ethno-linguistic label Gurage even refers to a group of languages with a shared common ancestry (Leslau 1969a,b). The currently accepted classification of these

Gurage languages stems from Hetzron (1972), also found in Hetzron and Bender (1976). Neither the number of languages within the Gurage cluster nor relationships among the various Gurage languages are unanimously agreed upon (Hetzron 1972, Fellman 1996, Leslau 1969a).

For the purposes of this dissertation, the broader classification within E-S is more important. The details of the internal relationships between languages that have been variously grouped within "Gurage" are not crucial here. The only points that need to be noted are that Harari, Silt'e and Zway pattern closely together, and that Gafat is closer to the rest of the Gurage languages than to anything else. A chart showing the classification of E-S languages is included in chapter 9.

2.3 Terminology used in Semitic studies of BCR

Semitic scholars have traditionally referred to various conjugational classes by their consonants, so many have referred to BCR forms by the label "*qtltl*" (or with vowels, as in "*qataltal*," "*qataltul*"), (Gordon 1955:280, O'Leary 1923:215, Höfner 1951:97, Bauer and Leander 1922:482,483, Joüon 1993:254). Wajnberg used a different verb root, but used this same Semitic pattern of marking vowel patterns, giving classes distinguished by prefixes and vowel insertion "*gabarbara*," "*məgbərbār*," and "*tagbarbara*" (1932:77,82,84), "*gabradārəd*" (1936:672), "*gəbərbər*" (1935:258).

In addition to the *qtltl*-type of label, scholars writing about Ethio-Semitic languages in English have often labeled the results of BCR as "quinquliteral" (Buckley 1990:77, Mantel-Niecko 1964:31, Leslau 1945a:77, 1945b:25, 1956:143; 1958:72; 1959:271). Some have used the slight variants "quinquiradical" in English (Raz 1983:66 and Leslau 1995:567) or "quinquiconsonantal" (Gordon 1955:68) and (Rose in press), but the difference is trivial. French writers, such as Cohen (1970:271) and Chaine (1907:51) have used the spelling "*quinqueliteral*," while German writers, such as

Hartmann (1980:228) and Praetorius (1886:43), have used the label “*fünfradikalige*” to speak of such reduplicated forms. The Russian scholar Titov is translated into English as using the label “five-consonant verbs,” following the same pattern as scholars in the other languages (1976:58).

Some writers looking at Ethio-Semitic languages have noted that forms resulting in strings of six consonants also result from this same basic reduplication process. Realizing that the label “quinguiliteral” was not appropriate, they resorted to the label “sexiliteral” (e.g., Dillmann 1907:163, Mantel-Niecko 1964:31, Cohen 1970:158, Leslau 1941:125). Writing in German, Hartmann labeled these “Sechsradikalige Dreisilber” (1980:243). From Russia, Titov also noticed these forms, using the label “six-consonant verbs” (1976:80). However, such longer reduplicated forms are not referred to in the writings of many who have touched on five-consonant forms that are formed by BCR, (Buckley 1990, Chaine 1907). Realizing that “sexiliteral” did not include a reduplicated form with eight surface consonants, Cohen even coined the term “octolittère” for his example (1970:440).

Leslau has also used the broader labels “pluriradicals” and “partial reduplication” to label sets of words that are derived by BCR (1945b:22-25; 1995:566, 569, 593), but also included in these sets four-consonant roots like Tigré *gäsgäsä* ‘to speed’ and Argobba *dänäggät’ä* ‘was afraid’ (1959:270), five-consonant roots like Amharic $\sqrt{wšnfr}$ ‘interlaced’ (1995:567), as well as BCR forms such as Amharic *tä-rbädäbbädä* ‘was tremulous’ (1995:568). In the same vein, Conti Rossini used the label “plurisillabici” in describing Ge’ez (1941:68-70), including forms with prefixal *n* such as *a-n-k^wärk^wärä* ‘roll’ from $\sqrt{k^wr}$ as well as BCR forms like *adläqläqä* ‘shook’ from \sqrt{dlq} . Labels such as these are too broad for the specific study of BCR since they include forms other than those reduplicated by BCR.

Leslau has used the label “1.2.3.2.3” to refer to BCR forms in E-S languages (1979:3.248, 1995:566ff, 1997b:87), a way of showing both the reduplication pattern and the number of consonants in the reduplicated form. It is accurate for forms such as *tāc’lāmāllāmā* ‘get darker’ from $\sqrt{c’lm}$ ‘become dark’, and has been adapted to “1.2.3.4.3.4” for forms reduplicated from quadrilaterals, such as *dāblāqlāq* ‘confusion’ from \sqrt{dblq} ‘be mixed up’ (1995:569), but it does not readily capture the similarity between these two.

2.4 Descriptive studies of BCR in Semitic languages outside of Ethiopia

Scholars describing Semitic languages outside of Ethiopia have pointed out such reduplicated forms in the languages they are describing, but have not made any detailed analysis of the process of reduplication. This reduplication process has been noted in various Semitic languages, including in Ugaritic by Aistleitner (1963:73) and Gordon (1955:280,281) and in Akkadian by Halevy¹ (according to Brockelmann 1961:247). In Biblical Hebrew, this process has been described by Gesenius (1910:102,152,153). It has been more briefly noted in Biblical Hebrew by Bauer and Leander (1922:482), Juoun (1993:254), LaSor (1979:72,109), McCarthy (1982:153), O’Leary (1923:215). In Modern Hebrew, it has been described briefly, typically on a syllable-basis, by McCarthy (1981:409), Lederman (1982:157, 158), and Glinert (1989:428). Masson (1974:256-279) and Bolozky (1994) list examples of its use in forming diminutives in Modern Hebrew. It has also been noted in Syriac by Nöldeke (1904:132), in Biblical Aramaic by Segert (1975:153) and Macuch (1982:255), in Arabic by Gray (1934:80) and Barth (1967:216).

¹Despite Brockelmann’s complete citation of the facts of publication for Halevy’s article, I have been unable to procure a copy of the article.

A very few scholars are to be singled out for having made more than mere passing note of this reduplication process. Gray noted, "The twelfth form of the Arabic verb, e.g., *iktautaba*, may have developed by dissimilation from **iktataba*, as in... *imlaxaxa* (<*imlaxlaxa*) 'be salt'" (1934:80), which is derived from the noun form *malx* 'salt'. In such forms, the third consonant of the string is weakened. Yip presents a different derivation of these forms: she reduplicates the second consonant, then inserts the *u* (in her terminology *w*) as a separate epenthesis (1988:558). We see then, that in addition to the obvious cases of BCR in Arabic, a number of additional Arabic verb forms may also be derived from BCR.

For Modern Hebrew, McCarthy (1981), Lederman (1982) and Glinert (1989:428) have discussed the process of the BCR reduplication pattern, but have discussed it in terms of reduplicating the final syllable, not the final two consonants.

For Biblical Hebrew, Lasor referred to the process as reduplication of the "last two radicals," but used this description to refer to reduplication of three-consonant roots as well as two consonant roots (1979:72). Later in the same book, he changed perspective to view words from the beginning, referring to "derived stems... formed by reduplicating the 2d and 3d rad[ical]s" (1979:109). Bauer and Leander described BCR forms as "with repetition of the 2nd and 3rd radicals"² (1922:482). They cited 16 such forms in Biblical Hebrew. Gesenius also noted such forms, but classified them differently: "stems which have arisen from... the mere repetition of one or two of the three original consonants... are usually not regarded as... *quinquiliterals*, but as *conjugational forms*" (1910:102).

²"Mit wiederholung des 2. und 3. Radikals."

2.5 Descriptive studies of BCR in Semitic languages inside of Ethiopia

Scholars describing Semitic languages of Ethiopia have paid more attention to this pattern of reduplication than Semitic scholars elsewhere. Though Guidi's discussion of reduplication in Amharic (1895) did not refer to this particular type of reduplication at all, it has been noted in print related to Ethiopian languages as far back as Praetorius' study of Ge'ez, where he listed two forms that are examples of BCR (1886:43,44). Dillmann listed at least 22 BCR forms in various sections of his grammar (1907:143). Since then, Ge'ez forms derived by BCR have been collected and listed in the grammars of Chaine (1907:51), Conti Rossini (1941:70), and Lambdin (1978:229,230). All of these subsequent authors have only cited forms drawn from those in Dillmann's grammar.³ It is interesting that the forms cited by these authors are so often the same few forms (everyone but Lambdin citing a form of *aḥmālmälä* 'be green'), even though many other Ge'ez BCR forms are readily found in the dictionaries of Dillmann (1865), Grébaut (1952), and Leslau (1991). Those authors writing about Semitic more broadly and who listed Ge'ez forms in their comparative studies have then followed suit by recycling these same few forms. For example, the Ge'ez verb *aḥmālmälä* 'be green' is cited by (Brockelmann 1908b, Gray 1934, Lipiński 1997, Nöldeke 1904, O'Leary 1923, Moscati *et al*'1964).

Readers will note that the name of Dr. Wolf Leslau is cited constantly in the review of literature on Ethiopian Semitic languages. In the field of Ethiopian languages, especially Ethiopian Semitic, Leslau's pioneering fieldwork, broad comparative knowledge, and consistently outlined descriptions are foundational and monumental.

³Lambdin is an exception, in that he introduced some additional forms that he argues are the result of BCR, though their shape might suggest an alternative interpretation involving a prefix (1978:230), as discussed in chapter 6.

And his stream of academic production is still ongoing.⁴ Though he did not include forms derived by BCR in his early comparative study of frequentatives in E-S (1939), he was specifically alert to the existence of this reduplication pattern as he investigated a number of neglected Ethio-Semitic languages, including the label “quinquilateral” in his standard outline as he described Gafat (1945a:77, 1956:143), Tigrinya (1941:125), Tigré (1945b:25), Argobba (1959:271), and Harari (1958:72)⁵. The fact that he did not find any data calling for this label in his Gurage studies (1950) is therefore very telling, showing that it is not merely a matter of overlooking the construction, but rather evidence that he did not discover any solid examples of this reduplication pattern in the Gurage languages. In contrast, when he wrote his *Reference Grammar of Amharic*, he devoted several paragraphs to the discussion of this reduplication pattern (1995:475,566,568,569,593).

In describing Tigrinya, Wajnborg (1935:61,64,70 and 1936:672) has presented more discussion of BCR than any others writing about the language. Though the reduplication pattern is clearly present in Tigrinya, it has not been addressed by most writers. In an article titled “The ‘derived forms’ of the Tigrinya verb,” Palmer (1960) omitted any mention of BCR verb forms, though BCR forms certainly are a form of derived verb in Tigrinya. Buckley is also one of the few to apply a theoretical mechanism to the study of BCR forms in an E-S language, using a templatic approach to apply three-consonant roots to templates with five consonant slots (1990, 1997, forthcoming). He also pointed out that semantic relationships between the non-reduplicated roots and the duplicated forms are not totally predictable (1990:81). There

⁴In the words of the Amharic blessing, “*ədume yəst’acāw*” ‘May God give him years!’

⁵Leslau deliberately looked for “quinquilateral” forms. The Harari form that Leslau listed under the label “quinquilateral” is not, however, an example of BCR: *fexunquq* ‘creep’ (Leslau 1958:72). It will be shown in chapter 9 that Harari does indeed use BCR, but in a limited way.

is no mention of this pattern in Sahle's Tigrinya grammar (1998). There are some forms in the thesis of Girmay Berhane (1991:359), but no substantive discussion. Mason's pedagogical grammar of Tigrinya is too brief to include a discussion of BCR (1996).

Höfner gave several examples of BCR forms in Tigré, briefly pointing out similarities and differences between BCR reduplication and other patterns (1951). Raz specifically listed some Tigré BCR forms, also (1983:66), but did not discuss the mechanism of reduplication. More recently, Rose has discussed different patterns of reduplication in Tigré, including BCR (in press). She points out the similarity between the template for inflecting four-consonant verbs and those reduplicated forms derived by BCR from three-consonant roots. Tigré inflects reduplicated roots and also uses reduplicated roots as lexical bases to use in compound verbs, a construction explained in chapter 5.

In his brief, but invaluable, descriptions of now-extinct Gafat, Leslau listed forms derived by BCR (1945a:77, 1956:143). There is no description of how they are formed, but the roots and derived patterns are so similar to other Amharic and other E-S languages that it is possible to understand the general principles of BCR in Gafat.

In Leslau's descriptions of Argobba, again following his standard outline, which facilitates comparison with his other grammatical descriptions, he cites three BCR forms (1959:271 and 1997b:87). It is noteworthy that his Argobba data shows a change from the prefix *tä-* (found in Amharic and Gafat) to *ə* for a variety of functions, including on BCR verbs.

In describing BCR in Amharic, Cohen was the pioneer, sprinkling examples of BCR and various observations through his book (1970), a slightly revised version of the earlier edition published in 1936. His insights included documenting how the insertion of vowels into a normally vowel-less BCR form lessened the intensity of the form, noting the common pattern in deriving BCR forms from both three- and four-consonant roots,

and noting the similarity between the templates for inflecting non-reduplicated four-consonant roots and inflecting forms derived by BCR from three-consonant roots.

Titov lists some BCR forms, formed from both three-consonant roots and four-consonant roots (1976:58-60). He mingles these with a discussion of words that are not derived by BCR, but presents a clear paradigm of a verb derived by BCR and then inflected. He differs from most in presenting a discussion of inflecting a verb derived by BCR from a four-consonant root \sqrt{glbt} ' (1976:58), a type of construction that is rejected by many Amharic speakers, as was found by interviews, discussed in section 4.6.

Hartmann speaks of "Fünfradikalige Dreisilbler" (forms with five consonants and three syllables) to refer to forms with five radicals, but does not distinguish those that are examples of BCR from those that are not, including forms such as *dəmbəlal* 'coriander' (1980:228). Immediately below this, he lists forms with six radicals and three syllables ("Sechsradikalige Dreisilbler") again, not specifically referring to the pattern of reduplication. He diagram simply shows consonants $/XəXXəXXəX/$, rather than a more transparently helpful $/X^1əX^2X^3əX^4X^3əX^4/$. Hartmann uses such a notation elsewhere (1980:72), but not in his actual discussion of these forms on p. 228 (1980). In addition to discussing the number of consonants, Hartmann noted the differences in the number of syllables in derived forms, listing in separate groups those five consonant forms with three- and four-syllable forms resulting from BCR (1980:242,243). He is the only author on E-S to explicitly note the difference in the number of syllables in forms with the same number of consonants. However, he did not discuss the different vocalization patterns or parts of speech that are a key part of understanding the number of syllables in forms derived by BCR, points which are discussed chapters 4, 5, 7 and 9 of this dissertation.

O'Leary, not an E-S specialist, cited an Amharic form *fātältälä*⁶ 'rub thread between fingers' (1923:215). The form appears to be from Tigré, cf. *hālāklākā* 'be frightened'. It is clearly not Amharic, at least not standard Amharic. The standard Amharic form for this verb is *aftälättälä*, with a prefix, gemination of the penultimate consonant, no vowel after the root-initial consonant, and a vowel after each of the last four consonants.

Hailu Fulass specifically pointed out the productivity of this reduplication pattern in nominal derivation in Amharic (1966:59), though he did not describe the details of the reduplication or the rules of vowel insertion. Nor did he use any label for this reduplication pattern. He bemoaned the fact that it was not being used to coin terms for new technology.⁷ Leslau's 1976 dictionary lists the BCR form *wələbləb-it* 'propeller' from *√wlb* 'flutter, flap' (1976:167), but when Hailu Fulass wrote his dissertation, the word may have meant only a manual 'fan'. BCR has been used for other technological neologisms, including two from the root *√rgb* 'flap, wave', *ərgəbgəb-it* 'propeller' and *ləkkərgəbgəbta* 'amplitude of a wave' (Kane 1990:88), *gənbətbatta* 'aggradation' (Kane 1990:2002), and *zənəfnəfe* 'hysteresis' (Kane 1990:1661).

Hailu Fulass surveys derived nominals, showing that there are a wide variety of patterns. He divides them into two broad categories: verbal vocalization (with minimal suffixation) and a series of longer nominalizing suffixes. On page 59, he gives 4 nouns which he analyzes as derived from vowel-less BCR strings derived from triradical verbs. However, he only gives forms with one vocalization pattern, and none with prefixes,

⁶He used different vowel symbols, *fātaltala*, but the difference is merely orthographic.

⁷Most American linguists will not be aware of the great interest that Ethiopian linguists have with the coinage of new words for technical terms. But their efforts in this area have not been adopted by the populace as fast as scholars would like, if adopted at all.

missing forms built on other patterns, such as *tä-kläfalafi* ‘meddler’, *mä-t’läqläq* ‘a flood’, *äṣ-qädämdäm* ‘a race’, *q^wät’ört’ər* ‘tangle’ (n.).

Bender and Fulass described many aspects of Amharic verb morphology, including stems derived by penultimate reduplication, but did not mention this particular reduplication pattern (1978:72). Defining the terms “quiquiliterals” and “sexiliterals” quite differently than most authors, they specifically said that “quiquiliterals and sexiliterals do not really exist... [rather] these are best viewed as derived” (1978:23).

Mantel-Niecko categorized and counted different categories of Amharic verb forms, but did not provide the data showing the members of the categories. From a list of 2120 roots, she counted 103 “quiquiliteral” forms which are derived by BCR and two “sexiliterals” (1964:33).

2.6 Studies of E-S languages where BCR has not been noted

There are several languages in the southern branch of E-S where no authors have explicitly noted the existence of BCR. In some cases, this appears to be because none of the authors noticed BCR, even though it is found in the languages; in other cases, this silence is apparently because BCR is not found in the language.

For Harari and Silt’e, two closely related languages of the Eastern wing of the southern branch of E-S, significant descriptions of the languages are already available. For Harari, there are the works of Abdurahman Garad and Ewald Wagner (1998), Abdurahman Mahammed Qoram (1991), Leslau (1958). None of these works mention or cite any examples of BCR forms, though Leslau used the term “quiquiliteral” for the Harari form *fəxunquq* ‘creep’ (1958:72). Leslau later cited a Harari BCR form in a comparative note in his Gurage dictionary, *kumbulbul baya* ‘roll’ (1979:3.334), but he did not discuss the noteworthiness of an example of this pattern being discovered in Harari.

For Silt'e, Ernst-August Gutt (1985) provides an autosegmental description of the verbal morphology, but does not cite any BCR forms nor refer to this reduplication process. Eeva Gutt and Hussein Mohammed provide a monumental dictionary of the Silt'e language, in a popular edition and a scholarly edition, with many derived forms, including at least one BCR form *sərkəkət: baala* 'be very messy, disorderly', in a compound verb construction (1997a:79, 219, 1997b:154,427).

The Gurage languages are a cluster of approximately 10 languages in the Southern branch of E-S. There are some works that cover the Gurage languages collectively, notably Leslau's monumental three-volume *Etymological Dictionary of Gurage* (1979).

Among the individual Gurage languages, the best described is Chaha, with descriptions by Ford (1991), Leslau (1950), Lowenstamm (1996), and more recently the insights of a native speaker, Degif Petros Banksira (2000a,b).⁸ Other significant and relevant publications on individual Gurage languages include an article on phonological processes in Ennemor (Hetzron and Habte Mariam Marcos 1966), a broad description of Kəstañña (Goldenberg 1968), and Berhanu Chamora on the phonology of Inor (1997).⁹

In none of these descriptions of the Gurage languages of Ethiopia is there found any mention of "quintiliterals." However, Leslau's dictionary has a number of entries that follow the BCR pattern, especially in Gogot and Wolane. For example, Leslau noted that Gogot (*a*)*c'əbärəbbärä* 'glitter' was "from the root *c'br*... with reduplication of the last two radicals" (1979:3.177), which is a clear description of BCR. In the study of the Leslau's three volume Gurage dictionary (1979), no additional examples were found that

⁸The same person cited both as Degif Petros (1993, 1994, 1996) (Prunet and Degif Petros 1996), and also more recently as Degif Petros Banksira (2000a,b), (Kenstowicz and Degif Petros Banksira 1999).

⁹There is also a growing body of derivative literature by people who have mined these descriptions, such as McCarthy 1986a and Lowenstamm 1996.

appear to have been formed by BCR. In chapter 9, it will be shown that these are the result of contact with other E-S languages.

2.7 Comparative Semitic studies of BCR

The reduplication pattern that is referred to here as BCR (Bi-Consonantal Reduplication), has not been examined in any significant depth or breadth across Semitic languages, nor has it been described in depth for any one language.

On the comparative level, a very few authors have simply compiled lists of BCR forms in Semitic languages. Gray presented a list of nouns “with both second and third consonants duplicated” (1934:45), with these subcategorized by vowel patterns, “*katabtab*,” “*katabtūb*,” and so forth. He gave a total of 13 BCR forms, from Hebrew, Arabic, Syriac, and three Ethiopian Semitic languages. Gray also gave verbs, “bases with second and third syllable repeated” (1934:80). Again, he sorted these into two vowel patterns. For the first, he pointed out that there was only one (Biblical) Hebrew verb in this category, which is translated into Aramaic with a different BCR verb form. Then he added “But in Ethiopic it [n.b. BCR] is not uncommon” (using “Ethiopic” to mean the language now known as Ge’ez, not in the sense of “Ethiopian Semitic languages”) (1934:80). He gave a few Arabic “twelfth forms” which he said “may have developed by dissimilation from [the] **iktataba*” pattern (1934:80). For the second class of verbs, he noted “This passive of the foregoing is found only in” two Hebrew examples. Gray appears to have overlooked a lot of relevant Ethiopian Semitic data.

Brockelmann’s data comes in two different publications, both giving lists of nominal BCR forms (1908b:367,368 and 1908a:180,181). Brockelmann’s lists, like Gray’s, are also classed by vowel patterns, such as *qataltal*, *qutultul*. From eight languages, three of them from Ethiopia, Brockelmann listed over 40 forms, the largest list of BCR forms in print. (However, some forms would be disputed by some, such as

the assumption that Akkadian *zuqaqipu* 'scorpion' is derived from a form **zuqaqipu*, a derivation not accepted by the Assyrian Dictionary (1961:160.) Brockelmann's list is important in that it shows that some BCR forms have undergone additional phonological processes besides the reduplication, such as Arabic *ṣaqanqal* 'far valley'¹⁰, which he identifies as an example of "dissimilation."¹¹ In this case, the *l* changes to *n* word medially before the consonant, derived from a root $\sqrt{\text{ṣql}}$ (1908b:368). Such *l* > *n* dissimilation is known in Arabic, compare the roots *sṣl* and *sṣnl* 'chain' in different Arabic dialects (Landberg 1942:1964), and both forms are found in E-S languages (Leslau 1991:508).

More recently, Lipiński gave examples of BCR forms from seven languages (1997:215), listing only one form from each of six of these languages. He makes no note of how these various languages use these forms differently.

In their book comparing all Semitic languages, Moscati, Spitaler, Ullendorff, and Van Soden cover BCR in only one sentence (1964:131), referring specifically to "Ethiopic":¹² "Ethiopic verbs of five radicals are formed from triradicals by the repetition of the last two radicals."

A comparison of these lists of BCR forms shows that most authors cite the same example forms as their predecessors. We find that these comparative authors presented data from only a limited number languages, and most of their examples of BCR forms are nouns. By contrast, in Ethio-Semitic languages it has been found that BCR forms are used as full verbs, as adjectives, as nouns, and as uninflected bases that serve as the

¹⁰"weites Tal"

¹¹"dissimilert"

¹²Their usage in other parts of the book shows that they refer to Ge'ez, not to Ethiopia Semitic languages in general.

semantic component used in compound verbs forms (a topic explained in greater detail in chapter 5).

In the various descriptions of BCR, very few authors have explicitly noted that this same reduplication process can be applied to both nouns and verbs, though Lederman's study of Modern Hebrew is an exception (1982:157,158). It is one of the contributions of this dissertation to document clear examples of BCR applied to both nouns and verbs, with examples from Arabic, Amharic, Aramaic, Ge'ez, Modern Hebrew, Syriac, and Tigrinya.

2.7.1 Assumptions about the existence of non-reduplicated roots

It is the usual assumption of scholars that BCR forms are derived by reduplicating existing roots. This assumption, held in an overly-rigid manner, has led some authors, especially authors studying Northwest Semitic languages, to propose, sometimes rather speculatively, roots that underly reduplicated forms. For example, there is no obvious non-reduplicated root underlying the Aramaic form *ḥanasnis*¹³ 'a Canaanite sun idol' (Tal 2000:283), so scholars have suggested several different sources for this, including *ḥss* 'nakedness'¹⁴ with epenthetic *n* (Jastrow 1903:1.483),¹⁵ a metathesis of *ḥsn* (Levy 1924:2.83), *ḥmys* 'shining' or *ḥwns* 'an Egyptian deity' (Drazin 1994:235). Buxtorf, from a different era of scholarship, listed the non-reduplicated (and otherwise unattested) root *ḥns* in his lexicon, assuming that the derived form was derived from this root

¹³The vowels of this form are speculative, not authoritative.

¹⁴The semantics of 'nakedness' may not seem to fit with 'idol', but the rituals with Canaanite idols sometimes involved exposing oneself to the idol.

¹⁵Jastrow did not specify whether he meant the insertion of only one *n*, or two. If he meant only one, this would produce the string *ḥnss*, rather than the surface *ḥnsns*. As will be shown in chapter 4, in Ethiopian languages, a string such as *ḥnss* would be reduplicated by BCR to produce a final string *ḥnsns*. It is not clear if this is indeed what Jastrow had in mind.

(1639:796). None of these etymologies are totally satisfactory, nor universally accepted. It may be most accurate to assume that the root of the reduplicated form was not otherwise found, as Buxtorf seems to have assumed.

There are also examples of BCR forms that seem to have non-reduplicated roots, but with large semantic differences. Believing that the reduplicated form must be semantically linked to the non-reduplicated form, some scholars have tried to find ways to connect them, even when the link is dubious, for example connecting Biblical Hebrew *shr* 'conduct trade, travel about' with *shrhr* 'palpitate (of heart)' (Speiser 1961:25). Again, it seems wise to consider the possibility that the reduplicated form has no clear semantic link to the attested non-reduplicated form that matches the reconstructible root (Buckley 1990:81).

In contrast to this imaginative approach to linking reduplicated forms with roots, scholars in Ethiopian Semitic languages have repeatedly observed that some reduplicated forms have no non-reduplicated root. Dillmann long ago noted a "peculiar" feature of Ge'ez, "its scarcely ever retaining, or its never having developed, the triliteral forms alongside of such longer [BCR] forms" (1907:134). For Amharic, Leslau has observed, "It should be stressed that the verb of the 1.2.3.2.3 pattern does not necessarily go back to an existing 1.2.3 verb, nor is the 1.2.3.4.3.4 pattern necessarily derived from a 1.2.3.4 verb" (Leslau 1995:566). Buckley's observation on Tigrinya BCR forms seems to apply to other languages, as well, (though probably more to E-S than other Semitic languages): "First, some [roots] exist only in reduplicated forms... Other roots are found in plain and reduplicated forms, with the same meaning... A third set of verbs are also found in plain and reduplicated forms, but the meanings are unrelated... In other cases, there is some relationship in meaning, though it is not exact" (1990:81). Rose, using a more theoretically sophisticated phrasing, speaks of identical roots that take different templates, an approach that allows us to accept the Hebrew example given above, *shrhr*

'palpitate (of heart)', without feeling compelled to link it to the meaning of *shr* 'conduct trade, travel about'. It can be seen in appendix A that there are a large number of BCR forms in Amharic that do not have roots that are attested in non-reduplicated form. Furthermore, some of these same forms are found in several E-S languages, again, with no attested non-reduplicated roots.

2.8 Studies of BCR outside of Semitic

Moving beyond Semitic, to its ancestor, Afroasiatic, there are hints of BCR at this higher level. O'Leary noted that this pattern in Semitic is "extremely interesting as sharing a parallel to the ancient Egyptian methods of reduplication" (1923:215). Gordon echoed this possibility (1965:60). Reduplication that follows the general pattern of BCR has been mentioned in Egyptian (Gardiner 1957:216, Steindorff 1951:121), in Berber languages (Grandouiller, p.c. 2001), and in some Chadic languages (Al-Hassan 1998:71,72, 1995:341).

2.9 Lexicographic resources

In collecting examples of BCR forms from the various languages, dictionaries are prime and authoritative sources. The dictionaries used are listed by languages, below.

For Amharic, there are several dictionaries in print, but the following were chosen for specific reasons. The two-volume dictionary of Kane (1990) was chosen for its exhaustive nature, Kane having painstakingly compiled it from all available dictionaries, including even manuscript copies. As the dictionary compiled by a prominent Ethiopian language scholar, Amsalu Aklilu's deserves special attention and authority (1987). Leslau's dictionary (1976), is cited both because it is the standard among English-speaking scholars, but also because it has many notes and cross-references on derivations. By virtue of the fact that it is the only Amharic dictionary to be published since Kane's dictionary, Ahmed Zekaria's (1992) dictionary is also included, though it is

clearly a reflection of Amsalu Aklilu's work. Also, as a byproduct of studying of Yohannis Gebre-Igziabher's Tigrinya-Amharic dictionary (1955), many Amharic BCR forms were observed in the definitions of Tigrinya entries, especially forms that appeared to be examples of BCR in Tigrinya. All of these dictionaries give the entries in Ethiopic script. Asafa Waradawarq's new Millenium English-Amharic Dictionary was not available to the author in time to be useful for this dissertation.

For Argobba, the data is taken from the word list given by Leslau (1959), and the small dictionary he included in his newer, expanded grammar of Argobba (1997b). All of his entries are given in modified Latin script.

For extinct Gafat, the only available data is the word list given by Leslau (1945a, 1956). This is based upon elicitation from Gafat speakers and also the study of a written document in Gafat. All these entries are given in modified Latin script, though he also included a facsimile of a Gafat manuscript that he studied, written in traditional Ethiopian characters.

For Ge'ez, Dillmann (1865) had long been the standard, having been reprinted a number of times, on both sides of the Atlantic. However, because the definitions are in Latin, it is slower to use. More recently, Leslau's dictionary (1991) has supplanted it, both because of its English definitions, but also its extensive etymological notes, citing cognates in other Semitic languages, and even origins from or loans into non-Semitic languages. As evidence that Leslau's dictionary has supplanted Dillmann's, note that Ambros used it¹⁶ for his study of verb patterns in Ge'ez (1991). All entries are given in modified Latin script, followed by Ethiopic script.

¹⁶Ambros actually cites Leslau's *Concise Ge'ez dictionary*, a smaller edition, with the extensive etymologies omitted, but the list of entries is otherwise the same as in the 1991 edition. Dillmann has been eclipsed.

For Gurage, Leslau's three-volume dictionary (1979) is the standard by virtue of its size, its breadth, its author's erudition, but also the fact that there are no other Gurage dictionaries. Since "Gurage" is a label for a cluster of languages, Leslau developed an innovative three-volume format. The first volume contains a series of dictionaries of 12 Gurage languages. The second volume contains a list of English entries, with tables showing the forms for each of the Gurage languages. The third volume is an all-in-one Gurage dictionary, with each entry followed by all of the cognate forms in the various Gurage languages. By using volumes two and three, it was possible to see if a BCR form in a Gurage language was based on a root found in other Gurage languages. As always with Leslau's writings, there are valuable, extensive etymological notes. All entries are given in modified Latin script.

For Harari, the most extensive dictionary is that prepared by a native speaker who is a college professor (though not a linguist), Abdurahman Mahammed Qoram (1991); all examples are given in Ethiopian script with definitions in Amharic. We also have available the extensive word list in Abdurahman Garad and Wagner (1998), as well as the many examples in Leslau's study of the verb (1958). Their entries are given in modified Latin script. None of these give any examples of BCR in Harari, though two such Harari forms are found in Leslau's Gurage dictionary (1979:3.334,337), their significance discussed in chapter 9.

For Silt'e, there are two editions of the dictionary produced by a team composed of an expatriate linguist and a native speaker, Eeva Gutt and Hussein Mohammed (1997a,b). The dictionaries contains at least one clear example of BCR. Entries are in Ethiopic script with transliteration in Roman script, but definitions are given in English and Amharic.

For Tigré, Littmann and Höfner combed through all of the previous Tigré word lists, published and handwritten, and produced their dictionary (1962), with definitions

variously given in German and English, according to the original sources. All entries are in Ethiopic script. They mark the sources of the entries, so it is possible to note that a high number of BCR forms are marked with the notation "SO," identifying these as being from the writings of Richard Sundström, a scholarly Swedish missionary. He worked very closely with Naffa wod Etman, the attentive son of a traditional balladeer and rhapsodist. Naffa then worked with Enno Littmann to edit a large collection of traditional Tigré texts. It can be assumed that these Tigré BCR forms drawn from the writings of Sundström represent true and proper Tigré forms from the mouth of Naffa wod Etman (Arén 1978:357-359). The smaller volume on Tigré by Nakano and Tsuge (1982) is too brief to include any BCR forms.

For Tigrinya, the traditional standard is da Bassano's dictionary with definitions in Italian (1918). Yohannis Gebre-Igziabher produced a bilingual dictionary with definitions in Amharic (1955), which greatly facilitates the comparison of cognate forms. Also, the formatting of entries in a separate left column made it easy to scan for BCR forms. A group of Tigrinya speakers in Europe, calling themselves Groupe Dictionnaire Tigrigna-Genève, produced a simple Tigrinya-French and French-Tigrinya dictionary (1990). This facilitates looking up an English word (via French) to look up a Tigrinya form. Isaac Tseghai produced an English-Tigrinya dictionary (1997). This was utilized by looking up English words that had already been found to have BCR correspondences in Amharic and other E-S languages, such as 'propeller', 'sprinkle'. Also, it was used to look for BCR forms in the definitions of words having certain semantic components that seemed to often co-occur with BCR forms in Amharic, such as 'slippery', 'sparkle'. This was quite successful. All of these Tigrinya dictionaries gave Tigrinya entries in Ethiopic script.

Outside of Ethiopia, coverage for this dissertation is less rigorous.

For Arabic, Dr. Brian Bull sent a number of forms extracted from a computerized database based on Wehr's *Dictionary of Modern Written Arabic*. For a number of forms, such as *imlaulaxa* <**imlaxlaxa* 'be salt' from *malx* 'salt', it is not clear if forms are BCR with weakened consonant (Gray 1971:80), or *w* is inserted, as claimed by Yip (1988:554).

For Aramaic, Sokoloff's dictionary (1990) specifically covers what he calls "Jewish Palestinian Aramaic," which he defines as the Aramaic spoken in Palestine from approximately A.D. 300 to 700. By scanning the columns, looking for long entries, it was possible to find a number of Aramaic BCR forms, though no attempt was made to be exhaustive. All entries are given in Hebrew script, with definitions in English. Tal's dictionary of Samaritan Aramaic (2000), covering a different form of Aramaic, was also used in the same way.

For Hebrew, the massive English-Hebrew dictionary from Oxford (1996) provided a tool to look up English words with certain connotations or semantic content, such as 'silly', 'chubby', 'slippery'. By doing this, it was possible to find several more BCR forms in Modern Hebrew. Sivan and Levenston produced a dictionary of Modern Hebrew with both a Hebrew-English section and an English-Hebrew section (1975), both halves being used to study Modern Hebrew forms, but the later Oxford dictionary was considered authoritative. Klein's dictionary of Hebrew etymology was also employed to investigate the etymologies of BCR forms from other eras (1987).

For Mehri, the South Arabian language, Johnstone has provided the only lexicon, (1988). In studying both entries and illustrative sentences, no examples of BCR were found. For Qatabanian, an ancient South Arabian language, Ricks provides lexicons for both epigraphic and inscriptional forms of the language (1982, 1989), but gives no examples of derivation by BCR. This is in agreement with the silence of South Arabian grammars on this topic (Simeone-Senelle 1998).

For Syriac, there is a standard dictionary, appropriately titled *A Compendious Syriac English Dictionary* by Payne Smith (1903). Following up on leads found in the works of Brockelmann (1908b), Gray (1934), and Ungnad (1932), the BCR forms in Syriac were confirmed. The entries are all in the Syriac script, with definitions in English.¹⁷

2.10 Phonological issues in BCR

It has long been held that Semitic roots consist of only consonants, an analysis that goes back at least as far as Al-Khaliil ibn 'Aḥmad of the eighth century (Prunet, Béland, Idrissi 2000:609). A strict consonantal view of the Amharic root is demonstrated in Taddese Beyene (1972). Linguists have held to the purely consonantal root with varying degrees of strictness. Over 25 years ago, Diakonoff pointed out that this strict consonantal view was being reconsidered in some circles:

In traditional Semitology it was thought that these vowels are never part of a root in Semitic, the root being reconstructed as consisting of consonants only. In the past decades however, this point of view is being more and more abandoned... many Semitologists are now inclined to consider it possible for a vowel even to be part of a verbal root. (1975:134)

The view that Semitic roots contain vowels as well as consonants has been contested recently by Ussishkin (2000a,b), following on work by Lederman (1982) and Bat-El (1989,1994). Too much of their evidence is based on the incorporation of long loan words into Hebrew, such as the root *striptz* 'do a striptease', not on processes that are central to the phonology of Semitic languages. Dobrin, not looking specifically at Semitic, has argued for a similar approach to roots (1994).

Others have responded using a wide variety of data to defend the purely consonantal interpretation. Prunet, Béland, Idrissi (2000) use speech aphasia data. Ravid

¹⁷The author expresses special thanks to Dr. Richard Taylor of Dallas Theological Seminary for his help with the Syriac literature.

(in press) uses language development and written forms of Hebrew to argue that “Semitic roots are discontinuous consonantal sequences, and thus unpronounceable entities.” Nevins (2002) argues that Ussishkin’s “output-output correspondence” does not actually hold, but rather that Ussishkin’s proposal leads to incorrect results.

Abu-Rabia (2001:56) has also shown that evidence from the way people read Hebrew and Arabic scripts confirms that the three-consonant root hypothesis is basic for them. Bentin and Frost (1995) also studied the reading process in a Semitic language and their experiments likewise led them to speak of a consonantal root. Frisch and Zawaydeh (2001) have shown how restrictions on co-occurrence of place of articulation in Arabic also supports a purely consonantal root. Berent and Shimron (1997:39) present evidence that “The [consonantal] root morpheme must form a separate constituent in the representation of Hebrew words.” Ephratt (1997:98) used psycholinguistic evidence to substantiate the claim that the consonantal “root exists in... linguistic consciousness: the root has psycholinguistic reality for contemporary speakers.”

Benmammoun believes that at least some Arabic derivations are word-based rather than root-based, but still concedes some functions “may yet require the root to template analysis” (1999:199). Rose, looking at phonological evidence, takes a medial position on the question of purely-consonantal roots (in press).

Semitic verbs with two identical final consonants, such as Amharic *wāddādā* ‘liked’ and *t’ämāzzāzā* ‘was sinuous, twisted’ are sometimes referred to as “doubled verbs.” The way that they are derived by BCR requires a proper understanding of the underlying structure of doubled verbs.

The class of “doubled verbs” in Semitic, verbs with a repeated root-final consonant, have often attracted the attention of Semitic linguists (Farley 1987, Frajzyngier 1979, Greenberg 1950, Hoberman 1988, Höfner 1951, Hudson 1985a, Kenstowicz 1992, McCarthy 1986b, Moore 1990, Lowenstamm and El M’hammedi

1996, Prunet and Petros 1996, Gafos 1998, Rose 2000a, 2000c, in press). Doubled verbs in Amharic may appear to be an exception to the rules of BCR, but an understanding of how doubled verbs are reduplicated by BCR shows their derivation to be normal, not exceptional.

Semiticists had long felt that these final consonants were not merely two ordinary instances of the same consonant in sequence, but something different. McCarthy and autosegmental phonology provided conceptual tools providing a model of how these can be interpreted as one phoneme “spreading” to fill two consonant slots (1981, 1982). Broselow concluded that this interpretation did not apply to Amharic, coming to the surprising conclusion that such doubled verbs in Amharic “are not derived by a general rule of spreading” (1984:28). Rather, she concluded that they are a sequence of two consonants.

When doubled verbs with a total of four consonants, roots of the form $C^1C^2C^3C^3$, undergo BCR, they result in the string $C^1C^2C^3C^2C^3$, for example when *t'ämazzäzä* ‘was intertwined’ undergoes BCR, it produces *t'əmazzəmz*. This is one type of evidence that is counter to Broselow’s conclusion, since the doubled consonants act as a single consonant in this reduplication. This same pattern, in which four-consonant verbs with doubled final consonants reduplicate the final consonant as if it were only a single consonant, is also seen in Tigrinya, where *jəngərgə bälä* ‘spin on one foot’ is related to *jəngərgə bälä* (Yohannis 1955:607). Littmann and Höfner gave evidence of this in Tigré, *säftätä* ‘hurry’ (v.i) and *səfətfət* ‘rise in hostility’ (1962:202), though they did not specifically note this sort of systematic relationship between doubled verbs and BCR forms.

The function of *t* as a default consonant to fill a consonantal slot in various languages is examined by Paradis & Prunet (1991). Broselow pointed out that */t/* is a “default consonant” to fill empty consonant slots in Amharic (1984). This is a useful

concept as we consider the origin of the *t*'s in forms such as *zərgətəgət* 'raising in many places' derived from *zärägga* 'extended, raised' and in the passive of the imperfect for forms that have root-initial *H*, as in *yəttätt'äb* 'will be washed' from $\sqrt{Ht'b}$ 'wash'.

The use of the coronal *t* for a default consonant is not surprising, either in terms of broader linguistic patterns or of other facets of Amharic morphophonology. In a study of languages from around the world, Paradis and Prunet found that coronal consonants are used in a number of special ways, including being used more frequently for epenthesis, citing as prototypical examples of Amharic infinitive and gerund data (1991:21). Specific coronal consonants, or at least the coronal place of articulation, have been analyzed as a default in a number of varied languages, including Finnish (Anttila 1994) and Axininca Campa (Payne 1981:107ff).

The use of *t* as a default consonant is found in Ge'ez and also found in the E-S language Chaha, where Banksira explains that the phonological behavior of *t* "originates from the fact that it is the default consonant" and is used to "fill a segmentally empty... position" (2000a:9,10). Hume has also analyzed *t* as a default consonant in Maltese, another Semitic language (1996). Lombardi has rejected Broselow's analysis of *t* as a default consonant, saying that all of Broselow's cases "are morphologically specific" and suggests developing an analysis based on a "ghost segment or floating features" (1998:13). Lombardi's position is not motivated by a different analysis of the Amharic data, but rather by a different analysis of default Place in phonology.

The research for this dissertation has identified additional instances of epenthetic *t* in Amharic, including when roots of the shape $C^1C^2(C^3)h$ are used in forming lexical bases used in compound verbs, explained in section 5.5 and word initially for *tənəqnəq* 'struggle' from \sqrt{Hnq} 'grab, choke', explained in section 6.6. There are additional uses of the default *t*, as well, which are not related to BCR. The default consonant analysis still seems preferable to an undeveloped "ghost segment" analysis. It may be that the way to

reconcile Lombardi's position and the default analysis of *t* in Amharic is to allow for a different default place when a language does not have a glottal stop phoneme.

In his inventory of phonetic segments in languages around the world, Maddieson shows that velar plosives are much more likely to labialize than plosives at other points of articulation, (1984:37,38). This will be important in understanding the high number of labialized velar consonants in BCR forms, especially in initial position. This is also relevant in exploring how labialization on an initial non-velar consonant moves to the following consonant, but this does not happen to initial labialized velar consonants. The superior stability of labialization on velars has been noted in Korean, also (Silva 1991). Leslau has pointed out a number of cases in which labialization in Amharic moves to the left of its original position (1995:10,11), but this dissertation will also give evidence of rightward movement of labialization in the BCR process. Also, examples will be shown where labialization has appeared in a BCR form whose root can be shown to have no labialization, such as *fəg^wərg^wər: alä* 'exert oneself' from non-labialized \sqrt{fgr} .

The general rules of vowel epenthesis to break up prohibited consonant sequences in Amharic are relatively clear and straightforward, summarized by many scholars (Cohen 1970, Leslau 1997, Hayward 1986, Hetzron 1964, Hudson in press, Taddese 1966). The rules can be summarized by saying that impermissible consonant sequences are broken up by the epenthetic vowel *ə*. There are no consonant sequences permitted syllable initially,¹⁸ only certain sequences are allowed syllable finally, and no sequence of three consonants is allowed to remain, even across syllable boundaries. For example, [*təmhərt*] 'lesson' has a sequence of two final consonants, but when the 2nd person feminine singular possessive suffix *-š* is added, creating a sequence of three consonants,

¹⁸Some analyze word initial sequences with a velar and a liquid as having no inserted vowel, such as *krar* 'lyre' (Cohen 1970:58, Leslau 1995:42), but others analyze such sequences as having an epenthetic vowel, *kərar* (Amsalu 1987:197, Hayward 1986:304).

a vowel is epenthesized to break up this sequence of consonants, [təmhərtəs̃]. However, the rules for vowel epenthesis in BCR forms seem to be slightly different. Alert to realize that some BCR vowel-less forms diverge from the usual epenthesis rules, Leslau despaired that “There are no definite rules covering all possibilities... there is no valid rule that it [n.b. consonant string *lksks*] should not be read *laksəks*,” though it is pronounced as read *ləkaskəs* (1997:428). A rule that predicts the proper syllabification of this word, and words like it, is presented in chapter 5 of this dissertation.

The study of reduplication and non-concatenative morphology has devoted much attention to problems in Semitic languages, but little to the study of BCR. McCarthy has specifically wrestled with an example of BCR from Biblical Hebrew, the verb *šrḥr* cited above (1981:409, 1982:153). His analysis of the pattern was that it reduplicated a syllable, from a node labeled σ . Since he has assumed that reduplication must be based on prosodic units, such as the syllable, his syllable-based analysis of this form is consistent with his theory. But it is argued in chapter 3 of this dissertation that BCR is not based on reduplication of syllables, but of consonants.

2.11 Use of ‘say’ in compound verbs

Ethiopian languages have long been noted for their use of compound verbs, most often built using the verb *alä* ‘say’, such as *quc’ alä* ‘sit down’. The use of these compound verbs is widespread in Ethiopia (Palmer 1974), being labeled an areal feature by Ferguson since they are found in Cushitic, Omotic, and well as Semitic languages (1976:71). Mauro Tosco, though he disagrees with much of Ferguson’s work, does agree concerning these compound verbs, suggesting a Cushitic origin for them (2000:346). It has been noted in every modern¹⁹ E-S language which has been described, including Amharic (Leslau 1995:580ff), Argobba (Leslau 1959:271), Chaha Gurage (Banksira

¹⁹Compound verb constructions were not found in Ge’ez (Leslau 1966:606).

2000b), Gafat (Leslau 1945a, 1956), Harari (Leslau 1958:70ff), Silt'e (Gutt and Hussein 1997b:933), Tigré (Leslau 1945b:26 and Raz 1983:66,67), and Tigrinya (Leslau 1941:126 and Mason 1996:104-106).

The use of the verb 'say' as a conjugated element for non-conjugated bases is not limited to Ethiopian languages, found also in other languages, including Chickasaw, Yawelmani, Cahuilla, Hixkaryana, and Lau (Munro 1998:180), and apparently in Katê (Haiman 1985:76,77).

Individual studies of compound verbs in Ethiopian languages include work by Taddese (1980) and Amberber (1996) for Amharic, Banksira (2000b) for Chaha, and Palmer (1974) surveying Ethiopian languages more broadly. The general rules of conjugation and semantics of compound verbs in Amharic are described in all of the standard grammars, such as Cohen (1970), Hartmann (1980), Leslau (1995), Titov (1976).

Mengistu Amberber has studied some ways that 'say' is used in Amharic, including with intensives (1996). He shows that Amharic adds vowels to strings of consonants to make them less intensive, a technique that is applied to BCR forms conjugated in compound verbs.

Palmer wrote a broad overview of compound verbs in Ethiopian Semitic, showing several ways how these are used (1974). He observed that in Amharic compound verbs, "The 'say' form is almost always intransitive," but 'make' can be used to make it transitive (1974:74). Forms that have passive functions generally appear with active forms of 'say' (Palmer 1974:75, Leslau 1995:583, Amberber 1996).

2.12 Statistical studies of Semitic consonants

The practice of counting consonants in various positions in a Semitic language goes back at least as far as Greenberg (1950). His article demonstrated statistically that

counting consonants alone misses many insights that he gained by counting consonants by their position in a root: initial, medial, final.

Bender counted phoneme frequencies in Amharic (1974), but he did not take into account the position of a consonant within a word. Bender discovered, for example, that labialized velars comprise 1% of his dictionary-based Amharic corpus, and palatalized consonants comprise 8% of the consonants in the corpus, (Amharic palatalized consonants being *c*, *c'*, *j*, *š*, *ž*).

Bender and Fulass (1978) present an "Exhaustive List of Amharic Verb Bases," composed of over 1,200 verb roots in an appendix to their book. This may seem a small list, but Amharic uses many, many non-conjugated forms that are used with conjugated forms of the verb 'say' (or sometimes 'do' or 'go out') in compound verb constructions (a type of construction studied in chapter 5). Another reason that this list of verb roots is small is that it does not include BCR verbs forms with no extant non-reduplicated root such as *a-g^wärämärrämä* 'complained, grumbled'. An analysis of this list of verb roots for this dissertation showed 4% of the segments were labialized velars and 5% were palatalized consonants.

One small part of this dissertation examines whether certain consonants are represented disproportionately in BCR forms, either overall or in specific positions within roots, and whether they carry some sort of sound symbolism. Cruse, in his discussion of sound symbolism noted that sounds can carry meaning directly, even if not onomatopoeic, "it is capable of transferring to new coinages" (1986:35), which seems to fit the Amharic data. In their introductory article to their anthology *Sound Symbolism*, Hinton, Nichols, and Ohalla observed that in sound symbolism, the usual patterns of segmental frequency are disrupted. Sound symbolism can lead to the use of less common segments (or even segments that are not otherwise found in the language). Alternatively, a reduced number of phonemes may be used (1994:9).

2.13 Semantics of BCR forms

There has been no study of the semantics carried by forms derived by BCR in Amharic. In describing Ge'ez, a precursor to Amharic, Dillmann noted that a word derived by BCR of sometimes "expresses in a very picturesque manner the notion of 'backwards and forwards', 'unremittingly', 'again and again'," (1907:143). He also pointed out the use of this pattern for deriving adjectives "which denote colours and savoury things" (1907:232). This dissertation will examine the semantics of BCR in deeper and broader ways.

The most useful and insightful summary of the semantics of BCR in relation to non-reduplicated stems is Buckley's observation on Tigrinya, which fits the facts in Amharic, also: "Some [roots] exist only in reduplicated forms... Other roots are found in plain and reduplicated forms, with the same meaning... [other] verbs are also found in plain and reduplicated forms, but the meanings are unrelated... In other cases, there is some relationship in meaning, though it is not exact" (1990:81). It should also be pointed out that for many words their first coinage was in a BCR form, without any non-reduplicated root in their history, including Tigrinya *šäQbät'bät' bälä* 'simper, whine' (da Bassano 1918:227) and Amharic *aqläšälläšä* 'felt nauseated'.

However, it is important to distinguish between a root and the template that it is paired with. That is, for the class of BCR forms that have totally unrelated semantics for the corresponding non-reduplicated form, these should not be seen as cases of lexical reduplication. Rather, these roots and their meanings are specified for certain templates. The same string of consonants may be associated with two different meanings, but each meaning specifying a template (Buckley 1990, 1997 and Rose 2000d, in press, forthcoming). For example, when the consonants *c'lq* are associated with a three consonant template, *c'alläqä*, the meaning is 'make flax seed tea'. But when these

consonants are linked to the BCR five consonant template, *c'älläqä*, the meaning is 'sparkle'.

Chomsky held that animal communication systems are limited and iconic, but "the mechanism and principle, however, are entirely different from those employed by human languages" (1972:69). In response, Haiman (1980, 1983, 1985) has argued that there are non-arbitrary facets of language, documenting examples of "iconicity" in language. Long ago, Sapir asserted that reduplication "is generally employed, with self-evident symbolism, to indicate such concepts as distribution, plurality, repetition, customary activity, increase of size, added intensity, continuance" (1921:76).

It has been noted in comparative studies by Key (1965) and Moravcsik (1978) that reduplication is frequently used around the world to mark certain semantic categories, such as repetition, intensity, increased size. It will be seen that these categories are found in forms marked by BCR, but other types of categories are involved, also.

In this study of the semantics of words derived by BCR, a distinction will be made between the study of the meanings carried by reduplication and the meanings carried by certain vowels and consonants.

The study of sound symbolism goes back at least to the Plato's dialogue of Socrates with Cratylus. There, Socrates asserts that certain letters of the alphabet logically associated with certain meanings, such as that the letter *rho* (*r* in English), logically appears

in the words *tromos* (trembling), *trachus* (rugged); and again, in words such as *krouein* (strike), *thrauein* (crush), *ereikein* (bruise), *thruptein* (break), *kermatixein* (crumble), *rumbein* (whirl): of all these sorts of movements he generally finds an expression in the letter *r*, because, as I imagine, he had observed that the tongue was most agitated and least at rest in the pronunciation of this letter, which he therefore used in order to express motion. (Plato 215)

This view is simplistic, in that it does not account for the broader facts of Greek, but it did firmly direct scholars' attention to the topic. Plato even went on to have

Cratylus holding that these specific sound-letter correspondence held “the same for Hellenes as barbarians” (Plato 216).

Many scholars since Plato have written about the relationship between sound and meaning, some more thoughtfully than others. Plato’s approach has been largely discarded, but examples continue to intrigue scholars, such as the possibility that in English the consonant *w*, which is [+round], may correlate with physical roundness, such as in ‘whirl’ (Rhodes and Lawler 1981:340, fn. 13).²⁰

Setting aside articulatorily based assumptions, many have looked at language specific correlations between certain sounds and certain semantic categories. Rhodes and Lawler (1981) showed how English has many examples of “athematic metaphor” and they use these to argue for sub-morphemic analyses of certain sounds that recur frequently with certain meanings. Hinton, Nichols, Ohalla observed in their volume titled *Sound Symbolism*, (1994:9) “We seem to find a strong tendency for reduplication to be associated with sound symbolism.”

Barfield has argued that Semitic languages have a special degree of sound symbolism and “certainly those who have any feeling for sound-symbolism, and who wish to develop it, will be well advised to ponder them” (1965:124). Turning to the actual Semitic data, Fox (1982) called for a study of the patterns that may or may not exist in Semitic languages. This dissertation will look for examples of correlations between certain sounds and semantic categories, but only within Amharic.

²⁰This may seem laughable to some, but the Amharic data shows 11 of 13 BCR forms associated with being curved or round have a labial consonant. No claim is made regarding a causal link between physical roundness and labial consonants this at this point, but this is merely noted so that these theories are not to be discounted without examination.

2.14 Forms that may appear to be BCR but contain prefixes

Some forms are structurally ambiguous; it is not clear if they are derived by BCR or contain a prefix. Klingenberg pointed out that in some forms with initial *š-*, it is a prefix, while in other forms it is part of the root (1964). In a word like *tä-š^wläkälläkä* ‘wriggled through’, derived from *š^wälläkä* ‘slip through’ $\sqrt{š^{w}lk}}$, he pointed out that it is part of the root. The word *äšqədəmdəm* ‘race’, he pointed out, is derived from the root \sqrt{qdm} so in this word it is clearly a prefix.

There are some forms with initial sibilants where it is not so clear how to analyze *š*, such as *tä-škäräkkärä* ‘turned’. Such a form could be analyzed as being derived by BCR from *škr* or by prefixing *š-* to *krkr*. Gordon argued that Boharic *skerker* and Sahidic *skorkor*, both also meaning ‘turn’, are “not of *qtlil* formation as maintained by G. Steindorff” (1955:280,281), but $C^1C^2C^1C^2$ forms with a sibilant prefix.

Amharic has prefix *n-* which is affixed to four-consonant roots. Sometimes it appears on roots that are also found without it, such as *tä-n-zäräffäfä* ‘droop’, where the same root also appears without it, *zäräffä* ‘droopy’ \sqrt{zrf} (Leslau 1976:182). In other cases, *n-* is prefixed to a root, but the root never appears without the prefix. This can lead to confusion as to whether or not the *n-* is a prefix or the initial consonant in a root. For example, Leslau’s dictionary lists a root $\sqrt{t'bt'b}$ ‘drip, dribble’, but with a mandatory *n-* prefix (1976:231). But in the same entry, he also cross references *t'äb: alä* ‘fall by drops’. But he also has an entry for the root $\sqrt{nt'b}$ ‘fall drop by drop’ (1976:116). Kane’s dictionary reflects a similar indecisiveness about this set of forms (1990:1076, 2151, 2152).

This prefix found in other Ethio-Semitic languages as well. Prunet and Degif Petros have categorized it as having a function of marking “local movement” in Chaha (1996:305). Leslau recognized the prefixal nature of *n-* with $C^1C^2C^1C^2$ forms in

Argobba, noting that the meanings it conveys are generally “movement, noise, light, and so on” (1997:88).

This dissertation gives a broader understanding of BCR, thereby allowing for a clearer analysis of forms with these initial consonants. In some cases, these consonants will be shown to be prefixal, in other cases they will be shown to be part of the root. But there is still a group of residual forms that cannot be classified with surety. It will be proposed that speakers of Modern Amharic treat ambiguous forms as being derived by BCR, though historical linguists may dispute the origins of some.

2.15 Studies of reduplication

Although linguists have been fascinated by the formal mechanisms of reduplication for many years, the current theoretical approaches to the study of reduplication generally build on the work of McCarthy (1981,1982) and Marantz (1982). In these works, the authors developed the idea of a template, with consonants and vowels from the root being used to fill slots on a reduplicating template. Such templates are held to be language specific, some reduplicating a single segment, others reduplicating a consonant and a vowel, others reduplicating a portion of the root specifiable in terms of prosodic units. McCarthy characterized reduplication as “as a one-to-many association of a single melodic element with more than one slot of the prosodic template. That is, reduplication is just an instance of the more general autosegmental phenomenon of spreading” (1982:204). This approach has been widely and profitably used on a number of languages, such as Tagalog (French 1988).

In his later prosodic approach, McCarthy, working with Prince, held that the section of a root that is reduplicated can only be specified in prosodic units: moras, syllables, words (McCarthy and Prince 1990a,b, 1998). However, there have been counter examples presented in the literature, showing that reduplication processes in

some languages do not reduplicate portions that can be defined in strictly prosodic terms (Burquest and Steven 1994, Diffloth 1976a,b, Kroeger 1989). The reduplication pattern described in this study reduplicates two consonants, not a prosodic unit.

Following this, Optimality Theory has presented the linguistic world with a new set of tools to apply to phonological processes, including reduplication (McCarthy and Prince 1994, 1995). The present study does not seek to show or measure the superiority of one of these approaches over the other, but rather to gather, organize, and describe data related to BCR in Amharic. In doing so, no systematic effort has been made to apply competing formalisms and compare the results. The relevant Amharic data are described and presented in a manner that is intended to be clear to readers of many different theoretical approaches.

CHAPTER 3

DEFINING AND LABELING THE REDUPLICATION PATTERN BCR

3.1 Previous labels for bi-consonantal reduplication

This study examines the reduplication pattern in which the last two consonants of the root are repeated as a unit, as in *täbläc'alläc'ä* 'glitter' from \sqrt{blc} . This initial definition will be further amplified and augmented, but it is the essential definition of the reduplication process under study. The aim is for descriptive adequacy rather than formal adequacy.

This reduplication process is labeled "Bi-Consonantal Reduplication," shortened to BCR. The label is an innovation, previous scholars having used a variety of labels. The following discussion of various labels for this particular reduplication process, and the ensuing arguments for the superiority of the label "Bi-Consonantal Reduplication," address this reduplication pattern across the Semitic family, not just in Amharic. Therefore, data are cited from a variety of Semitic languages, not just Amharic or Ethio-Semitic. Though each author describing this reduplication pattern in a specific language has described it (with varying degrees of precision) for that language, none has captured the commonalities of the pattern across Semitic languages. It will also be argued that even within single languages, scholars have sometimes overlooked some of the surface variants of the reduplication pattern because they were looking for a pattern that was too rigid, a point explained in section 4.7. Additionally, it is shown that BCR is indeed found in some languages where it has not been previously documented.

3.2 “Quinquiliteral” should properly refer to forms with five non-reduplicated consonants

In describing the sorts of forms given in chapter 1 and chapter 2, many authors writing about Semitic languages have used the term “quinquiliteral” (Buckley 1990:81, Leslau 1959:271, Mantel-Niecko 1964:31), with some using the slight variants “quinquradical” (Leslau 1995:567) or “quinquiconsonantal” (Gordon 1955:68, Prunet 1996a:620). Those writing in French have used the label “*quinqueliteral*” (Cohen 1970:271, Chaine 1907:51) and those writing in German have used “*fünfradikalige*” (Praetorius 1886:43, Hartmann 1980:228) to speak of such reduplicated forms. The Russian scholar, Titov, is translated into English using the label “five-consonant verbs,” following the same pattern as scholars in the other languages (1976:58). Nöldeke is translated using the label “five-lettered” (1904:75). However, I propose to diverge from this pattern of labeling by counting surface consonants and instead speak of “Bi-Consonantal Reduplication” (BCR), choosing this label over previous ones for several reasons.

First, the labels “triliteral” and “quadriliteral” are established, standard and helpful, referring to the number of root consonants in non-reduplicated forms, applied to such forms as \sqrt{sbr} ‘break’ is triliteral, \sqrt{glbt} ‘turn over’ is quadriliteral.¹ Maintaining this pattern, rather than using the label “quinquiliteral” for reduplicated forms, it should more logically be applied to verbs with five non-reduplicated root consonants, such as the tiny class of Amharic verbs that includes *wāšānāggārā* ‘interlaced’ $\sqrt{wšngr}$ (Leslau

¹Even a seemingly straightforward term like “quadriliteral” has become fuzzy for some, one article using “the term ‘quadriliteral’ to conveniently reference any root which contains more than the standard three radicals, understanding that some have more than four” (Massey and Massey-Gillespie 1995:83). Their usage of the label “quadriliteral” matches the use of the terms “multiliteral” and “pluriradicals” by other writers (Dillman 1907:133, Conti Rossini 1941:69, Leslau 1995:566, 569, 593).

1995:566), *tä-wänäžabbärä* ‘be confused’ $\sqrt{wnžbr}$ (Kane 1991:1547), and *qäränäcc’äfa*² ‘extend (branches, v.i.)’ $\sqrt{qrnc’f}$ (Kane 1991:736). Weaver has used the label quinquiliteral in exactly this manner (2000:43ff). Buckley repeatedly uses the label quinquiliteral in referring to forms derived by reduplicating the final two root consonants, but then feels pressed to distinguish a “true quinquiliteral... with neither spreading nor regular reduplication” (1997:fn. 1). Such verbs with five non-reduplicated consonants are inflected differently than verbs that are derived by BCR from roots of three consonants, especially in terms of vowels following the first consonant of the root (Leslau 1995:1043). Again, the quinquiliteral term is seen to best fit roots of five consonants that are not derived by reduplication.

Adding to the confusion, the label “quinquiliteral” has been used to label nouns with five consonants (nouns that do not necessarily have cognate verbal roots), such as Arabic *ba?duunes* ‘parsley’ (Cowell 1964:162) and *safarjal* ‘quince’ (Yip 1988:564), Hebrew *šəpardeeša* ‘frog’ (Jouon 1993:255), Tigré *šäbänrəb* ‘girl’ (Leslau 1945b:169). Hartmann used the German equivalent of “quinquiliteral” (“fünfradikalige”) to characterize a group of Amharic nouns that included *bərtukan* ‘orange (n.)’ (1980:228). Following the same logic of counting non-reduplicating consonants, the term “sexiliteral” should be used to describe a root with six non-reduplicated consonants, such as *a-q’äläp’älät’äsä* ‘sing one’s own praises’³ (Leslau 1995:569), rather than in labeling a reduplicated form such as *t’əmbəsbəs alä* ‘not see well’ < $\sqrt{t’nbs}$ ‘be blind’ as was done by Cohen (1970:204). Cohen labeled *anqälaffa* ‘sleep’ as a sexiliteral⁴ (1970:260),

²This form is clearly a denominative from *qərnc’af* ‘branch’, which is in turn a compound, cf. *qarana* ‘branch’ (Tigrinya) (Groupe 1990:50) and *c’af(a)* ‘branch’ (Masqan, Gogot, Soddo, Silt’e) (Leslau 1979:3.79).

³Leslau characterizes this as sort of a tongue twister (1995:569), a singleton six-consonant root.

⁴It is not obvious precisely how he analyzed this root, as *nqlHffH* or *HnqlffH*. Note that Titov characterized the same root as “quinquiliteral” (1976:58,59).

but this is a very different kind of sexiliteral than his use of the term in categorizing *t'ambəsbəs alä* 'not see well' < *t'nbs*.

3.3 Not all forms of this reduplication have five surface consonants

A second reason to prefer the label BCR is that not all forms that are reduplicated by the process result in five surface consonants, so they are not truly "quinguiliterals." For example, when a four-radical root is duplicated by the process of BCR, it produces a six-consonant stem, a class that has been overlooked or called "sexiliteral" (e.g., Dillmann 1907:163, Mantel-Niecko 1964:31, Cohen 1970:158,203,273, Leslau 1941:125). In German, Hartmann followed the same pattern, using the label "Sechsradikalige" (1980:243), while Titov wrote of "six-consonant verbs" (1976:59). This pattern of producing a six-consonant string from a four-consonant root is seen, for example, in Amharic *məsqəlqəl* 'chaos' < \sqrt{msql} 'lay crossways' (Leslau 1976:23) and Tigrinya *särtäftäf bälä* 'mumble' < $\sqrt{*srtf}$ (Leslau 1941:125). Also, though it has not been addressed by scholars, it is possible to apply BCR to a root of five consonants, producing a derived form with seven consonants, such as $\sqrt{wšngr}$ 'interlace', producing *wəšəngərgər: adärrägä* 'interlace many things'. The label "BCR" allows us to group forms like these together with the so-called "quinguiliterals" derived from trilateral forms, eliminating the need for separate "quinguiliteral," "sexiliteral" and even "septiliteral" categories.

¹ Kane used "quinguiliteral" in a way that suggests that he was deliberately using it as a cover term to include forms that have six consonants and are the result of this BCR reduplication pattern. He explained that "*wätt'a*... occurs with quinguiliteral elements to form compounds... *bətəntənu wätt'a* 'to be scattered' " (1990:1584). It is assumed that with his dictionary containing BCR forms derived from four-consonant strings and used

with *wätt'a*, Kane was certainly aware that not all of these forms are literally “quinquliteral,” such as *gəlbət'bət'u wätt'a* ‘be completely chaotic’.

In addition to this problem of labeling reduplicated forms that have *more* than five consonants, there are also situations where BCR produces forms that have *fewer* than five surface consonants. These include Tigrinya x^w *əläläw* ‘suffer labor pains’, which Buckley interprets as being formed on a quinquliteral template, then undergoing Slot Deletion on the glide, a claim he supports with the noun x^w *ələwlaw* ‘labor pains’ (1990:87). Similarly, Ge’ez *ʔa-qleläyä*, a derived form from \sqrt{qly} ‘be deep’, has only four root consonants and appears to be derived by BCR.⁵ A form produced by BCR but with even fewer surface consonants is Amharic *tä-gʷlalla* ‘be mistreated’. It will be shown in chapter 4 how this form can be derived by BCR from the root $\sqrt{*g^wIH}$, the abstract root posited by Bender and Fulass (1978:119).

3.4 “Quinquliteral” has been used to refer to multiple types of reduplication

Unlike some other labels, BCR distinguishes this reduplication process from other forms of reduplication that produce forms with five root consonants. The label BCR identifies the process of reduplication rather than merely describing the results. For example, penultimate reduplication of a single consonant in a four-consonant root can also produce a five-consonant form which some might label “quinquliteral,” such as Tigré *ʔaläbabät'ä* ‘trembled repeatedly’ < $\sqrt{ʔlbt}$ ‘tremble’. This penultimate reduplication gives a five-consonant form, but is a totally different reduplication process from BCR. Hartmann used the German term “fünfradikalige,” equivalent to “quinquliteral,” to characterize a list that included Amharic words produced by two different reduplication patterns, $C^1C^2nC^1C^2$: *c'əlanč'əl* ‘gleam, glimmer’ and *duqunduq*

⁵This derivation interprets the surface *e* as resulting from the *y* of the root, though Fleisch suggests a different origin based on penultimate reduplication then insertion of *e* (1944:225).

'dung worm' and also the pattern in *dəmbəlal* 'coriander'⁶ (1980:228). In descriptions of other Ethio-Semitic languages, we also find the term "quiquiliteral" applied to this last type of duplication, such as Harari *fexunquq* 'creep' (Leslau 1958:72), Tigrinya *mbärt'ät* 'be proud, strut' (Buckley 1990:79, fn. 11), Ge'ez *tälhāwasāsä* 'whisper gently to each other' (Fleisch 1944:227, Chaine 1907:51). Conti Rossini also grouped this last verb and Ge'ez *ša-kmosäsä* 'smile, deride' with those formed by BCR (1941:70). In a way, such verbs can be interpreted as having five consonants, but this is clearly different than words formed by the process of BCR. In fact, Conti Rossini's *ša-kmosäsä* 'smile' can undergo BCR in Tigrinya, becoming *(ʔa)kmäsmäsä* 'smiled' (Leslau 1991:286).

Broselow uses quiquiliteral to include four-consonant roots with the prefix *n-* (1984:23), but these are generally analyzed (with good reason) as a separate category (Leslau 1997:87,88 and 1995:491,566).

There are a few words in Semitic languages of the pattern $C^1C^2C^1C^2C^3$, for example Biblical Hebrew *baqbaqar*⁷ an obscure proper name (1 Chron. 9:15), Tigré: *šäsšäsər* 'ten each' from *šäsər* 'ten' (Littmann and Höfner 1962:464) and *tərtəreb* 'a disease' (Littmann and Höfner 1962:309), and Amharic *a-qiyafiyalä* < \sqrt{qyl} 'fool deceive', *tä-fiyafiyazä* 'joke, mock' < \sqrt{fyz} , *a-ffiyafiyat'ä* 'joke, jest' < \sqrt{fyt} , and *tät'əyat'əyasä* 'cause to smoke'. These may be reduplicated and have five consonants, but they are formed by a different pattern than BCR.

⁶The word *dəmbəlal* 'coriander' (which is little, round spherical seeds) is derived from the root *dbll*, with *-n-* insertion, 'be round, spherical'. This may have five surface consonants, but is not a case of BCR. However, it can itself be reduplicated by BCR, producing *dəmbəlbəl* 'round, spherical', a six-consonant form.

⁷This form is a proper name in the Hebrew text of the Bible, the only example of this type of reduplication in Biblical Hebrew. Whatever the origin of this individual form, it is an enigmatic singleton and not representative of any productive pattern of derivation in Hebrew. Thanks to Andy Bowling for pointing out this form and discussing its significance.

The different kinds of reduplication, in addition to BCR, that have been called “quinguiliteral” by various authors are listed in (3.1).

(3.1) Different kinds of reduplication that have been called “quinguiliteral”⁸ by various authors

pattern	Language	form	gloss	source
$C^1C^2C^3C^4C^4$	Amharic	<i>dəmbəlal</i>	‘coriander’	(Hartmann 1980:228)
"	Harari	<i>fexunquq</i>	‘creep’	(Leslau 1958:72)
"	Ge’ez	<i>tä-lhāwasāsā</i>	‘whisper to each other’	(Fleisch 1944:227, Chaine 1907:51)
$n-C^1C^2C^3C^3$	Tigrinya	<i>mbärt’ät’</i>	‘strut’	(Buckley 1990:79, fn. 11)
"	Amharic	<i>tänt’älätt’älä</i>	‘dangled’	(Broselow 1984:24)
$C^1C^2C^3C^3C^4$	Tigrinya	<i>məsəkakəra</i>	‘testified repeatedly’	(Rose in press)
$ʔa-C^1C^2C^3C^3$	Tigré	<i>ʔa-b ʔolälä</i>	‘nausea’	Leslau (1945b:25)
$C^1C^2nC^1C^2$	Amharic	<i>c’əlanə’əl</i>	‘gleam, glimmer’	(Hartmann 1980:228)

3.5 “Quinguiliteral” is used with contradictory meanings

Another reason to abandon the use of “quinguiliteral” for these forms is that even among authors that use the label “quinguiliteral,” there is no unanimity on its proper meaning. In Amharic, a language that uses BCR extensively, Bender and Fulass say “quinguiliterals and sexiliterals do not really exist... [rather] these are best viewed as

⁸Some authors used the synonymous term “quinguiconsonantal.”

derived” (1978:23). In the same vein, Gesenius claimed “stems which have arisen from... the mere repetition of one or two of the three original consonants... are usually not regarded as... *quinquliterals*, but as *conjugational* forms” (1910:102), a stance also adopted by Joüon (1993:255). But most authors use “quinquliteral” to include exactly those derived or conjugated forms that Bender and Fulass, Gesenius and Joüon exclude.

3.6 Vague labels for this reduplication process

The label BCR is also preferable to the terms “multiliteral,” “pluriradicals” and “partial reduplication” that are also used to refer to sets of words that include those derived by BCR as well as other forms (Conti Rossini 1941:69, Dillman 1907:133, Leslau 1995:566, 569, 593). Although these terms are accurate in a generic way, these authors use them not only to include BCR forms but also to include forms from other patterns of verb stem structure, such as Ge’ez *fädfädä* ‘increased’ and Amharic *t’ämäzzäzä* ‘was sinuous’, *käräkkärä* ‘was acrid, stinging’.

3.7 Labels that describe the reduplication process rather than enumerate consonants

Just as some scholars have used a label derived by totaling numbers of consonants for this reduplication process, others have adopted terminology to that describes the process.

Two authors used less specific descriptions, as they grouped BCR forms together with other types of reduplication, such as the pattern $C^1C^2C^3C^3$. To describe this class, Conti Rossini, used the very general phrase “formed by repetition of part of the root”⁹ (1941:70). This is less useful because of its vagueness, referring to simply “part” of the root, allowing the inclusion of forms such as *a-qiyaqiyalä* < \sqrt{qyl} ‘fool deceive’ and

⁹“Essere formati o con ripetizione di parte del tema.”

k'ämätt'ät'ä 'be sour'. At the same time, his description is also too narrow, limited to derived forms that have only five consonants. Segert differentiated this reduplication pattern from more standard types such as penultimate reduplication by using the generic label "pattern with root consonants otherwise repeated" (1984:42), a label that is not sufficiently precise.

Semiticists often use labels based on the consonants of certain standard verb roots to refer to the various inflected and derived forms, such as *qatal*. This method of labeling classes of forms has also been used to refer to forms derived by BCR, such as "*qtlil*," "*qataltal*," "*qataltul*," (Gordon 1955:280, Höfner 1951:97, Barth 1967:216-218), or "*tagbarbara*" (Wajnberg 1932:77,84; 1936:672), or *pe'al'al* (McCarthy 1981:409). These labels are descriptively accurate for each separate class of forms, but do not give an overall label that includes all classes, thereby missing the generalization, both within individual languages and across languages.

Leslau spoke of a Gurage¹⁰ word with "a 1.2.3.2.3 root" (1979:3.248), later using the same descriptive numerical notation to identify BCR in Argobba (1997:87) and Amharic (1995:566ff). Raz also used the same notation (1983:66) for Tigré. Leslau has adapted this numerical notation for reduplication of four-consonant roots and for iterative reduplication of a three-consonant root: 1.2.3.4.3.4 and 1.2.3.2.3.2.3 (1995:569). Though this notation does picture the results of applying BCR to different types of root, it is only marginally more instructive than enumeration of consonants.

Others scholars have referred to repeating two consonants. These descriptions come in two major groups: those that describe reduplicating the "last two consonants" of a root, and those that describe reduplicating the "2nd and 3rd consonants." Among those who describe the process from the beginning of the word, simply counting the 2nd and

¹⁰It will be shown in chapter 9 that BCR forms in Leslau's Gurage dictionary (1979) are the result of borrowing.

3rd consonants, are Segert (1975:153) and Macuch (1982:255) for Aramaic, Bauer and Leander (1922:482), Gesenius (1910:152) and Lasor¹¹ (1979:109) for Biblical Hebrew, and Barth (1967:216), Brockelmann (1928:117), Gray (1934:45), Joüon (1993:255) and Moscati *et al.* (1964:79) for Semitic generally. This reference to reduplicating the “2nd and 3rd consonants” is correct for those languages in which we have no record of any BCR forms derived from four-consonant roots, such as Aramaic or Biblical Hebrew. But describing the reduplication pattern as repeating “the second and third root consonants” is too narrow for a cross-linguistic description of this process since several E-S languages derive words by BCR from four-consonant roots.

It is more helpful to characterize this process of reduplication as applying to the last two consonants of a root, counting from the end of the word rather than the beginning. This approach has been taken by a number of scholars, though they may not have been aware of the crucial difference between reduplicating the 2nd and 3rd vs. reduplicating the final two. That is, if BCR is applied to a three-consonant root, which is the typical root in Semitic languages, it does not matter if one refers to the “second and third consonants” or the “last two consonants”: the referents are the same. But if describing roots with four consonants, it makes a crucial difference whether one refers to the “second and third consonants” or the “last two consonants.” It is no coincidence that authors who have described Ethiopian languages do not refer to repeating the “second and third consonants,” but refer to the “last two consonants.” In the current study the only Semitic languages found to apply BCR to roots of four consonants are within E-S, for example Tigrinya *qərzəfzəf bälä* ‘be very cold’ < $\sqrt{*qrzf}$ and Amharic *məsqəlqəl* ‘chaos’ < \sqrt{msql} ‘lay crossways’.

¹¹Elsewhere in the same book, Lasor also described the reduplication as being of the last two consonants (1979:72).

Scholars who have specified reduplicating the final two consonants include Dillmann, who described the reduplication process in Ge'ez by saying some "multiliteral roots have been developed from triradical roots... by repetition... of the last two radicals" (1907:133). In describing Amharic, Dawkins described some forms as having "reduplication of the last two radicals" (1969:49). For Amharic, Cohen also took this approach of describing the process by counting the reduplicated consonants from the end of the word, rather than the beginning, observing that these derived forms were obtained by "repetition of the last two radicals," explicitly noting that this same process produced five-consonant and six-consonant forms¹² (1970:158). Buckley characterized these forms in Tigrinya as having "reduplication of the last two radicals" (1990:87). Similarly, Leslau, in describing the reduplication process in Tigrinya, explained it as "repetition of the last two radicals" (1941:125),¹³ later repeating the same idea for E-S languages broadly (1966:606). Rose describes these forms in Ethio-Semitic as "copying the final two consonants" (in press). In the broader Semitic sphere, we find this approach of counting from the end of the word used by Nöldeke for Syriac (1904:132), Gesenius (1910:152) and Lasor for Hebrew (1979:72), and O'Leary for Semitic in general (1923:214).

These latter descriptions are more helpful than the others which were cited further above, in that they can apply to derived forms that have five or six consonants, and they also exclude those forms that are formed as a result of totally different reduplicative processes. However, none of these descriptions explicitly rule out forms of the shape $C^1C^2C^1C^2$, nor is it clear that these descriptions handle the forms where BCR is applied

¹²"D'autre part la répétition des deux dernières radicales permet d'obtenir des quinquilitères (à base de trilitère) et des sexilitères (à base de quadrilitère) à valeur augmentable."

¹³"Par la répétition des deux dernières radicales."

to “doubled verbs,”¹⁴ those of the shape $C^1C^2C^3C^3$, such as *t'ämäzzä* ‘twisted’ which reduplicates as $C^1C^2C^3C^2C^3$ *t'ämäzmazza* ‘sinuous’, reduplicating the last two consonant phonemes, for a total of five consonants. These doubled verbs (when they are not reduplicated by BCR), consist of a three-consonant root applied to a four-consonant template. In the discussion of phonology and templates, chapter 4, the application of BCR to different types of roots will be discussed at greater length; examples of BCR applied to doubled verbs from different E-S languages will also be given.

3.8 Iterative Reduplication

Another reason to prefer the label BCR over a counting label is that it allows the inclusion of forms where the reduplication process is applied iteratively. In such cases, the final two consonants are reduplicated more than once. This pattern is not common, but is documented. For example, Cohen lists a single form $C^1C^2C^3C^4C^3C^4C^3C^4$ *zərgəfəfəfəf* ‘the sound of goat droppings falling’ (1970:273). Leslau also cites such forms as possible: “In the women’s speech these verbs may become lengthened at will so as to become... *dəkəmkəmkəm alä* [*n.b.* ‘become weak’]... The degree of lengthening depends on the attitude of the speaker” (1995:569). The descriptive labels “quinguiliteral” and “sexiliteral” do not accurately describe these, so Cohen even coined the term “octolitere” for his example (1970:267,440), and Leslau’s form would require “septiliteral” (unless it was reduplicated yet again). But a generalizable, process-oriented label, such as BCR, allows us to also include such forms as these, viewing them as examples of the iterative application of the same BCR process that produces the five and six consonant forms.

¹⁴Some scholars have used the label “geminate verbs,” but the word “geminate” is used to describe a different process in E-S languages, so the label “doubled” verbs will be used.

3.9 Reduplication patterns BCR does not include

In this study, two types of reduplication that involve repeating two consonants are excluded. By describing the reduplication process as repeating the last two consonants, we should exclude the tiny set of verbs that reduplicate three-consonant roots by repeating the first two consonants, such as Hebrew *baqbaqar* a proper name, Amharic *gəyagəyat 'ä* 'be well dressed' < \sqrt{gyt} , Amharic *tä-fiyafiyazä* 'mock' < \sqrt{fyz} 'joke'. These forms have five consonants and are the result of repeating two, but the first two consonants. They are formed by a completely different reduplication pattern than the one that is the focus of this dissertation.

Nor does this study deal with the pattern found in the singleton form *ən-q^wələl^wäc* 'tantalizing (Adj.)' from the root $\sqrt{q^wlc}$ 'tantalize'. This is also a case of a three-consonant root reduplicating its last two consonants, but they are not reduplicated as a unit. That is, it produces a string $C^1C^2C^3 > C^1C^2C^2C^w3C^3$.

Further, this study does not include the quadrilateral forms of the shape $C^1C^2C^1C^2$ as being of the same pattern as BCR. By contrast, when comparing the reduplication of such forms with BCR forms in Hebrew, Lederman said "Intuitively, the reduplication in Pilpel... and Pə'al'al is of one and the same type, final syllable reduplication" (1982:158). Lasor also grouped together reduplicated forms of the shapes $C^1C^2C^1C^2$ and $C^1C^2C^3C^2C^3$ as being formed by the same process in Biblical Hebrew (1979:72). Many examples of the shape $C^1C^2C^1C^2$ can be shown to be formed by transparent reduplication from C^1C^2 , such as Biblical Hebrew *mäq* 'pit, Hell' which can be reduplicated as *mäqməq* 'pit, Hell'.

Although the definition of BCR could be modified to allow us to consider the similarity with words of this shape, it is not convincing that the process that produces the $C^1C^2C^1C^2$ pattern is so similar to the process that produces the pattern $C^1C^2C^3C^2C^3$. The evidence for keeping these two patterns separate includes the fact that the $C^1C^2C^1C^2$

forms show complete reduplication of the root, whereas BCR is partial. Also, $C^1C^2C^1C^2$ is found universally in Semitic languages, but BCR is more restricted, not found in Modern South Arabian nor in Neo-Aramaic.¹⁵ In a number of Ethio-Semitic languages, when $C^1C^2C^3C^2C^3$ verbs are inflected, they require a prefix in the perfect tense (e.g., Amharic *tä-frät'ärrät'ä* 'was squeezed out'), but when $C^1C^2C^1C^2$ verbs are inflected no prefix is required, (e.g., Amharic *kälakkälä* 'prevented'). Furthermore, all Semitic languages use $C^1C^2C^1C^2$ verbs as non-stative verbs, but only a limited number of Ethiopian Semitic languages use BCR forms as transitive verbs. These are some of the reasons that this dissertation classifies the BCR process as different from the process that produces $C^1C^2C^1C^2$ forms.

3.10 Reduplicating consonants or syllables?

As is implicit in the preceding discussion, BCR is defined by reference to consonants, with no reference to syllables. This question is important in the consideration of alternative analyses of reduplication. The "segmental" approach of Marantz (1982) treats reduplication as dealing with consonants and vowels and the Amharic BCR data can be explained by this view in a straightforward manner. The "prosodic" view of McCarthy and Prince (1990b, 1995) holds that reduplication must reduplicate not merely a string of segments but a prosodic unit, a mora, syllable, foot, or a prosodic word. Most of the BCR data does not yield itself to the prosodic approach in an obvious way, the Modern Hebrew diminutives being an exception.

The difficulty arises from the fact that BCR applies to the purely consonantal root, which has no prosodic structure. After the consonants are reduplicated, producing a derived string of only consonants, the derived stem is then inflected as noun, adjective or

¹⁵The languages that do not use BCR are listed in greater detail in chapter 9.

verb, and verbs are marked for person and number in such grammatical categories as perfect, imperfect, jussive.

Some have described BCR by reference to syllables, such as Gray, who spoke of “bases with second and third syllable repeated” (1934:80). Evidence is given here that a syllable-based description does not effectively describe all of the data across Semitic languages. This syllable-based description is most commonly employed by authors describing Hebrew, especially Modern Hebrew.¹⁶ In describing Hebrew verbs of the small *peʕalʕal*¹⁷ binyan (verb class), the class which is comprised of BCR forms, McCarthy referred to reduplicating “the final syllable of the stem” (1981:409), as did Horowitz (1960:185) and Glinert (1989:433). Lederman takes the same approach, describing this class as “showing a reduplicated last syllable” (1982:157). He also noted a number of “nouns and adjectives with reduplicated last syllable,” words derived by BCR, such as *xataltul* ‘kitten’ < *xatal* ‘cat’ (1982:158). In this last example, it is clear that what results is not (strictly speaking) a reduplication of the last syllable, but rather the consonants of the last syllable. (Lederman was certainly aware of this, but Semiticists have traditionally focused almost exclusively on consonants in their studies of reduplication.¹⁸) These authors’ descriptions are basically correct in describing the Hebrew data, and they concur with Gray’s broad observation of “bases with second and third syllable reduplicated” (1934:80), but their descriptions do not fit data from other Semitic languages so well.

¹⁶Not all Hebrew scholars have described this reduplication pattern in terms of syllables. Gesenius, for example, wrote of repeating the last two consonants of a root (1910:152).

¹⁷Verb classes in Hebrew are traditionally identified by giving the form with the vowels on the consonantal root *pʕl*, (e.g., *puʕal*).

¹⁸Hardcore Semiticists may be used to referring to syllables without taking their vowels into consideration, but it strikes many phonologists as overlooking something important.

The claim that the final syllable of the corresponding non-reduplicated form is repeated in the reduplicated form, was followed by McCarthy when he wrote of reduplicating “the final syllable of the stem” (1981:409). This interpretation can be shown to be incorrect in a number of cases, as seen in (3.2). It must be presumed that these authors did not mean that suffixes were included in this description, so obvious suffixes are marked in the non-reduplicated forms.

(3.2) BCR forms that do not reduplicate the final syllable of non-reduplicated forms

gloss	non-BCR form	BCR form	gloss	language
‘lady’	<i>wäyzär-o</i>	<i>wäyzärazər</i>	‘ladies’	Tigrinya
‘grope’	<i>rämsäs-ä</i>	<i>’armäsmäs-ä</i>	‘feel for s/t’	Ge’ez
‘flee’	<i>gälb-ä</i>	<i>ʔagläläb-ä</i>	‘be frightened’	Tigré
‘gold’	<i>wärq</i>	<i>wərəqrəq</i>	‘glistening’	Amharic, Ge’ez, Tigrinya
‘rolled up’ (v.t.)	<i>šäbälläl-ä</i>	<i>tä-šbäläbbäl-ä</i>	‘curled up’ (v.i.)	Amharic
‘hurry’ (v.i)	<i>säftät-ä</i>	<i>səfətfət belä</i>	‘rise in hostility’ (with ‘say’)	Tigré

These data show that analyzing the BCR process as reduplicating prosodic units rather than counting consonants is problematic. Others have also struggled with language data from a variety of language families (though none from Semitic) for which it is not clear how it could be analyzed in prosodic theory, including Burquest and Steven (1994) and Hendricks (1999). This dissertation will not further compare the

“segmental” and “prosodic” approaches to reduplication. Rather, the data are collected, organized, and described as clearly as possible.

However, there is a point related to prosodic structure that has been discovered in all BCR forms across Semitic. In all BCR forms, in all grammatical categories, the first consonant of the reduplicant is always the initial segment of a syllable, even if the usual rules of syllabification in the language would allow it to be otherwise. Examples showing that the first consonant of the reduplicant is always syllable initial are shown in (3.3).

(3.3) Examples showing that first consonant of reduplicant is always syllable-initial

language	BCR form	gloss
Tigrinya	<i>wäyzäräzər</i>	‘ladies’
Modern Hebrew	<i>kəlablab</i>	‘puppy’
Amharic	<i>fərəs-rəs-u wätt’a</i>	‘go to pieces’
Silt’e	<i>sirkikit baala</i>	‘be very messy, disorderly’
Syriac	<i>pəraxruxtaa</i>	‘spark’
Arabic	<i>ḍuraxrax</i>	‘cantharide fly’

Leslau did not note how the first consonant of the reduplicant is consistently syllable initial and lamented that “there is no valid rule” why, for example, the string *lksks* ‘a trifle’ is syllabified as *lə.kəs.kəs* and not *lək.səks* (1995:44).

It is important to note that in the Amharic data, the rules of epenthesis would otherwise be expected to produce *ləksəks*, and *fərəs-rəs-u wätt’a* ‘went to pieces’ would

be syllabified as **fərsərsu wätt'a*. Even if the first consonant would not have to be syllable initial by other rules in the phonology, the rules of BCR ensure that it is.

3.11 BCR forms with no attested extant non-reduplicated roots

While BCR is a reduplication process, it does not require an extant, non-reduplicated root. A number of words formed by BCR, from several different languages, have no attested non-reduplicated roots. In Amharic, for example, Cohen observed “Many pluriliteral bases are attested alone, without the existence of corresponding trilateral or quadrilateral forms” (1970:203).¹⁹ Leslau concurred, saying “It should be stressed that the verb of the 1.2.3.2.3 pattern does not necessarily go back to an existing 1.2.3 verb, nor is the 1.2.3.4.3.4 pattern necessarily derived from a 1.2.3.4 verb” (1995:566). Dillmann went so far as to say that a salient point in “Ethiopic [*n.b.* Ge’ez] perhaps consists in its scarcely ever retaining, or its never having developed, the trilateral forms alongside of such longer [BCR] forms” (1907:133,134). The same can be said about quadrilateral forms in relation to reduplicated forms, such as Amharic *bəc’rəqrəq: alä* ‘be a failure,’ which has no extant unreduplicated root √**bc’rq* and Tigrinya *šäQbät’bät’ bälä* ‘whine.’ Though Dillmann’s claim about the scarcity of non-reduplicated roots may be overstated, it is important to note that many BCR forms do not have corresponding non-reduplicated forms.

¹⁹“Beaucoup de thèmes plurilitères sont attestés seuls, sans radicaux trilitères ou quadrilitères correspondants” (Cohen 1936:203).

(3.4) BCR forms with no examples of non-reduplicated roots

language	root	duplicated form	duplicated gloss
Aramaic	*špr	šprpr	'dawn' (Segert 1975:153)
Aramaic	*xns	xnysns	'sun idol' (Tal 2000:283) ²⁰
Syriac	*xbl	x ^e belb ^e le	'ivy' (Brockelmann 1908a:180)
Arabic	*ḍrx ?	ḍuraxrax	'cantharide fly' (Fishbein p.c. 2000)
Tigré	*hwš	hawašwaša	'disappeared' (Raz 1983:66)
Amharic	*lfs	ləfəsfəs	'limp, flabby' (Leslau 1976:14)
Tigrinya	*frgs'	fərgäs'gäs' bälä	'escape' (da Bassano 1918:994)
Argobba	*g ^w rm	ag ^w ärämärrämä	'grumble' (Leslau 1997:202)

Just as not every BCR form has an attested non-reduplicated root, so also, there are a number of examples where both a non-reduplicated form and a corresponding BCR form exist, but the two forms have little or no semantic link. Buckley's observation is worth repeating here: "Some [roots] exist only in reduplicated forms... Other roots are found in plain and reduplicated forms, with the same meaning... [other] verbs are also found in plain and reduplicated forms, but the meanings are unrelated... In other cases, there is some relationship in meaning, though it is not exact" (1990:81). These four categories are illustrated in (3.5), presented in the order of Buckley's categories.

²⁰A number of authors have suggested different possible roots for this noun, with a variety of semantics, including *hss* with infix *-n-* 'nakedness, shame' (Jastrow 1971:483), *xwns* 'Egyptian deity' or *hnyš* 'shining' (Drazin 1994:235, fn. 63), metathesis of *xsn* (cited by Levy 1924:2.83), but none are convincing. These are all more ingenious attempts at etymology than Buxtorf, who simply reduced the reduplicated form to its otherwise unattested root *xns* (1639:795). However, all of these scholars striving to discover an attested non-reduplicated root seem to have overlooked the distinct possibility that there was no extant root, as is shown by this dissertation to be the case, for many other BCR forms from other Semitic languages.

Buckley's first point, illustrated in row 1 of (3.5), bears reiteration, that for some words their first coinage was in a BCR form, without any non-reduplicated root in their history.

(3.5) Amharic examples illustrating Buckley's four categories of relations between reduplicated forms and non-reduplicated form

	root	non-reduplicated gloss	BCR verbal form	BCR gloss
1. no non-reduplicated form	* $\sqrt{qlš}$		<i>a-qläšälläšä</i>	'felt sick, nauseated'
2. very similar semantics	$\sqrt{t'iq}$	'submerged'	<i>a-t'läqälläqä</i>	'flooded'
3. some semantic link	\sqrt{slb}	'castrated'	<i>tä-släbälläbä</i>	'slashed continuously'
4. no visible semantic link	\sqrt{zrf}	'pillaged'	<i>tä-zräfärräfä</i>	'dribbled (of bits)'

3.12 BCR applied to non-verbal roots

Most grammars of Semitic languages that mention the BCR process include it under their discussion of verbs, such as Moscati et al. (1964:79), though Modern Hebrew is a clear exception. However, there are clear examples in a number of Semitic languages that BCR is applied to extant nominal roots, roots with no cognate verbal roots. This is not the same as using BCR to derive a noun from a base that has no extant root. In a very few cases there are full verbs derived from nouns, though most forms derived from noun are other nouns or adjectives, as seen in (3.6).

(3.6) Examples of verbs derived by BCR from nouns without cognate verbal roots

language	gloss	noun	BCR form	gloss
Amharic	'vine'	<i>haräg</i>	<i>a-hrägärrägä</i>	'draw intertwined figure'
Ge'ez	'a censer'	<i>s'ənḥaḥ</i>	<i>ʔas'naḥnəḥa</i>	'swing a censer'
Arabic (Gray 1934:80).	'salt'	<i>malx</i>	<i>imlaxaxa</i> < <i>imlaxlaxa</i>	'be salty'

When nouns are the base for a BCR derivation, the result is more commonly another noun or an adjective, rather than a verb. Examples of nouns and adjectives derived from nouns are seen in (3.7).

(3.7) Examples of nouns and adjective derived by BCR from nouns without cognate verbal roots

language	gloss	noun	BCR form	gloss
Amharic, Ge'ez, Tigrinya	'gold'	<i>wärq</i>	<i>wərəqrəq</i>	'glistening'
Ugaritic	'sandal strap'	<i>qbl²¹</i>	<i>qblbl</i>	'sandal straps'
Amharic	'boulder'	<i>däng^wäl</i>	<i>däng^wälag^wäl</i>	'rocky terrain'
Arabic	'bustard'	<i>xubaaraa</i>	<i>xubarbar</i>	'bustard'
Amharic	'ankle'	<i>qärc'əm²²</i>	<i>q^werc'əmc'əm-it</i>	'ankle'
Tigrinya	'lady'	<i>wäyzäro</i>	<i>wäyzärəzər</i>	'ladies'
Modern Hebrew	'dog'	<i>keleb</i>	<i>kəlablab</i>	'puppy'
Aramaic (Sokoloff 1990:445)	'small coin'	<i>proṭ</i>	<i>proṭroṭ</i>	'small money'

An additional feature that has not been pointed out by previous researchers is that it is also possible to derive a BCR form from a root that is based on the lexical base of a compound verb, a construction that is explained further in chapter 5. These roots are never found as non-reduplicated verbs, but their only non-reduplicated form is in uninflected lexical bases. The consonants of these lexical bases can be reduplicated by

²¹The non-reduplicated form of this is not found in Ugaritic, but Arabic, meaning 'sandal straps' (Aistleitner 1963:273).

²²The non-reduplicated form is found in Tigré, not in Amharic.

BCR and then serve in fully inflected verbs, nouns, or as derived lexical bases. Examples of reduplicated forms whose non-reduplicated forms are only found as lexical bases are seen in (3.8). From other E-S languages, examples include Tigrinya *qəzəḥzəḥ bälä* ‘shudder with extreme cold’ from *qəzəḥ bälä* ‘shudder with cold’ and Tigré *šänkälkäl belä* ‘become dizzy’ from *šänkälul belä* ‘move in a circle’.

(3.8) Examples of Amharic forms derived by BCR from lexical bases without cognate verbal roots

BCR form	gloss	non-conjugated base	gloss of compound verb
<i>täc'raqärräqä</i>	‘drip’	<i>c'əraq: alä</i>	‘urinate in bursts or squirts’
<i>tənb^wəs^wəs: alä</i>	‘soft, yielding (of flesh)’	<i>tənb^wəs: alä</i>	‘be or look plump’
<i>qəbuc'bucc'- ənnät</i>	‘restlessness’	<i>qəbuc': alä</i>	‘appear and vanish quickly’
<i>täq^wläc'älläc'ä</i>	‘be open (eye)’	<i>q^wäləc': alä</i>	‘blink’
<i>tätg^wlägg^wälä</i>	‘billow up (smoke)’	<i>təg^wäləl: alä</i>	‘billow (of smoke)’

As is the case for forms derived from verb roots (explained above in 3.11), forms derived by BCR from the same consonants as lexical bases do not always match the semantics of the non-reduplicated bases. This can be seen in the Tigrinya compound verb construction *qälbašbaš bälä* ‘be restless’ which matches the consonants, but not the semantics, of the non-reduplicated compound verb *qälbaš bälä* ‘flood, overflow’.

3.13 Forms that appear to be derived by BCR but are not

As with any morphological pattern, there are a number of forms that appear to have been derived by BCR, but are in fact not derived by this rule. Each of these forms has a unique origin. Examples of these forms are given in (3.9), together with an explanation of the origin of each form.

(3.9) Forms that appear to be derived by BCR, but are derived by other means

BCR form	definition	putative root	notes
<i>q^wəstəntənya</i>	'Constantinople'	<i>q^wstn</i>	This is just an adaptation of the pronunciation of Constantinople, via Ge'ez.
<i>həlmälmelek</i>	'a star (sp.)'	<i>hlm, lml,</i> or <i>hlm!</i> ?	Leslau (1991:230) says "seems to be a composite noun" from Ge'ez.
<i>fətəwatawi</i>	'concupiscent'	<i>ftwt</i>	- <i>awi</i> is a standard suffix for deriving nouns, in this case from the noun <i>fətəwät</i> 'lust, concupiscent'
<i>käyyanəyan</i>	'artists'	<i>käyni</i>	This is a plural of <i>käyni</i> 'artist', with the plural suffix - <i>an</i> , with <i>i</i> becoming <i>y</i> before - <i>an</i> .
<i>əkkädäkkädəyye</i>	exclamation in phrase "I deny you, O Devil!"	<i>kdH</i>	From <i>kädda</i> , then <i>k</i> , then <i>dä</i> (Kane 1990:1455).

3.14 Classes of roots that cannot be reduplicated by BCR

There are some types of verb roots that are not reduplicated by BCR at all, for use as nouns, adjectives, verbs, or lexical bases. The first class of roots that cannot be reduplicated at all by BCR includes $C^1C^2C^1C^2$ and $C^1C^2C^2$. These classes of roots can be characterized as not having three consonants in their roots, but only two. That is, verbs of the type $C^1C^2C^1C^2$, such as *käläkkälä* 'prevent', can be understood as being reduplicated versions of a root C^1C^2 . Verbs of the type $C^1C^2C^2$, such as *wäddädä* 'like, love', are understood to consist of C^1C^2 with the second consonant spreading to the third consonant slot (explained in chapter 4). BCR can only be applied to roots with at least three consonants.

These three consonants can include a token of the same consonant at both the beginning and the end of the root, (e.g., \sqrt{grg} in *tägrägärrägä* 'fall down turning over'), a root that is never found in non-reduplicated form. Other roots of the shape $C^1C^2C^1$ are also found exclusively in BCR, never found in non-reduplicated form, such as $\sqrt{t'm't}$ 'vagrant' and \sqrt{kmk} 'swarm'. This is noteworthy since the root class $C^1C^2C^1$ is so rare that Bender and Fulass found only three examples (1978:140).²³

A second class of roots that cannot be reduplicated by BCR consists of roots of the type C^1HC^2 , such as *s'afä* 'write' from the root $\sqrt{s'Hf}$. Other examples of this class include *marä* 'show mercy' \sqrt{mHr} and *malä* 'vow (v.)' from \sqrt{mHL} . Again, the *H* is not merely a convenient fiction, but is reflected in derived nouns such as *s'əḥfät* 'writing', *məhrät* 'mercy' and *mähalla* 'vow (n.)'. For roots of the shape C^1HC^2 , repeating the last two consonants is not allowed. Repeating the last two consonants in this case would mean repeating an underspecified consonant in word-medial syllable-initial position, and this does not appear to be sanctioned.

²³They did not include the roots that are only found in forms derived by BCR.

There is a class of roots from which very few words are reduplicated by BCR, those of the shape $HC^1C^2(C^3)$. There are a very few of these, and there are additional restrictions for this class. These will be discussed in chapters 4 and 5.

3.15 Summary of definition of BCR

The rest of this dissertation will explore many facets of this process of Bi-Consonantal Reduplication, both synchronically and diachronically. It will be important to remember that this reduplication pattern is not describable merely in terms of the number of consonants that result in the surface form. Nor is this reduplication pattern describable in terms of repeating the 2nd and 3rd consonants of a non-reduplicated form. Rather, BCR is best described as repeating the last two consonant phonemes of a root, though the root need not be an attested non-reduplicated root, nor must the root be an attested verb root.

CHAPTER 4

INFLECTING VERBS DERIVED BY BCR FROM DIFFERENT CLASSES OF ROOTS

4.1 Differences in the application of BCR on classes of verb roots

Previous writers have shown how BCR is applied to roots with three fully specified consonants and roots with four fully-specified consonants. In this chapter it is shown how such roots are inflected after they are derived by BCR, as well as how BCR is applied to additional types of roots. As BCR is applied to different classes of roots, the basic principles are the same, though there are some small differences in how it is applied to certain classes of roots. For example, a slightly different result is seen in three-consonant roots with a final *H*, and another variant is seen for verbs that have three fully specified consonants and then repeat the last consonant, as in *t'ämäzzäzä* 'twisted' from the root $\sqrt{t'mz}$. (The underlined consonant indicates that this consonant is doubled when the root is matched to its usual four-consonant template, a topic explained in section 4.7)

This chapter will show that some of the differences in the way that BCR is applied to different types of roots are not as great as they appear on the surface. The basic principles of BCR apply to more different kinds of roots than has been previously noted. Also, it will be shown that the inflection of verbs derived by BCR is based on the inflection of four-consonant roots, though there are some small systematic differences. This understanding allows us to understand why certain other types of roots, when derived by BCR, cannot be inflected as verbs. This understanding of how BCR is applied to roots derived from three-consonant roots also leads to a hypothesis about why

BCR forms are not inflected as verbs in certain E-S languages (a topic explored in chapter 9).

There are also restrictions that block the application of BCR to certain classes of roots, such as roots that have penultimate *H*, as in $\sqrt{s'Hf}$ which gives perfect *s'afä* 'write', but which cannot be reduplicated by BCR.

4.2 Inflection of three-consonant verb roots derived by BCR

Amharic scholars studying BCR have paid the most attention to inflected verbs derived from three-consonant roots that then form strings of five consonants. These five-consonant bases are inflected in a relatively straightforward manner. Understanding how these forms are inflected as verbs is fundamental, providing the basic principles that are needed to understand how forms are derived by BCR from other types of roots.

When a three-consonant root is reduplicated by BCR, the resulting base of five consonants can then be conjugated for any of the grammatical categories, such as 3rd person plural subject in the perfect or 2nd person feminine imperative. The conjugation of these five-consonant bases is very similar to the conjugation of four-consonant roots, a point that will be explored further, in section 4.4. The use of BCR from different grammatical categories can be seen in (4.1), where the different verbal stems are shown with two different roots and compared with two non-reduplicated verbs, one of which is marked for passive voice.

(4.1) Examples of grammatical stems on five-consonant bases derived by BCR from roots with three consonants, compared with non-reduplicated forms (Leslau 1995:1038,1043)

	BCR with passive	non-reduplicated with passive	BCR with <i>a</i> -prefix	non-reduplicated, active
gloss	'glitter'	'testify'	'disturb someone'	'testify'
root	<i>blc' > blc'lc'</i>	<i>mskr</i>	<i>klf > klflf</i>	<i>mskr</i>
perfect	<i>täbläc 'älläc 'ä</i>	<i>tämäsäkkärä</i>	<i>akläfälläfä</i>	<i>mäsäkkärä</i>
imperfect	<i>yöbläc 'älläc '</i>	<i>yämmäsäkkär</i>	<i>yakläfälləf</i>	<i>yämäsäkkər</i>
jussive	<i>yöbläc 'läc '</i>	<i>yämmäskär</i>	<i>yakläfləf</i>	<i>yämäskər</i>
imperative	<i>täbläc 'läc '</i>	<i>tämäskär</i>	<i>akläfləf</i>	<i>mäskər</i>
gerund	<i>täbläc 'ləc 'o</i>	<i>tämäskəro</i>	<i>akläfləfo</i>	<i>mäskəro</i>
infinitive	<i>mäbläc 'läc '</i>	<i>mämmäskär</i>	<i>makläfläf</i>	<i>mämäskär</i>
agent	<i>täbläc 'lac 'i</i>	<i>tämäskari</i>	<i>mäkläflafi</i>	<i>mäskari</i>
instrument	<i>mäbläc 'läc 'iya</i>	<i>mämmäskəriya</i>	<i>mäkläfläfiya</i>	<i>mämäskəriya</i>

In comparing the perfect of reduplicated and non-reduplicated forms, similarities to the inflection of a non-reduplicated four-consonant root are apparent. There is a theme vowel *ä* after each of the rightmost four root consonants and the penultimate consonant is geminated. In the passive columns, the prefix *tä-* is found on both the reduplicated and the non-reduplicated forms.

Moving down the rows of grammatical forms, the inflection on the BCR forms closely resembles the inflection of the non-reduplicated forms from the four-consonant root. The consistent difference between forms that are reduplicated and forms that are not is that in the reduplicated forms, the root-initial consonant is consistently syllable-

final. That is, the root-initial consonant closes the syllable which begins with the prefix, and this initial consonant is never followed by a vowel, neither phonemic nor epenthetic.

Forms derived by BCR that are then inflected as verbs are marked with passive/intransitive or causative/transitive prefix morphology. But examining the different rows of the two passive columns in (4.1) shows that the passive morphology does not have a consistent shape on forms reduplicated by BCR. In the perfect, imperative, gerund, and agent forms, the passive is marked by the prefix *tä-*, for both BCR and non-reduplicated forms. For non-reduplicated forms, in the imperfect, jussive, infinitive, and instrument, the passive is marked by the gemination of the root-initial consonant, but for BCR forms there is no overt audible or written marker of the passive. The allomorphs of the passive morphology in BCR have not been fully explained, so some explanation of Amharic valence changing morphology, especially the passive, is required at this point.

4.3 Valence changing prefixes

To better understand the inflection of verbs that are derived by BCR and to understand the difference between BCR verbs and five-consonant (“true quinquiliteral”) verbs such as *wäšānggärä* ‘interlace’, it is important to understand the use of valence changing prefixes *a-* and *tä-* (VC prefixes). This explanation of VC prefixes will also introduce the matter of the default consonant *t* as a prefix in Amharic, also a crucial point in section 5.5. Also, the matter of which reduplicated forms bear VC prefixes and which do not is important in comparing the similarities of inflecting roots derived by BCR and for those from four-consonant roots, discussed below. Examples of BCR forms derived from three-consonant roots, with each of the VC prefixes, are shown in (4.2).

(4.2) Examples of various inflections for three-consonant root derived by BCR from roots with three consonants (Leslau 1995:1038,1043)

	BCR with <i>a-</i>	BCR with <i>tä-</i>	BCR with <i>a-</i>	BCR with <i>tä-</i>
gloss	'cause to glitter'	'glitter'	'disturb someone'	'be a meddler'
root	<i>blc'</i> > <i>blc'lc'</i>	<i>blc'</i> > <i>blc'lc'</i>	<i>klf</i> > <i>klflf</i>	<i>klf</i> > <i>klflf</i>
perfect	<i>abläc'älläc'ä</i>	<i>täbläc'älläc'ä</i>	<i>akläfälläfä</i>	<i>täkläc'älläc'ä</i>
imperfect	<i>yabläc'älläc'</i>	<i>yäbläc'älläc'</i>	<i>yakläfälläf</i>	<i>yäkläfälläf</i>
jussive	<i>yabläc'läc'</i>	<i>yäbläc'läc'</i>	<i>yakläfläf</i>	<i>yäkläfläf</i>
imperative	<i>abläc'läc'</i>	<i>täbläc'läc'</i>	<i>akläfläf</i>	<i>täkläfläf</i>
geründ	<i>abläc'läc'o</i>	<i>täbläc'läc'o</i>	<i>akläfläfo</i>	<i>täkläfläfo</i>
infinitive	<i>mabläc'läc'</i>	<i>mäbläc'läc'</i>	<i>makläfläf</i>	<i>mäkläfläf</i>

In the perfect (and other grammatical forms that do not require another prefix) all inflected verbs whose stem consonants are derived by BCR are found with a valence changing prefix (VC prefix), either the causative/transitive *a-* or the passive/intransitive *tä-*, such as *täc'lämällämä* 'get darker' from $\sqrt{c'lm}$ 'become dark'. Forms derived by BCR other than inflected verbs, that is lexical bases used in compound verbs (see chapter 5), nouns, and adjectives, do not require one of these VC prefixes. The causative/transitive prefix *a-* has a single, stable form with no allomorphy (unlike the passive/intransitive prefix *tä-*) and can be found on all verbal forms, even if they have an obligatory prefix, as seen in *y-a-wtäbättäb* 'intertwining (impf)' from \sqrt{wtb} . In this, the behavior of the *a-* prefix on BCR forms is exactly like the inflection of non-reduplicated forms with the *a-* prefix. The identical behavior of the *a-* prefix on non-reduplicated forms and BCR forms is seen in (4.3).

(4.3) Forms with the *a*- causative/transitive prefix, showing that it is stable on both non-reduplicated and BCR forms

	'bring' (causative plus 'come')	'intertwine' (reduplicated by BCR)
perfect	<i>a-mätt'a</i>	<i>a-wtäbättäbä</i>
imperfect	<i>y-a-mät'al</i>	<i>y-a-wtäbättəb</i>
3rd masc. sg. jussive	<i>y-a-mt'a</i>	<i>y-a-wtäbtəb</i>
gerund	<i>a-mt'-əto</i>	<i>a-wtäbtəb-o</i>
infinitive	<i>m-a-mt'-at</i>	<i>m-a-wtäbtäb</i>

However, the use of the passive/intransitive prefix *tä*- on inflected BCR verbs has more complexities than the prefix *a*-. This *tä*- prefix does not follow the exact same rules on BCR verbs as on non-reduplicated verbs. On inflected non-reduplicated verbs, the passive/intransitive prefix *tä*- has more than one allomorph, this allomorphy being grammatically and phonologically conditioned. Four grammatical categories have *tä*- in both non-reduplicated forms and forms derived by BCR: perfect, imperative, gerund, agent.

Four grammatical categories have an obligatory prefix: imperfect, jussive, infinitive, instrumental. On verbs not reduplicated by BCR, for the passive forms of these four categories that have an obligatory prefix, the allomorph is not *tä*- but an extra consonant slot that is filled by geminating the root-initial consonant. For example, the perfect passive of 'open' is *täkäffätä* 'be opened' while the imperfect is *yəkkäffät* 'being opened', with geminated *k*, shown in (4.4). (The passive morphology for some grammatical categories has, in addition, some other minor differences in gemination of consonants and insertion of vowels which are well described and do not concern us here.) The standard grammars of Amharic have not couched it in terms of filling an

empty slot, but Cohen (1970:214) and Leslau (1995:68) described the process adequately, referring to the passive prefix being “assimilated” to the following consonant. The alternative analysis used here is based on the slot-filling version of the allomorphy rule, drawn from the work of Broselow (1984:23,24), who used the same set of insights to handle those roots with initial *H*, as seen with the root \sqrt{kft} ‘open’ in figure 4.1.



Figure 4.1. Spreading of initial root consonant in passive.

For roots with an initial *H*, with no fully specified initial [+consonantal] segment to geminate in the passive, the default consonant *t* is used to fill both slots, such as *yəttasär* ‘let it be tied’ from \sqrt{Hsr} ‘tie’. Following Broselow’s analysis,¹ the default consonant is seen as simply filling the consonant slots from both the root and the passive prefix, as in the imperfect passive of ‘open’.

¹Lombardi has since rejected this “default consonant” analysis, saying that all of Broselow’s cases “are morphologically specific” and proposes an unspecified analysis based on a “ghost segment or floating features” (1998:13). However, the research for this dissertation has identified additional instances of epenthetic *t* in Amharic, including when roots of the shape $C^1C^2(C^3)H$ are used in forming lexical bases used in compound verbs such as vowel *zə.gət.gət:* *alä* ‘shut completely’ from \sqrt{zgH} ‘shut’, (explained in chapter five), and word initially for *tənəqnəq* ‘struggle’ from \sqrt{Hnq} ‘grab, choke’, (explained in chapter six). There are additional uses of the default *t*, as well, which are not related to BCR. The default consonant analysis still seems preferable to the “ghost segment” analysis. Lombardi’s disagreement is mostly about default Place, not the facts of Amharic. The matter of *t* as a default consonant also arises in section 5.5.

The use of the coronal *t* for a default consonant is not surprising, either in terms of broader linguistic patterns or of other facets of Amharic morphophonology. In a study of languages from around the world, Paradis and Prunet found that coronal consonants are used in a number of special ways, including being used more frequently for epenthesis, citing as prototypical examples of Amharic infinitive and gerund data (1991:21). The consonant *t* has also been described as a default consonant in the Semitic languages Ge'ez, Chaha (Banksira 2000a:9,10), and Maltese (Hume 1996).

In the more traditional explanation of the use of *t*- to mark passive for the perfect form of *H*-initial roots, the vowel *ä* of the *tä*- prefix is then said to be lost before the initial *a*- sound of the root, *yättasär* not **yättäasär* with both prefixal *tä*- and root initial *a*-. This is a regular vowel deletion process in the phonology of Amharic, not limited to the passive prefix, though it is described differently by different authors, such as Leslau (1995:36) and Hudson (1985b:46). For example, *kä-addis abäba* 'from Addis Ababa' is pronounced as [*kaddis abäba*], with the vowel *ä* of the prefix eliding before the *a*. By either Leslau's or Hudson's analysis, the resulting passive forms are the same. These allomorphs of the passive prefix are shown in (4.4), with examples from stems of the shape $C^1C^2C^3$, C^1C^2H , $C^1C^2C^3C^2C^3$.

(4.4) Forms with the stative/passive prefix, showing different allomorphs

	consonant-initial root	α -initial ² root	inflected BCR verb
*	'be opened'	'be washed'	'glitter'
perfect	<i>tä-käffätä</i>	<i>t-att'äbä</i>	<i>tä-bläc'alläc'ä</i>
imperfect	<i>yə-k-käffät</i>	<i>yə-tt-att'äb</i>	<i>yə-bläc'alläc'</i>
jussive	<i>yə-k-käfat</i>	<i>yə-tt-at'äb</i>	<i>yə-bläc'läc'</i>
imperative	<i>tä-käfat</i>	<i>t-at'äb</i>	<i>tä-bläc'läc'</i>
gerund	<i>tä-käfto</i>	<i>t-at'bo</i>	<i>tä-bläc'läc'o</i>
infinitive	<i>mä-k-käfat</i>	<i>mä-tt-at'äb</i>	<i>mäbläc'läc'</i>
agent	<i>tä-käfac-i</i>	<i>t-at'ab-i</i>	<i>tä-bläc'läc'-i</i>
instrument	<i>mä-kkäfac-iyä</i>	<i>mä-tt-asär-iyä</i>	<i>mä-bläc'läc'-iyä</i>

For inflected verbs derived by BCR, the passive morphology is handled slightly differently than for non-reduplicated verbs, as seen in 4.4. Those grammatical forms that do not take an obligatory prefix on non-reduplicated forms will retain the passive prefix *tä-*, viz. perfect, imperative, gerund, agent. However, those grammatical forms that require a prefix (imperfect, jussive, infinitive, instrument) will not have the passive prefix *tä-* on BCR forms in the passive, as is true of non-reduplicated verbs. But unlike non-reduplicated verbs, they do not geminate the first consonant of the root. That is, the imperfect form of *täbläc'alläc'ä* 'glittered' is *yəbläc'äläc'*, not geminating the initial consonant as in **yəbbäläc'äläc'*.

Though a BCR stem which is otherwise marked as passive loses any overt passive prefix in these prefixed forms, there is no resulting ambiguity. The usual root-initial passive allomorphy, whether the prefix *tä-* or the gemination of the initial root

²Phonetically such roots are vowel initial, but the underlying form of these roots is argued to have an underspecified consonant, symbolized in this dissertation by *H*.

consonant, normally must distinguish passive inflected forms from active forms (with no VC prefix) and causative forms, such as *tä-säbbärä* 'was broken', *säbbärä* 'break', *a-säbbärä* 'cause to break'. However, when the passive morphology is applied to a BCR form, it does not distinguish it from two other valence-marked forms, but only one. That is, for BCR forms, the passive is distinguished only from a causative form (e.g., *abläc'älläc'ä* 'cause to glitter'), but there is no form without a VC prefix, such as **bläc'älläc'ä* to be distinguished. In inflecting BCR forms, the absence of any overt form of the passive prefix creates no ambiguity.

The presence of the passive prefix *tä-* on grammatical forms with no obligatory prefix enables proper syllabication of BCR forms that do not have other prefixes, but for the forms that have obligatory prefixes, the application of passive morphology would create an extra syllable, a syllable that is not sanctioned. For the inflections with no other prefix, the passive prefix *tä-* provides a syllable onset and nucleus which syllabify with the vowel-less root-initial consonant, as seen in *tä-q.bä.zäb.bä.zä* 'wander aimlessly'. For grammatical patterns that have their own obligatory prefixes, the root-initial consonant syllabifies with the prefix (e.g., *yəq.bä.zäb.bäz* 'glittering'). If the usual rules of the passive morphology were applied, geminating the initial consonant, the result would require an extra syllable, **yəq.qə.bä.zäb.bäz*, since the rules of epenthesis automatically insert a vowel in the string of three consonants. It is not merely the case that the passive prefix is not needed to disambiguate different classes of inflected forms; its presence would complicate syllabification. On these forms, the passive prefix *tä-* is not only not needed to prevent morphological ambiguity: the prefix is dispreferred. Thinking in the framework of Optimality Theory, minimal syllabification outranks the need for preserving consistent passive prefix morphology.

4.4 Similarities to the inflection of four-consonant roots

The model for inflecting three-consonant roots that are reduplicated by BCR is found not in the five-consonant roots, but in the four-consonant roots. Conti Rossini (1941:70) noted very briefly that in Ge'ez these reduplicated five-consonant strings, when they are verbal, are inflected by the same pattern as four-consonant verbs.³ Rose has pointed out a similar pattern in Tigré (in press). This is a very important insight. It is shown here that it also holds true for Amharic. For example, in the perfect, the last four of the root consonants are inflected the same way as in a four-consonant root, with a vowel following each consonant, and the penultimate consonant is geminated. The first root consonant does not take a vowel, but is syllabified as the coda to the syllable containing the prefix.

In saying that the rules of inflection (inserting vowels within the consonantal base), are applied to this string of five consonants in the same way as for a four-consonant verb root, it is important to note that counting starts from the right edge.⁴ The importance of counting from the right edge of the word, instead of the left edge, is crucial in comparing BCR forms and four-consonant roots. For example, by counting from the left edge, Cohen was forced to describe the insertion pattern of augment vowels in a non-unified way: "for four-consonant forms after the 2nd root consonant, but for quinquiliterals [*n.b.* BCR forms] after the third consonant" (1970:208).⁵ It is more insightful and captures the unity of the process to describe the point of the vowel insertion in both types of constructions in a unified way by counting consonants from the

³"Nella flessione attengosi al tipo dei quadrilitteri."

⁴It might almost be said that the first consonant is "extrametrical" or "extratemplatic."

⁵"Pour les quadriliterès après la 2^e radicale, pour les quinquiliterès après la 3^e radicale."

right edge of the word, as “following the antepenultimate consonant” or “preceding the penultimate consonant.”

In comparing the inflection of BCR and four-consonant verbs, it is important to compare sets of BCR forms marked with the causative prefix with sets of non-reduplicating forms also marked with the causative prefix, and in the same manner compare passive forms with passive forms. A comparison of the perfect inflection of four-consonant roots and BCR forms derived from three-consonant roots shows how similar these two patterns are, seen in 4.5, based on data from Leslau (1995:1038,1043).

4.5 Comparison of various inflections for three-consonant root derived by BCR and non-reduplicated four-consonant roots

	Four-consonant root, <i>a-</i> stem (causative)	BCR with <i>a-</i>	BCR with <i>tä-</i>	Four-consonant root, <i>tä-</i> stem (passive)
gloss	'praise'	'caused to glitter'	'glittered'	'was praised'
root	<i>msgn</i>	<i>blc' > blc'lc'</i>	<i>blc' > blc'lc'</i>	<i>msgn</i>
perfect	<i>amäsäggänä</i>	<i>abläc'älläc'ä</i>	<i>täbläc'älläc'ä</i>	<i>tämäsäggänä</i>
imperfect	<i>yamäsäggän</i>	<i>yabläc'älläc'</i>	<i>yäbläc'älläc'</i>	<i>yämmäsäggän</i>
jussive	<i>yamäsğen</i>	<i>yabläc'läc'</i>	<i>yäbläc'läc'</i>	<i>yämmäsğen</i>
imperative	<i>amäsğen</i>	<i>abläc'läc'</i>	<i>täbläc'läc'</i>	<i>tämäsğen</i>
gerund	<i>amäsğeno</i>	<i>abläc'läc'o</i>	<i>täbläc'läc'o</i>	<i>tämäsğeno</i>
infinitive	<i>mamäsğän</i>	<i>mabläc'läc'</i>	<i>mäbläc'läc'</i>	<i>mämmäsğän</i>
agent	<i>amäsğañi</i>	<i>abläc'läc'i</i>	<i>täbläc'läc'i</i>	<i>tämäsğañi</i>
instrument	<i>mamäsğäña</i>	<i>mabläc'läc'iya</i>	<i>mäbläc'läc'iya</i>	<i>mämmäskäriya</i>

These data, comparing the inflection of forms from four-consonant roots with the inflected passive-prefixed BCR verbs, show how similar the inflection of the BCR forms is to the inflection of the passive forms of four-consonant verb. The only differences come at the beginning of the root, where the initial consonant of the BCR string is vowel-less, and when there is an obligatory prefix for the grammatical form, the passive prefix *tä-* is not affixed, but its absence is not compensated for by the gemination of the root-initial consonant.

Another way that forms derived by BCR are treated similarly to four-consonant verbs is the insertion of the augment vowel *a*, as first noted by Cohen (1970:208ff). The vowel *a* is inserted when forming what Leslau calls a “type C” stem. The type C stem “when preceded by *tä*...expresses reciprocity or participation [emphasis in the original], that is, do something against one another, to one another, with one another, together, for one another” (1995:468). This can be seen in such forms as *tä-natt’äqä* ‘fight over something’, which is derived from the same root as *nätt’äqä* ‘take by force.’ Type C verb stems are also formed with *a*-, the other VC prefix (e.g., *ašammädä* ‘crunch, munch’).

These type C stems share two features in common with forms derived by penultimate reduplication. First, they have a VC prefix. Secondly, they insert the vowel *a* just before the penultimate consonant. This is very similar to penultimate reduplication of a three-consonant root, a process in which the penultimate consonant is repeated and the augment vowel is again inserted in the same place, just ahead of the penultimate consonant, the inserted vowel being underlined in the following example: *tä-nägaggärä* ‘talk to, converse’.

For four-consonant verbs, type C is marked in the same way.⁶ In the perfect, the verb is prefixed with the prefix *a*- or the prefix *tä*- and an augment vowel is inserted ahead of the penultimate consonant (Leslau 1995:555). Examples of this are shown in (4.5).

⁶Leslau does not use the label “type C” for four-consonant roots, but the pattern is the same.

(4.5) Examples of four-consonant verbs with augment vowels, augment vowels underlined

without augment	gloss	with augment	gloss
<i>mäsäkkäru</i>	'they testify'	<i>tä-mäs<u>ä</u>kkäru</i>	'testify reciprocally'
<i>a-mäsäggänä</i>	'thank/praise'	<i>a-mäs<u>ä</u>ggänä</i>	'thank repeatedly'
<i>märämmärä</i>	'investigate'	<i>a-mmä<u>r</u>ämär</i>	'manner of investigating'
<i>a-mänäzzärä</i>	'exchange money'	<i>a-mmän<u>ä</u>zzärä</i>	'help exchanged money'
<i>fänätt'ärä</i>	'flick'	<i>tä-fän<u>ä</u>tt'ärä</i>	'flip back'
<i>qäräqqäbä</i>	'tie a load on'	<i>a-qär<u>ä</u>qqäbä</i>	'help someone tie on a load'
<i>t'äbätt'äbä</i>	'whip, lash'	<i>t'äb<u>ä</u>tt'äbä</i>	'whip or lash somewhat'

In each example in (4.5), the augment vowel is inserted before the penultimate consonant, regardless of the number of syllables in the form or whether the consonant is geminated.

This placement of the augment vowel is another point in which four-consonant verb roots are treated in the same manner as inflected forms derived by BCR. In both cases, the augment vowel is inserted in the same place, just ahead of the penultimate consonant, as earlier realized by Cohen (1970:208ff). However, to maximize the parallel structure, the consonants must be counted from the right edge of the word, instead of from the left, as Cohen did, creating complications in describing the point of vowel insertion (1970:208). When the augment vowel is inserted into a form that has been reduplicated by BCR, this vowel is inserted just ahead of the penultimate consonant, exactly the same as with four-consonant verbs. Examples of inflected BCR verbs with augment vowels are shown in (4.6), examples drawn from Kane (1990) and Cohen (1970:211).

(4.6) Examples of inflected BCR verbs with augment vowels in the perfect, augment vowels underlined

without augment	gloss	with augment	gloss
<i>asbäräbbärä</i>	‘keep on breaking’	<i>asbäräabbärä</i>	‘keep on breaking a great deal or only little’
<i>täftälättälä</i>	‘be rubbed off’	<i>täftäläattälä</i>	‘be rubbed off somewhat’
<i>tälgäzäggäzä</i>	‘waver’	<i>tälgäzäaggäzä</i>	‘waver somewhat’
<i>tärfädäffädä</i>	‘be late in the morning’	<i>tärfädäaffädä</i>	‘be continually late in the morning’
<i>tägbäsäbbäsä</i>	‘walk slowly’	<i>tägbäsäabbäsä</i>	‘grope, feel ones way’

For four-consonant roots, the reduplication of the penultimate root consonant is allowed, stretching the stem to fill a five-consonant template, such as *tä-gälä**bb**ät’ä* ‘rolled over and over’. However, for inflected verbs that are already derived by BCR, it is not permitted to reduplicate a consonant to mark emphasis in the same way. Only the insertion of augment vowels is permitted, such as *tälgäzä**gg**äzä* ‘waver somewhat’ but not **tälgäzä**ggg**äzä*. It can be concluded that in Amharic, four consonants is the maximum preferred number of stem consonants in verbs. A very few five-consonant roots are found, but six is not possible. It will be shown later in chapter 9 that some other E-S languages do not allow five consonants at all. Instead, for these other languages, three is the maximum preferred template, with four consonants permitted only with limitations. This will be shown to be crucial in explaining which languages use BCR and which do not.

In the literature, there is a form cited as exemplifying the conjugation of a five-consonant verb of the shape $C^1C^2C^3C^2C^3$, *bäläqälläqä* ‘be exhausted’. This is

noteworthy in that it appears to be derived by BCR from the root \sqrt{blq} and then conjugated without either of the VC prefixes, which would be exceptional to the patterns of Amharic grammar just described above. This word *bäläqälläqä* is cited as the only exemplar of this class by Mantel-Niecko (1963:34), Hartmann (1980:87), Leslau (1995:567). Kane (1990:864) also cites this form, but notes that it is taken only from Guidi's *Vocabolario amarico-italiano* which was published in 1901. Three Amharic dictionaries compiled by native speakers were consulted for this dissertation (Desta 1970, Amsalu 1987, Ahmed 1992) and not one of them include this form.

To assess the acceptability of this word, interviews were conducted with native speakers of Amharic. They were presented a list of written words, some standard Amharic words, some questionable words found in the literature (including *bäläqälläqä*), and a nonce word that violated the morpheme structure conditions of Amharic by having *s* and *z* then *r* and *l* contiguous to each other in a root. Interviewees were asked if these words were good Amharic words, not asked if they knew the word. This form *bäläqälläqä* was unanimously rejected by 14 people as being a possible Amharic word, with only one person hedging that it is "probably not a good Amharic word." (The questionnaire and results can be seen in appendix B.) Since no native speakers have included this verb in their dictionaries, and not even subsequent foreign lexicographers have found independent evidence of this word, and since native speakers unanimously reject the word as not being a possible Amharic word, it is rejected. The form *bäläqälläqä* can be assumed to have been an error on the part of the original source or to represent a form generated only in a very limited location. It is excluded from this dissertation's database and any further consideration. Similarly, Kane listed *känäbännäbä* 'cover one's head', but in oral interviews this form was not found to be accepted without reservation. Therefore it is concluded that that form of the shape $C\grave{a}C\grave{a}C\grave{a}CC\grave{a}C\grave{a}$, in which there is no VC prefix and there is a theme vowel after the

initial consonant, such as *bäläqälläqä*, do not represent a productive canonical pattern in Amharic.

4.5 Inflection of four-consonant verb roots derived by BCR

Roots of four fully-specified consonants can be reduplicated by BCR, but the resulting stems cannot be used as inflected verbs.⁷ When four-consonant roots are reduplicated by BCR, the resulting string of six consonants can be used as a noun (e.g., *däbläqläq* ‘confusion’ or adjective *därgämgamma* ‘almost blind’), but it cannot be inflected as a verb. However, the semantic content of a verb can be used in a verbal construction by using the reduplicated string in a compound verb. Forms of this sort are explained in chapter 5.

Although Kane’s dictionary (1990) lists only five counter-examples to this prohibition of inflecting verbs derived from four-consonant roots, these are not representative of a productive pattern. The counter-examples found cited in Kane’s dictionary include *täqšämädämmädä* ‘sway the hips’, *täwlägädäggädä* ‘sway, lurch from side to side’, *tägrädämäddämä* ‘knit ones eyebrows, walk without paying attention’. All of these share the now familiar pattern of the prefix *tä-* and the root-initial consonant having no following vowel. In the questionnaire mentioned earlier (see appendix B), these forms were rejected 23 times, but accepted seven times (with respondents unsure in two more cases). One of the respondents suggested that *täwlägädäggädä* would be better if it was “shorter,” saying that he would prefer *täwgädäggädä*. Another suggested that *täqšämädämmädä* would be more acceptable if it was shortened to *täšmädämmädä*. In both of these cases, the deletion of a consonant reduces the word by one syllable, resulting in an inflected reduplicated form that fits the

⁷It will be shown in 7.5 that reduplicated four-consonant roots can be inflected if they are shortened by the deletion of a consonant.

standard template for inflecting BCR verbs. It is intriguing that two different people specifically suggested that these forms should be shortened. This supports the proposal that there is a maximum-length verbal template and that forms reduplicated by BCR should not violate. This matter of shortening roots when reduplicating by BCR is discussed further in chapter 7, where an explanation is proposed as to why in one form the initial consonant is deleted but in another form the penultimate consonant is deleted.

Though such a small amount of data cannot conclusively settle this issue, these four-consonant forms that are reduplicated by BCR and then inflected as verbs are, at best, on the margins of the language: they are not accepted by a majority, but they are accepted by enough speakers of the language that they certainly have some standing. These few examples are classed as exceptional to the general rules of BCR and these forms are excluded from this study.

It is worth noting that there is an analogous process in Arabic. In Arabic noun plurals, there are circumstances in which a five-consonant string must fit a four-consonant template. In striking contrast to the initial consonant deletion described here for Amharic, in these Arabic cases the final consonant is deleted to make the noun fit the template, different authors suggesting slightly different formal mechanisms (McCarthy 1982:154, Hammond, 1988:257, Yip 1988:563,564).

4.6 Inflection of “doubled verbs”

There is, however, a class of inflected verbs that are reduplicated by BCR that may appear to be derived from four-consonant roots. This set of seeming exceptions are verbs with the last consonant repeated, often called “doubled verbs.”⁸ For example, the verb *šäbällälä* ‘wrap (v.t.)’ (< *šbl*), which has its last consonant repeated, is reduplicated by

⁸Some writers use the word “geminated” to refer to the same class of verbs, but in E-S linguistics, “gemination” is used to refer to a different property, both lexical and templatic. In the verb *wäddädä* ‘like’, we see “gemination” word-medially, marked in bold type, while the root is “doubled.” In the imperfect, *yäwädäd*, there is no gemination, but the root is still doubled.

BCR and inflected as a verb, *täšbäläbbälä* 'curl up (v.i.)' Doubled verbs in Amharic may appear to be an exception to the rules of BCR, but a theoretically informed understanding of how doubled verbs are reduplicated by BCR shows their derivation to fit the established rules.

Linguists have long noted that in Semitic these doubled consonants have certain patterns that differentiate them from other verb roots (Greenberg 1950), such as the fact that there are almost no roots of the shape $C^1C^1C^2$, but there are very many of the shape $C^1C^2C^2$. McCarthy later developed a formal analysis of these forms within the autosegmental model (1981:395-397, 1986b:209ff), broadening the application of the Obligatory Contour Principle, proposing that the doubled consonant slots are linked to a single phoneme, as diagrammed in (4.7). These verbs have roots with one fewer consonant than their templates have slots, so the last consonant is linked (or "spread") to the two final template slots. A two-consonant root fills a three-slot template and a three-consonant root fills a four-slot template. This analysis that the final two surface consonants are linked to only one underlying node has now become a standard, accepted interpretation (Lowenstamm and El M'hammedi 1996, Banksira 2000a:61). Others, such as Gafos, have proposed changes to the details of McCarthy's mechanism, but still agree that both of the surface consonants arise from a single instance in the root (1998:263).

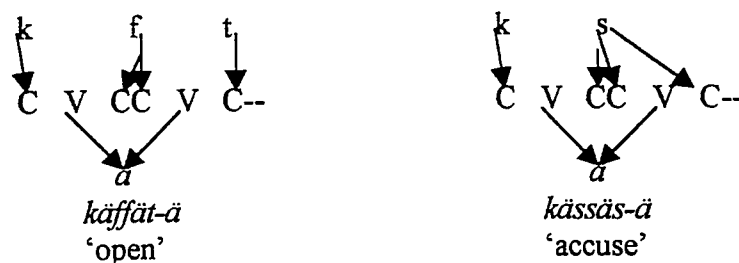


Figure 4.2. McCarthy's analysis linking consonant slots and phonemes spreading analysis on right.

While Broselow successfully applied McCarthy's spreading analysis of doubled verbs to other Semitic languages, she concluded that such verbs in Amharic "are not derived by a general rule of spreading" (1984:28). Her primary reason for rejecting this hypothesis was that she identified some verbs that she thought should undergo spreading, but do not. These non-spreading verbs have a geminated final consonant that bears the vowel *ä* in the simple perfect tense, gemination prototypically being found on the penultimate surface consonant. As her prime example, she cited the verb *fäjjä* 'consume', unable to explain why the consonant did not spread and become the anticipated **fäjjäjä*. Since she could not explain why some verbs underwent spreading and some did not, she concluded that McCarthy's spreading hypothesis does not apply to Amharic.

For verbs that are expected to show evidence of spreading but do not, such as *fäjjä*, an explanation that preserves the spreading hypothesis has been proposed: "*fäjjä*... arose because of palatalization of **fdy*" (Mantel Niecko 1963:34).⁹ The explanation builds on

⁹This alternative explanation was proposed by scholars who were not using an approach with any autosegmental bent or trying to defend the spreading hypothesis. Rather, these descriptive linguists made these proposals based on their knowledge of the language and its history (Bender and Fulass 1978:15, Cohen 1970:243, Leslau 1945b:20, 1958:55, 1995:519). Taddese posited roots with final *y* to explain the conjugation of such roots (1972:232). Habte-Mariam (Amharic speaker and historical linguist), following an autosegmental approach, concurred (1994:475). Rose, working within Optimality Theory, adopts the same basic approach (1997:139).

the fact that in almost all cases¹⁰, the final surface consonants of these verbs are palatal consonants: *š, ž, j, c, c', ñ, y*, as in *fäjjä*, 'it consumed', *acc'ä* 'choose a fiancé', *mäššä* 'became evening', *qažžä* 'had a nightmare'. Note that all of these palatal consonants regularly appear as the palatalized counterparts of alveo-dental consonants after regular morphophonemic palatalization processes (Leslau 1995:14) (e.g., *lämaj* 'learner' < *lämmädä* 'learn', *kefaci* 'open! (fem. sg.)' < *käffätä* 'open').

If these non-spreading verbs were to be interpreted as having three underlying consonants, with the third consonant having features related to dorsal articulation, like *y*, a form such as *fäjjä* might be interpreted as having a root $\sqrt{fäy}$. In fact, for *fäjjä* (the very verb cited by Broselow as an exemplar of the exceptional class), Leslau shows a cognate form *fädäyä*, containing a final *y*, in Ge'ez and Tigrinya (1979: vol. 3, 229). Other examples of verbs in this class with final *y* in related languages are given below in (4.7).

(4.7) Amharic verbs with palatalized final consonants with cognates containing final *y*

Amharic verb	gloss	Related form	other language
<i>fäjjä</i>	'finish, complete'	<i>fädäyä</i>	Tigrinya, Ge'ez, Gurage
<i>lacc'ä</i>	'shave'	<i>las'yä</i>	Tigrinya and Ge'ez
<i>näcc'ä</i>	'pull out'	<i>näs'äyä</i>	Ge'ez
<i>mäššä</i>	'become evening'	<i>mäsyä</i>	Ge'ez
<i>qaññä</i>	'tune an instrument'	<i>qanäyä</i>	Ge'ez
<i>mañña</i>	'desire'	<i>mänäyä</i>	Ge'ez
<i>däñña</i>	'judge'	<i>dänäyä / danäyä</i>	Ge'ez

¹⁰There are also some words that have lost a final /w/ on the surface, and there are three exceptional words, but Leslau (1995:519-532) deals with these in a straightforward manner.

On the positive side, there are other lines of evidence that the spreading analysis does indeed apply to doubled verbs in Amharic. One is the fact that some nouns derived from some doubled verbs show no trace of the doubling, as in *šəto* ‘perfume’ from the doubled verb *šättätä* ‘have an aroma’, *qata* ‘asthma’ from *qattätä* ‘gasp’, *t’əla* ‘shadow’ from *t’ällälä* ‘overshadow’, *g^wal* ‘clod turned up by plowing’ from *g^wallälä* ‘follow the plow and break clods’, and *šəbo* ‘wire’ from *šəbbäbä* ‘tie something down’.

Other evidence supporting the spreading analysis for doubled verbs in Amharic includes morpheme structure conditions: the fact that we find many verbs of the shape $C^1C^2C^2$, but almost none of the shape $C^1C^1C^2$ that are not onomatopoeic¹¹ verbs (Leslau 1995:454,455).¹² Also, penultimate reduplication of doubled forms reduplicates the consonant before the doubled consonant, thus treating the consonant before the doubled consonant as the penultimate consonant. For example, the root $\sqrt{šwr}$ gives the verb *šəwärrärä* ‘be cross-eyed’, but when reduplicated by penultimate reduplication, it is the *w*, not the *r*, that is repeated, as in *aššəwawär* ‘manner of being cross-eyed.’

There is also evidence from metathesis that doubled consonants are a single consonant in the root, though only one example has been found for this category. The forms *q^wälämmämä* and *q^wämällälä* both mean ‘twist, wring a neck’ (Kane 1990:701). The consonants *l* and *m* are metathesized, but the doubled consonant is metathesized as a unit, not metathesizing a pair of single consonants, **q^wämällämä*.¹³

An indirect form of evidence for this position that doubled consonants are derived from a single consonant is found in a form of disguised speech described by Demissie

¹¹Onomatopoeic examples of verbs of the shape $C^1C^1C^2$ include *qäqqälä* ‘boil, (v.t.)’.

¹²See Banksira (2000) for a way to derive all $C^1C^1C^2$ from $C^1C^2C^1C^2$ forms in Chaha, and by extension, other E-S languages, elaborating on the long-held assumption that such $C^1C^1C^2$ forms “result from quadriconsonantal forms involving reduplication of a biconsonantal nucleus” (Greenberg 1950:167).

¹³Though Kane listed both forms as possible, the entries from Leslau’s Ge’ez dictionary (1991:429) and dictionaries by native speakers Amsalu (1987:88), Dästa (1970:1066), Ahmed (1993:92) unanimously agree that *q^wälämmämä* is the basic form; the alternate form *q^wämällälä* must arise by metathesis.

and Bender (1983).¹⁴ In this speech form, root final consonants are repeated, as when *säddäbä* ‘insult’ becomes *saydbäb*. When a doubled verb is disguised, it does not result in any lengthening or additional token of the doubled consonant: *wäddädä* ‘like, love’ becomes *waydäd*, not **wayddäd* (1983:334).

This revised analysis of doubled verbs is important to understanding how BCR is applied to doubled verbs of the pattern $C^1C^2C^3C^3$. When BCR is applied to a doubled verb with four surface consonants, such as *t’ämäzzäzä* ‘wound, twisted (v.i.)’, the derived BCR form is *tät’mäzämmäzä* ‘be twisted, coiled (v.i.)’. In such cases, the reduplicated form does not have reduplication of the final two surface consonants of the non-reduplicated verb, **tät’mäzäzäzzäzä*, but reduplicates the doubled consonants as if they were a single consonant, giving *tät’mäzämmäzä*. Leslau seems to have been somewhat aware of this, citing an example but not explaining it. He listed *tät’mälämmälä* ‘wiggle’ from *t’ämällälä* ‘roll up’ with verbs “of the 1.2.3.2.3 type going back to a 1.2.3 type” but explicitly noting that *t’ämällälä* is “1.2.3.3” (1995:568). Also, Littmann and Höfner listed together Tigré *säftätä* ‘hurry’ (v.i.) and *səfəfət* ‘rise in hostility’ (1962:202), but they did not indicate whether they realized that there is this sort of systematic relationship between doubled verbs and BCR forms.

Examples of this process of reduplicating doubled verbs by BCR include *t’ämäzzäzä* ‘wind, twist (v.i.)’ which can produce the inflected verb *tät’mäzämmäzä* ‘be twisted, coiled’ and two BCR adjectives, one without vowels and one with vowels: *t’əməzməz* ‘sinuous, winding’ and *t’ämäzmazza* ‘sinuous’ (Leslau 1976:225). In all cases, the doubled consonant is reduplicated as if it were a single consonant. More examples of BCR forms derived from doubled verbs are given in (4.8).

¹⁴The idea of looking at this form of disguised speech for insights on this issue was inspired by McCarthy’s article studying the same data (1984), though he did not address this point specifically.

(4.8) Examples of BCR forms derived from doubled verbs

doubled verb in perfect tense	gloss	BCR form	gloss of BCR
<i>däbässäsä</i>	'faded, was dim'	<i>tä-dbäsäbbäsä</i>	'became ambiguous'
<i>šäballälä</i>	'rolled up' (v.t.)	<i>tä-šbäläbbälä</i>	'curled up' (v.i.)
<i>t'amällälä</i>	'rolled up'	<i>tä-t'mälämmälä</i>	'wriggle, roll up'
<i>bärätt'ät'ä</i>	'be extremely conceited'	<i>täbrät'ärrät'ä</i>	'be disagreeable'
<i>gälässäsä</i>	'part grass or hair'	<i>tägläsälläsä</i>	'be parted, divided (hair)'
<i>t'amäzzäzä</i>	'be sinuous'	<i>tät'mäzämmäzä</i>	'be twisted, coiled (v.i.)'
<i>g^wälämmämä</i>	'chew with bad teeth'	<i>ag^wlämällämä</i>	'gum one's food'

We see then, that verbs of the form $C^1C^2C^3C^3$ are, at some level, analyzed as triliterals of the form $C^1C^2C^3$, a prediction made a number of years ago about such verbs (e.g., McCarthy 1981). This prediction was motivated by both theory and data from a variety of sources and these Amharic verbs are indeed reduplicated in line with this analysis.

The same pattern for producing BCR forms from doubled verbs is seen in other Ethio-Semitic languages also, confirming the correctness of the spreading analysis in Amharic, as seen in (4.9).

(4.9) Examples of BCR forms derived from doubled verbs in other E-S languages

doubled verb in perfect tense	gloss	BCR form	gloss of BCR form
Ge'ez <i>rämsäsä</i>	'grope'	<i>?a-rmäsmäsä</i>	'seek by feeling' (Leslau 1991:472)
Ge'ez <i>s'ənḥaḥ</i>	'censer' (n.)	<i>?a-s'naḥnəḥa</i>	'swing a censer' (Leslau 1991:560)
Tigré <i>säftätä</i>	'hurry' (v.i.)	<i>səfətfət</i>	'rise in hostility' (Littmann & Höfner 1962:202)
Tigré <i>šänkəḥul belä</i>	'move in circle' (with 'say')	<i>šänkälkäl belä</i>	'become dizzy' (Litmann and Höfner 1962:220)
Tigrinya <i>jəngərər bälä</i>	unclear (Yohannis 1955:707)	<i>jəngərgər. bälä</i>	'spin on one foot' (da Bassano 1918:806)
Tigrinya <i>kəməss bälä</i> ¹⁵	'smile'	<i>a-kmäsmäsä</i>	'smiled' (Leslau 1991:286)
Tigrinya <i>a-n-käbalälä</i>	'roll'	<i>känbäläwläw bälä</i> ¹⁶	'roll (v.i.)' (Yohannis 1955:607)
Gafat <i>ən-käballälä</i>	'roll oneself'	<i>tä-kbäläbbälä</i>	'roll oneself' (Leslau 1956:143,144)
Harari <i>kinbälä</i>	'turn'	<i>kumbulbul bayä</i>	'roll' (Leslau 1979:3.334)

¹⁵Though the Tigrinya form is not doubled, compare the clearly doubled cognate forms Ge'ez *?a-kmosäsä* 'smiled' and Tigré *kəməsəs belä* 'smiled'.

¹⁶The insertion of *-n-* in BCR forms in E-S languages is discussed in section 7.1.

It might be argued that Amharic (together with these other languages) has innovated this process of treating two identical consonants as a single root consonant simply to avoid a long string of identical consonants resulting from BCR. That is, if doubled verbs are reduplicated without any special regard for the doubled consonants, the result would be extremely repetitive (e.g., *t'ämäzzäzä* 'be twisted, coiled (v.i.)' could otherwise reduplicate as something like **tät'mäzäzzäzä*). This would be a logical candidate for haplology.¹⁷ Languages often avoid surface sequences of similar sounds, frequently by haplology, as well as other ways,¹⁸ and it might be argued that this is the reason for reduplicating these doubled roots in this less repetitious way.

However, evidence based both in theory and Amharic data has already been given to show that for doubled verbs, the final two consonant slots of a template are linked to a single phoneme. This analysis of doubled consonants is supported by a variety of data from Amharic and other languages and also linguistic theory. Therefore, there is no need to invoke a special process of haplology or some *ad hoc* strategy merely to avoid a sequence of identical sounds in these cases of BCR.

This dissertation shows that a proper analysis of the way doubled verbs reduplicate by BCR is important in understanding from which roots reduplicated forms are derived. For example, *səqət'qət'*: *alä* 'tremble with fear' could be expected to derive from the verb *säqqät'ä*, but that means 'tell a lie'. Instead, this reduplicated form is derived from the doubled verb *säqätt'ät'ä* 'shiver'. The reverse situation is also found, where *täq^wnät'ännät'ä* 'fidget, be restless' could logically be derived either *q^wännät'ä* 'pinch' or the doubled verb *q^wännätt'ät'ä* 'be restless'. The semantics of these forms indicate that,

¹⁷A clear example of avoiding a sequence of identical phonemes is described in section 4.7.

¹⁸Other ways of avoiding sequences of identical consonants include allomorphy or insertion (Menn and MacWhinney 1984) or by a phonological constraint "output must not contain two identical elements" (Yip 1995).

unlike the example *səqət'qət'*: *alä* just given, this reduplicated form is derived from the verb that is not doubled.

A more noteworthy example is *täškäfäkkäfä*, which means both 'cajole, seek favor' and 'dress up'. Both meanings may appear to be from the same root, $\sqrt{škf}$. Having two meanings for a single form is not impossible, but in this case, it can be explained by pointing out that *täškäfäkkäfä* is derived from two different verbs: *šäkkäfä* 'seek honor or popularity' and the doubled root *šäkäffäfä* 'dress up ostentatiously'. Both the doubled verb and the non-doubled verb are reduplicated by BCR, each retaining its meaning. The form *täškäfäkkäfä* meaning 'cajole, seek favor' is then derived from the root that is not doubled, but the form *täškäfäkkäfä* meaning 'dress up' is derived from the doubled root.

The same sort of situation is found for *täzrät'ärrät'ä*, which can mean 'lag behind, walk slowly' and also 'fart continuously', but the two meanings come from different reduplicated roots. The first meaning is derived from the same root as *tänzärätt'ät'ä*, 'walk slowly', a doubled verb that is obligatorily inflected with the passive prefix *tä* and the *n-* prefix. The second meaning is from the root \sqrt{zrt} , 'be let (of a fart)'. Each of these two roots is reduplicated by BCR and the meaning (or rather part of the meaning) of each is maintained in the meaning of the reduplicated form. By understanding how BCR is applied to doubled verbs, it is possible to understand how different meanings are systematically related to different roots.

In addition to these doubled verbs with four surface consonants like *g^wälämmämä* 'chew with bad teeth' there are also shorter doubled verbs, having only three surface consonants roots, such as *fässäsä* 'leak (v.i.)'. It does not appear that such roots are reduplicated by BCR. If they were, this would presumably produce a form *fäsäffäsä*. Indeed, such a form does exist, but meaning 'blow on a flute'. Presumably this is not the result of BCR applied to the root of the verb *fässäsä* 'leak'; note the lack of a VC prefix on *fäsäffäsä*. Instead verbs of the shape $C^1C^2C^1C^2$ (e.g., *märämmärä* 'investigate'), are

derived by a different mechanism. As was stated in chapter 3, verbs of the shape $C^1C^2C^1C^2$ appear to be derived by a reduplication process other than BCR, so they are not included in this study.

This examination of how doubled verbs are reduplicated by BCR shows their derivation to be not at all exceptional, but rather to be in harmony with how doubled verbs are handled by other points of Amharic phonology. The two tokens of the doubled consonant are treated as relating to a single root consonant in noun derivation, metathesis, penultimate reduplication, and a form of disguised speech. In the same way, doubled verbs are reduplicated by BCR as if the doubled consonant is a single consonant (e.g., the root for *däfät* 'ät'ä 'burst a boil (v.t.)' reduplicates the *f* and the *t*, deriving *tädfät* 'äffät'ä 'be squeezed, burst a boil'.) Also, it has been shown how this understanding of how doubled verbs are derived by BCR leads to better understanding of the relationships between certain roots and the meanings of derived forms. In addition, it has also been shown that this same analysis explains how BCR is applied to doubled verbs in other Ethio-Semitic languages, a point not addressed in previous studies in any of these languages. The fact that the same analysis of doubled verbs and BCR is applicable to these other languages supports the validity of the analysis advanced here.

4.7 Inflection of verb roots with the final *H*

There are verb roots in Amharic whose final consonant is not fully specified, often represented by linguists by the symbol *h*. These final underspecified consonants are generally ascribed to a historic laryngeal or pharyngeal consonant such as *h*, *ʕ*, *ħ*, or *ʔ*, an assumption that Hudson has described as "a rough mirror of the historical facts" (1982:5). For example, Amharic *bärätta* 'be strong' has a cognate in Tigrinya that has a final fully-specified consonant *bärtəse*, Tigrinya and Tigré still maintaining phonemic distinctions among the laryngeal and pharyngeal consonants. The root for the Amharic

verb will be given as *brtH*, using the *H* to represent an underspecified low, back [-consonantal] segment. This *H* will represent different historical consonants that are still represented in the Amharic orthography,¹⁹ but are no longer distinguished in speech.

These verb roots with final *H* can be either of the form C^1C^2H or the longer form $C^1C^2C^3H$, with $C^1C^2(C^3)H$ as a convenient shorthand to refer to both patterns.²⁰ These verbal roots are significant to the present discussion in that BCR can also be applied to these forms, a fact that has gone virtually unnoticed in the literature. Cohen (1970:273) gives indication of having noticed BCR applying to the longer $C^1C^2C^3H$ forms; no other writer, however, has mentioned BCR on the shorter C^1C^2H forms.²¹ Before addressing the manner in which BCR applies to these $C^1C^2(C^3)H$ forms, a short explanation is given to show how these forms differ from other Amharic verbs.

The final *H* in these roots is not simply a convenient fiction. Many cases of phonetic [h] can be shown in derived forms or have an attested historical basis, often seen in forms from related languages. For example, *näqqa* 'be alert' is understood to be from a root *nqH*. The final *h* is seen in the Ge'ez form *nəquh* 'alert'. In other cases, [h] appears in the related derived nouns in Amharic, illustrated in (4.10).

¹⁹The loss of these historical phonemic distinctions in speech is now being lost in the written form of the language as well. Only those who have been taught to maintain these spelling distinctions can do so consistently.

²⁰There are also shorter roots of the shape C^1HC^1H which are applied to four-consonant templates, producing forms of the shape *faffa* 'grow fat, healthy' from the root $\sqrt{f}H$, but it was explained in chapter three that such forms are analyzed as having a different derivation than BCR.

²¹Because the forms derived by BCR from these roots are so phonetically and semantically similar to forms reduplicated by the more common penultimate reduplication, previous authors may not have noticed the differences. This similarity is examined in detail below in 4.5.

(4.10) Examples of roots where a phonetic [h] is discernible in a derived form

gloss	Amharic root	perfect form	cognate	gloss
'fear'	<i>frH</i>	<i>färra</i>	<i>fərhat</i>	'fear (n.)'
'be conceited'	<i>mkH</i>	<i>tä-mäkka</i>	<i>təmkəhət</i>	'conceit'
'shine'	<i>brH</i>	<i>bärra</i>	<i>bərhan</i>	'light (n.)'
'be clean'	<i>ns'H</i>	<i>näss'a</i>	<i>nəs'əhəmma</i>	'cleanliness'
'have mercy'	<i>mHr</i>	<i>marä</i>	<i>məhrät</i>	'mercy'
'absolve'	<i>ftH</i>	<i>fätta</i>	<i>fətəh</i>	'justice'
'treat medically'	<i>Hkm</i>	<i>akkämä</i>	<i>həkməmma</i>	'healthcare'

When a root with a final *H* is inflected for perfect, the presence of this final *H* is indicated on the surface by the fact that the final surface consonant geminates, acting like the underlyingly penultimate consonant that it is, since penultimate gemination is standard in the perfect. Also, the final vowel in the perfect form of verbs is usually *ä*, but for these roots with final *H*, the final vowel is *a*, (unless the surface consonant is a palatal consonant).²² The usual inflectional vowel *ä* coalesces with the final *H* consonant and *a* is the result, as in *zägga* 'shut' from the root \sqrt{zgH} and *gänäbba* 'do masonry' from the root \sqrt{gnbH} . The coalescence of *H* and *ä* producing *a* in perfect verb forms is absolutely regular, found with other types of roots as well, such as \sqrt{rH} (applied to a four-consonant template), which has the perfect form *rarra* 'pity, have mercy'. The *H* is clearly reflected in the noun form *rəhrahe* 'mercy'.

When the final surface consonant of one of these $C^1C^2(C^3)H$ verbs is palatal, this consonant geminates in the perfect. But unlike the vowel following a non-palatal

²²Leslau lists two exceptions to this pattern of non-palatal consonants taking the final vowel *a*: *qärrä* 'remain behind' and *sätt'ä* 'give' (1995:519), plus *alä* 'say'.

consonant, the final vowel is not α , but \ddot{a} , as in *mäššä* ‘shut’ from the root $\sqrt{mšH}$ and *däräjjä* ‘develop (v.i.)’ from the root \sqrt{drjH} . These verbs that end in a final palatal consonant seem to distinguish a different underspecified consonant (Weaver 2000), something with a feature that would cause palatalization. In this dissertation, however, all underspecified consonants are grouped together using the single symbol H , following the work of Bender and Fulass, who found that the rules of the morphology did not differentiate between different abstract consonants (1978:120).

The research for this dissertation has also discovered a significant number of forms derived by BCR from roots of the shape C^1C^2H , a class of roots that has never been described as undergoing this reduplication pattern. Of previous scholars, only Cohen (170:260) has noticed that they were derived by the same pattern that produces the more obvious strings of five consonants, such as *täbäläc’älläc’ä* ‘glittered, sparkled’. As with verbs that are not derived by BCR, the final vowel of verb roots of the class C^1C^2H is not \ddot{a} but a (e.g., *gäbba* ‘enter’ from \sqrt{gbH}).

When roots of the shape C^1C^2H are reduplicated by BCR and then inflected as verbs, the result is very much like inflected verbs derived from roots of three fully specified consonants: there is a VC prefix (either α - or $tä$ -), the first consonant of the root appears with no following vowel, and the last two consonants are repeated. The only minor difference is that when the final two consonants are repeated, the final underspecified consonant is reduced to the vowel α following the previous consonant, and this results in the presence of the vowel α following both instances of C^2 . The perfect template provides for gemination of the penultimate consonant. The result is exactly parallel to that of other three-consonant roots when they are derived by BCR.

(4.11) Examples of inflected verbs derived from C^1C^2H roots by BCR

<i>täbqaqqa</i>	‘be made adequate’	<i>bqH</i>	‘be enough’
<i>a-brarra</i>	‘explain, clarify’	<i>brH</i>	‘shine, illuminate’
<i>adfaffa</i>	‘finish something quickly’	<i>dfH</i>	‘tip over (v.t.)’
<i>aftatta</i>	‘disentangle’	<i>ftH</i>	‘untie’
<i>tä-gbabba</i>	‘reach agreement’	<i>gbH</i>	‘enter’ or ‘be appropriate’
<i>tä-g^wlalla</i>	‘be mistreated’	<i>≠g^wlH</i>	‘be clear, conspicuous’
<i>aqbabba</i>	‘cause to spread by contact’	<i>qbH</i>	‘paint, spread a liquid’
<i>tä-sfaffa</i>	‘enlarge, expand (v.i.)’	<i>sfH</i>	‘become wide’
<i>aslalla</i>	‘ponder, turn over and over in one’s mind’	<i>slH</i>	‘be counted, reckon’
<i>aslalla</i>	‘sharpen somewhat’	<i>slH</i>	‘be sharp’
<i>aslalla</i>	‘have several matters turn out well’	<i>slH²³</i>	‘be in good condition’
<i>täsmamma</i>	‘be in harmony, agree’	<i>smH</i>	‘hear’
<i>täskakka</i>	‘laugh uproariously’	<i>≠skH</i>	‘string beads, insert something’
<i>ašqaqqa</i>	‘be evil, wicked’	<i>*šqH</i>	
<i>awt’att’a</i>	‘cause to tell truth’ ²⁴	<i>wt’H</i>	‘go out’
<i>täznanna</i>	‘feel at ease, relax’	<i>znH</i>	‘rest, be calm & at ease’

²³The fact that there are different verbs represented by the root *slH* is due to the fact that in earlier stages, there were as many as six pharyngeal and laryngeal consonants that were all eventually reduced in this same way, producing a number of homophones in Amharic, such as all of these being pronounced *sälla*. Many of these consonants are preserved in Ge’ez, Tigrinya, and Tigré. The fact that homophonous sounds can be traced to different historical sounds is reflected in Amharic’s orthography, where different symbols are still preserved for these different historical phonemes. Today’s speakers must memorize which of four letters to write for the sound [h] in certain words. In doing historical reconstruction, these roots could be cited with H^1 , H^2 , H^3 , but in this study, they will all be cited as simply having the final consonant *H*, with the understanding that this is a broad abstraction.

²⁴The semantic link between the reduplicated form and the non-reduplicated form is not obvious. It may be best to understand ‘cause to tell the truth’ as ‘bring out the truth’.

Though there is no published explanation of the derivation and inflection of these verb forms, some scholars clearly had some intuitions. For example, Bender and Fulass seem to have had a similar understanding of at least one of these forms when they identified the root of *tä-g^wlalla* as $\sqrt{g^w}IH$ with the notation that it is “duplicated” (1978:119,130). For the same word, Dästa’s dictionary entry for *täg^wlalla* linked it to *g^wälla* (1970:2151), though the non-reduplicated form has an entirely different meaning. Also, Kane seems to have sensed something of this when he cited the stem of *ašqaqqa* ‘be evil, wicked’ as “*šäqqa” (1990:628). However, he did not do so for other verbs of this type. Both of these BCR forms that scholars have noted as being reduplicated from C^1C^2H roots appear only when reduplicated by BCR, with no non-reduplicated attestation of their roots (a situation similar to many roots with three fully specified consonants).

However, there is no sign of scholars dealing systematically with the forms derived by BCR from attested verb roots of the shape C^1C^2H , such as *täsfaffa* ‘enlarge, expand (v.i.)’ from the verb *säffa* ‘widen (v.i.)’. This is probably related to the fact that these verbs can also be reduplicated by penultimate reduplication, producing forms with nearly identical shapes and semantics, such as *täsäfaffa* ‘broaden one another’, with further examples seen in sections 4.15 and 4.16. Both Cohen and Leslau showed that they were aware of the fact that these sets of slightly different forms co-existed, but gave no indication that they understood that they are derived by two different types of reduplication. Cohen considered *täsämamma* to be the more basic form, and *täsmamma* to be merely an alternate form (1970:242,260). Leslau wrote that such roots sometimes use the passive prefix with “two different forms,” as in *täsämamma* and *täsmamma*. Also, with the causative prefix there are two “variants,” as in *asäfaffa* and *asfaffa*. Leslau

discussed meaning differences very briefly when he noted “whenever there is concurrence of both forms, there is a difference in meaning” (1995:512).

It is important to compare these forms derived by BCR to the very similar forms derived by penultimate reduplication from the same class of C^1C^2H roots. These other forms phonetically resemble those derived by BCR, but are derived by a different pattern, that is, *täsäffa* ‘to broaden one another’ is the result of penultimate reduplication while *täsfaffa* ‘enlarge (v.i.)’ is the result of BCR, both from *säffa* ‘become broad’. Evidence will be presented that these forms result from two different types of reduplicated forms, derived by two different reduplication processes.

It is important at this point to review some details of penultimate reduplication. The penultimate consonant of a root is reduplicated to mark such concepts as repetition, intensity, reciprocity. This process also involves the insertion of the augment vowel *a* immediately following the first token of the repeating consonant, and the gemination of the penultimate consonant.

(4.12) Examples of penultimate reduplication on three-consonant roots, with inserted */a/* underlined

root	gloss	perfect	penultimate reduplicated form	gloss
<i>mls</i>	‘return’	<i>mälläsä</i>	<i>tä-mäl<u>all</u>äsä</i>	‘commuted’
<i>q^wrt’</i>	‘cut’	<i>q^wärrät’ä</i>	<i>tä-q^wär<u>arr</u>ät’ä</i>	‘was cut into pieces’
<i>bt’s</i>	‘snap (rope)’	<i>bätt’äsä</i>	<i>tä-bät’<u>att</u>’äsä</i>	‘snapped several times’

With a root of the shape C^1C^2H , the results of penultimate reduplication in the perfect are a bit different. As with roots that have three fully specified consonants, the penultimate consonant is repeated, the last token is geminated, and the augment vowel *a*

appears before the geminated consonant. Just as with the non-reduplicated perfect forms of these C^1C^2H roots, the final vowel is *a*. This is shown in (4.13).

(4.13) Examples of penultimate reduplication on roots of the shape C^1C^2H , with internal /a/ underlined

<i>bt'H</i>	'incise skin'	<i>bätt'a</i>	<i>tä-bät'<u>att</u>'a</i>	'cut one another'
<i>mtH</i>	'strike'	<i>mätta</i>	<i>tä-mät<u>atta</u></i>	'be struck lightly'
<i>nsH</i>	'take away'	<i>nässa</i>	<i>näs<u>assa</u></i>	'take in small amounts'

Understanding that penultimate reduplication inserts vowels immediately after the first token of the reduplicating consonant provides an explanation of the origin of the first of the *a* vowels in forms such as *näsassa* and *tä-säfaffa*. The second of the *a* vowels is the result of the usual process that gives a vowel *a* from a root-final *H*. Reduplicated forms of roots of the C^1C^2H class, whether reduplicated by BCR or penultimate reduplication, in the perfect will have a final sequence $-C^2aCC^2a$, though the penultimate vowels are inserted by different processes. Contrasting derivations of a C^1C^2H root and a $C^1C^2C^3$ derived by BCR are shown in (4.14).

(4.14) Sample derivations of inflected verb with roots C^1C^2H and $C^1C^2C^3$
 (the order of the steps is only for illustrative purposes)

	C^1C^2H	$C^1C^2C^3$
root gloss	'relax'	'gush out'
abstract root	<i>znH</i>	<i>flq</i>
BCR	<i>znHnH</i>	<i>flqlq</i>
prefixation	<i>tä-znHnH</i>	<i>tä-flqlq</i>
inflection (vowels and gemination)	<i>tä-znäHännäHä</i>	<i>tä-fläqälläqä</i>
vowel-laryngeal coalescence	<i>tä-znanna</i>	--
surface form	<i>tä-znanna</i>	<i>tä-fläqälläqä</i>

Examples of the similarities and differences between BCR and penultimate reduplication on roots of the shape C^1C^2H are presented in (4.15).

(4.15) Examples showing the similarities and differences between BCR and penultimate reduplication on roots of the shape C^1C^2H

gloss of non-reduplicated form	'become wide'	'strike'	'untie, understand'
root	<i>sfH</i>	<i>mtH</i>	<i>ftH</i>
perfect	<i>säffa</i>	<i>mätta</i>	<i>fätta</i>
BCR form	<i>t-äsaffa</i>	<i>a-mtatta</i>	<i>a-ftatta</i>
BCR gloss	'enlarge, expand (v.i.)'	'bang objects together (v.t.)'	'disentangle, explain'
penultimately reduplicated form	<i>tä-säffaffa</i>	<i>a-mmätatta</i>	<i>a-ffätatta</i>
penultimately reduplicated gloss	'to broaden one another'	'cause to strike one another'	'explain, interpret'

Surface similarities between these sets of forms are obvious. All the forms carry a VC prefix. Also, in all cases, the final surface consonant is repeated, with the second instance of it geminated. Additionally, the vowel following both of these tokens of the consonant is *a* (reflecting the fact that the final consonant of the root is an underspecified *H*), not the usual vowel *ä* of the perfect, producing the final sequence $-C^2aC^2C^2a$.

Two significant differences between forms of the *täsaffa* type and *täsäffaffa* type are also clear. First, in *täsäffaffa* and *ammätatta*, the initial consonant carries an inflectional vowel, something never found on Amharic verbs derived by BCR. Second, when the penultimately reduplicated form is marked with the causative prefix *a-*, the result can have root-initial consonant gemination, *affätatta* 'explain' and *assäffaffa* 'cause to broaden one another'. This root-initial gemination of the root-initial consonant with a causative prefix never happens in BCR, but is frequent in penultimately reduplicated

forms of other root patterns, such as *ammälalläsä* 'to take back and forth' from the root \sqrt{mls} . Further examples of root initial gemination on causative forms derived by penultimate reduplication are presented in (4.16).

(4.16) Examples of forms with roots of the pattern C^1C^2H and the *a*- prefix, showing the difference in gemination on forms derived by two different patterns of reduplication

root	root gloss	BCR form	gloss	penultimate reduplication	gloss
<i>brH</i>	'shine'	<i>abbrarra</i>	'clarify, explain'	<i>abbärrarra</i>	'turn on lights'
<i>gbH</i>	'enter'	<i>agbabba</i>	'bring to agreement'	<i>aggäbabba</i>	'help to marry'
<i>smH</i>	'hear'	<i>asmamma</i>	'cause to get along, to agree'	<i>assämamma</i>	'cause to be heard'
<i>dfH</i>	'tip over (v.t.)	<i>adfaffa</i>	'finish something quickly'	<i>addäfaffa</i>	'impose collective punishment'
<i>wt'H</i>	'go out'	<i>awt'att'a</i>	'cause to reveal the truth'	<i>awwät'att'a</i>	'elicit from various sources'

Further evidence that the forms of the *täsfaffa* type and *täsäfaffa* type are derived by different mechanisms is the way that some pairs of passive and causative forms derived by BCR will have different semantics than those derived by penultimate reduplication. For example, from the root *brH* 'shine, illuminate', there are both causative and passive forms derived by both BCR and penultimate reduplication. The forms derived by BCR both share the metaphorical idea of illumination: *abbrarra* 'clarify, illustrate, explain' and *täbrarra* 'be explained, clarified'. By contrast, the form derived

by penultimate reduplication has the more literal meaning: *abbärrarra* 'turn on lights'. Further examples of the way that forms derived by BCR and penultimate reduplication have different meanings are given in (4.17).

(4.17) Examples of forms derived by BCR and penultimate reduplication from roots of the shape C^1C^2H , but having different meanings

root	root gloss	BCR form	gloss	penultimate reduplication	gloss
<i>brH</i>	'shine'	<i>abbrarra</i> <i>täbrarra</i>	'clarify, explain' 'be explained, clarified'	<i>abärarra</i>	'turn on lights'
<i>gbH</i>	'enter'	<i>agbabba</i> <i>tägbabba</i>	'bring to agreement' 'reach an agreement'	<i>aggäbabba</i> <i>tägäbabba</i>	'help to marry' ²⁵ 'be married to each other'
<i>smH</i>	'hear'	<i>asmamma</i> <i>täsmamma</i>	'cause to get along, to agree' 'get along, be in harmony, agree'	<i>assämamma</i> <i>täsämamma</i>	'cause to be heard' 'be heard somewhat'
<i>ffH</i>	'consume, finish off, burn up'	<i>afjajjä</i> <i>täffajjä</i>	'squander, use up quickly' 'be squandered, be used up quickly'	<i>afäjajjä</i> <i>täfäjajjä</i>	'cause to shout or slaughter one another' 'make outcry, wipe out one another'
<i>blH</i>	'eat'	<i>ablalla</i> <i>täblalla</i>	'ponder a matter thoroughly' 'be digested (food or idea)'	<i>abälalla</i> <i>täbälalla</i>	'have wrongdoer pay compensation' 'be passed to victim (of compensation)'

²⁵The verb 'marry' is a causative of the verb 'enter', *a-gäbba*, a specialized meaning closely based on the literal meaning.

In some cases (at least according to Kane's data), the BCR and penultimate forms no longer have distinct meanings. For example, he cites *täsärarra* and *täsarra*, but says they both mean 'to be put in order'. Similarly, he cites *assärarra* and *asrarra* and says both mean 'cause to be put in order' (1990:480). As a further example, he says *aslalla* means the same as *assälalla* 'have something put in rather good condition' and also *asälalla* 'put something in rather good condition' (1990:438). In such cases, the form derived by BCR has lost its original meaning and is now merged with the forms derived by penultimate reduplication.

This section has shown that reduplicated forms derived from roots of the shape C^1C^2H , such as *täsfaffa* and *täsäfaffa*, have surface similarities, but are derived by totally different processes. Forms like *täsfaffa* are the result of BCR applied to roots of the shape C^1C^2H , but forms with the vowel after the root-initial consonant like *täsäfaffa* are the result of penultimate reduplication applied to roots of the same C^1C^2H shape. In (4.18), further examples of C^1C^2H roots that are reduplicated by both BCR and by penultimate reduplication are given.

(4.18) Examples of C^1C^2H roots that have forms derived by penultimate reduplication and by BCR (data from Kane 1990)

gloss of non-reduplicated form, page	root	penultimate reduplication	gloss of penultimate reduplication	BCR	gloss of BCR
'be red'	<i>qlH</i>	<i>aqälalla</i>	'make red'	<i>aqlalla</i>	'verge on red'
'be jealous, be proper'	<i>qnH</i>	<i>aqqänamma</i>	'cause to be jealous'	<i>aqnamma</i>	'recommend someone'
'be enough'	<i>bqH</i>	<i>abbäqaqqa</i>	'distribute evenly by small amounts'	<i>abqaqqa</i>	'use economically'
'wake up (v.i.)'	<i>nqH</i>	<i>tänäqaqqa</i>	'wake up (v.i.)'	<i>tänqaqqa</i>	'be parched (throat)'
'hear'	<i>smH</i>	<i>täsämamma</i>	'be heard to a great extent'	<i>täsmamma</i>	'agree, be in harmony'

The BCR analysis of forms like *asfaffa* is supported by examples from Tigrinya, such as *asfahfah* 'spread, widen' from the cognate root *sfh* 'be wide'. If this form were not derived by BCR, but was derived by penultimate reduplication, it would be something like *asäfafah*.

Roots of the shape C^1C^2H in which C^2 is a palatal consonant, such as *mäsšä* 'become evening' < $\sqrt{mšH}$, cannot be reduplicated by BCR and then inflected as verbs. Rather, they can be derived only as lexical bases. Efforts to generate inflected verbs from roots of the shape C^1C^2H in which C^2 is a palatal consonant were rejected, such as **abjäjä* from \sqrt{bjH} 'do well'.

Some forms may appear to be from a root C^1C^2H , but are not. For example, *tä-nt'att'a* 'crackle, sizzle' and *a-nt'att'a* 'cause to crackle' could be from a root $\sqrt{nt'H}$, but there are related forms without the initial *n-*, such as *t'att'a alä* 'crackle'. Therefore, this set of forms must be analyzed as having not only the VC prefix *tä-*, but also the prefix *n-*, on a root of the shape $\sqrt{t'H}$ (which is applied to a four-consonant template) not from a root $\sqrt{nt'H}$. (This prefix is found in a number of forms and is discussed in 6.1.)

There is one form reduplicated by BCR from a root of the class CCH that does not use the default consonant *t*: *mästäratəʔat* 'means for straightening out' (Kane 1990:214). This form appears to be from *mästärʕatʕat* (following the conservative orthography which retains the letter that indicates *ʕ* in Ge'ez), and is reduplicated from the root \sqrt{rtH} 'straighten out'. The first *ʕ* dropped out after the *r*, leaving only the vowel. The use of default *t* to fill the slot of the *H* is not applied here because the root already contains an adjacent *t*. The expected rules of derivation would be expected to produce a form **mästärtattat*, creating a sequence of *t*'s. The application of metathesis, moving the *t* of the root so that it follows the *H*, avoids this repetitious sequence.

4.8 Differences between inflecting bases derived by BCR and five-consonant roots

The inflection of verbs derived by BCR is based on the inflection of verbs with four root consonants. This is not the same inflectional pattern as for five-consonant verb roots, the true "quinciliterals," in which the initial consonant of the root is followed by a phonemic vowel in all grammatical forms, such as *yəwäsänəggər* 'interlacing (impf.)' (Leslau 1995:1043), as seen in (4.19). This difference in the appearance of a vowel after the initial root consonant is an additional reason to avoid using the term "quinciliteral" to refer to forms derived by BCR, since the five-consonant non-reduplicated roots follow a different pattern for inflection.

(4.19) Comparison of forms from five-consonant root with three-consonant root derived by BCR and a four-consonant root (Leslau 1995:1038,1043)

	five-consonant root	BCR from three-consonant root	four-consonant root, <i>tä-</i> stem
root	<i>wšngr</i>	<i>blc' > blc'</i>	<i>mskr</i>
gloss	'interlace'	'glitter'	'testify'
perfect	<i>wäšanäggärä</i>	<i>täbläc 'älläc 'ä</i>	<i>tämäsäkkärä</i>
imperfect	<i>yəwäšanäggər</i>	<i>yəbläc 'älläc '</i>	<i>yəmmäsäkkär</i>
jussive	<i>yəwäsängər</i>	<i>yəbläc 'läc '</i>	<i>yəmmäskär</i>
imperative	<i>wäsängər</i>	<i>täbläc 'läc '</i>	<i>tämäskär</i>
gerund	<i>wäsängəro</i>	<i>täbläc 'lc 'o</i>	<i>tämäskəro</i>
agent	<i>wäsängəri</i>	<i>täbläc 'läc 'i</i>	<i>tämäskəri</i>
infinitive	<i>mäwäsängär</i>	<i>mäbläc 'läc '</i>	<i>mämmäskär</i>
instrument	<i>mäwäsängəriya</i>	<i>mäbläc 'läc 'iya</i>	<i>mämmäskəriya</i>

4.9 Classes of verb roots that cannot be inflected as verbs when reduplicated by BCR

As was stated in section 3.14, there are certain classes of roots that cannot be reduplicated by BCR, such as C^1HC^2 . Also, as has been stated in 4.6, verb roots of four consonants cannot be inflected if they are reduplicated by BCR, unless they are shortened by consonant deletion (explained in section 7.5).

There is a class of roots from which very few words are reduplicated by BCR, those of the shape $HC^1C^2(C^3)$. However, there are no inflected verbs that are derived from verbal roots of the class HC^1C^2 . There is one inflected verb that may appear to be from this class, *ahäräggärägä* 'draw designs, interlace' which would appear to be

derived from the verbal root \sqrt{Hrg} . However, it is derived not from a verb root but from the noun *haräg* 'vine'.

There are a few other examples of words that appear to be derived from $HC^1C^2(C^3)$ roots, but none of these reduplicated forms are inflected as verbs. They can be nouns such as *əfəgfəg* 'things crowded or bunched together' from \sqrt{Hfg} 'enclose, cram together'. They can also be lexical bases, such as *hələmləm: alä* 'disappear, vanish'. The use of BCR to derive lexical bases is very productive and is explained in chapter 5.

CHAPTER 5

BCR AND COMPOUND VERBS

5.1 Introducing compound verbs

Forms derived by BCR are often used in some E-S languages in “compound verb” constructions, with the derived form functioning as the lexical base that provides the semantic component for a dummy verb. This chapter explains compound verbs and discusses how compound verbs are derived by BCR from different classes of roots, such as $C^1C^2C^3$, $C^1C^2C^3C^4$, $C^1C^2C^3H$, C^1C^2H . Just as chapter 4 explained how a set of uniform underlying principles apply to all classes of BCR forms (despite surface differences), this chapter will show that compound verbs are derived from different root classes by a consistent set of principles, even though there are some surface differences.

“Compound verb” constructions¹ are formed of an uninflected lexical base and an inflected dummy element, usually the verb ‘say’. Lexical bases are the semantic element in these compound verbs. Many lexical bases exist only as lexical bases and are not related to any inflected verb. As an example of an uninflected lexical base in a compound verb, consider *quc*’; this form carries the semantics of ‘sit’ but is never inflected. The morpheme *quc*’ only appears as a lexical base with inflected forms of the verb ‘say’, as seen in (5.1).

¹Leslau earlier referred to these constructions as “compound descriptive verbs” (1945b:25, 1958:70, 1966:596). Later, he changed his preference to the label “composite verbs” (1975:130, 1995:580), reserving the word “compound” for a different purpose, Hetzron also choosing the term “composite” (1975:113). Cohen, writing in French, referred to them as “verbes composés” (1970:203).

Samarin has helpfully observed of such constructions “This is comparable to the use of *go* in English (e.g., *It went kerflooy*)” (1970:166), in that ‘*go*’ is conjugated but has no semantic content, while the lexical base ‘*kerflooy*’ carries the semantic content but is not conjugated.

Compound verbs are a common feature in all modern E-S languages, reflecting a borrowing from Cushitic languages (Palmer 1974, Ferguson 1976:1, Tosco 2000:346). The basic facts of how compound verbs are used and conjugated in Amharic are well described (Cohen 1970:266ff, Leslau 1995:580ff).

(5.1) Forms illustrating compound verbs, using the stem *quc'*: ‘sit’:

<i>quc'</i> : <i>alä</i>	‘he sat down’
<i>quc'</i> : <i>aläc</i>	‘she sat down’
<i>quc'</i> : <i>bäl</i>	‘sit down!’
<i>quc'</i> : <i>ännälallän</i>	‘we will sit’
<i>quc'</i> : <i>malät</i>	‘to sit’

The term “lexical base” will be used here to refer to uninflected lexical elements used in compound verbs, regardless of whether they are related to other forms or exist only in their uninflected form. In Amharic, lexical bases often have no relation to any existing root, such as the lexical base *quc'*: which has no cognate verb or noun. Other lexical bases are derived from verbal roots; for example ‘fall’ can be expressed by an inflected verb *wäddäqä* or by the vowel-less compound verb derived from the same root: *wäddäq. alä* ‘fall suddenly’.”

Although compound verbs are most frequently used with the verb ‘say’, two other verbs are also used as the inflected verb in a compound verb construction. The verb *adärrägä* ‘do’ is used to make transitive constructions, as in *kəffət: adärrägä* ‘open suddenly and completely’. Kane adds “*wätt’a* [‘go out’] occurs with quinquiliteral elements to form compounds expressing the result of an intensive action *bətəntənu wätt’a* ‘to be scattered’ ” (1990:1584). Some lexical bases can be used with only one of these dummy verbs, a few can be used with each of these three verbs, each one giving a slightly different meaning, such as *məsqəlqəl* ‘be in disorder’, found in the first row of (5.2a,b,c). Examples of these three dummy verbs in compound verb constructions are shown in (5.2), with lexical bases that are reduplicated by BCR, the lexical bases having no vowels, except the epenthetic vowels inserted by the phonology of the language.

(5.2a) Examples of BCR forms with ‘say’

root gloss	root	duplicated form with ‘say’	duplicated gloss
‘be in disorder’	√ <i>msql</i>	<i>məsqəlqəl: alä²</i>	‘be in complete disorder’
‘be mixed’	√ <i>dblq</i>	<i>dəbləqləq: alä</i>	‘become extremely mixed’
‘be wrinkled’	√ <i>k^wmtr</i>	<i>k^wəmtərtər: alä</i>	‘shrivel’
‘serve quickly’	√ <i>qlt’f</i>	<i>qəlt’əft’əf: alä</i>	‘show skill’
‘hunch up’ (v.i.)	√ <i>k^wrtm</i>	<i>k^wərtəmtəm: alä</i>	‘hunched up’
‘become weak-sighted’	√ <i>dngz</i>	<i>dəngəzgzəz: alä</i>	‘become dusk’

²The final consonant of a lexical base regularly lengthens in compound verbs with ‘say’ and ‘do’, but with ‘go out’, *u* is added instead, with no gemination.

(5.2b) Examples of BCR forms with 'do'

root gloss	root	duplicated form with 'do'	duplicated gloss
'be in disorder'	√msql	<i>məsqəlqəl: adärrägä</i>	'put in complete disorder'
'force in, break'	√brqs	<i>bərqəsqəs: adärrägä</i>	'force into violently'
none	*√zrk	<i>zəkrəkək: adärrägä</i>	'made messy'
'extend'	√zrga	<i>zərgətgət: adärrägä</i>	'extend completely'
'split' (v.t.)	√snt'q	<i>sənt'əqt'əq: adärrägä</i>	'split into many small pieces'
'crunch'	√q ^w rt'm	<i>q^wərt'əmt'əm: adärrägä</i>	'chew to a pulp'

(5.2c) Examples of BCR forms with 'go out'

root gloss	root	duplicated form with 'go out'	duplicated gloss
'be in disorder'	√msql	<i>məsqəlqəlu wätt'a</i>	'get in complete disorder'
'demolish'	√frs	<i>fərsərsəsu wätt'a</i>	'fall into pieces'
'be interspersed'	√snkr	<i>sənkərkəru wätt'a</i>	'be in disorder'
'turn over'	√glbt'	<i>gəlbət'bət'u wätt'a</i>	'become completely confused'

A verb root having been reduplicated by BCR can be used as a lexical base in compound verbs. The inflected verbal element is marked for all the same tense, gender, number, mood, and other categories as regular inflected verbs (e.g., *ləmətmət alä* 'he

gnawed', *ləmətmət aläc* 'she gnawed', *ləmətmət bälu* 'gnaw! (2nd pl)', *ləmətmət yəlallu* 'they will gnaw').

All modern Ethio-Semitic languages that use BCR use it in compound verb forms, with some languages also using BCR to produce verbs stems that are fully conjugated. In Harari and Silt'e, two languages from the Southern branch of E-S, the use of BCR is limited to compound verb constructions. The significance of this point is discussed in greater detail in chapter 9.

5.2 Lexical bases derived by BCR from roots of the shape C¹C²C³

When verb roots of three consonants are reduplicated by BCR, the derived string may be inflected as a verb, as was shown in chapter 4. It is also common for the derived string to be used as a lexical base in a compound verb. This derived string of five consonants will be syllabified by the insertion of epenthetic vowels. Examples of lexical bases derived from three-consonant roots are presented in (5.3).

(5.3) Examples of lexical bases derived from C¹C²C³ roots by BCR

vowel-less form	gloss	root	root gloss
<i>ləbəsəbəs alä</i>	'embellish'	\sqrt{lbs}	'dress'
<i>mələt'lət': alä</i>	'be completely bald'	\sqrt{mlt}	'become bald'
<i>nət'əlt'əl: alä</i>	'become detached'	$\sqrt{nt'l}$	'detach'
<i>qərəbrəb: alä</i>	'approach each other'	\sqrt{qrb}	'come close'
<i>ərgət'gət'³ adärrägä</i>	'trample repeatedly'	\sqrt{rgt}	'trample'

³Note that with the consonant *r*, the epenthetic vowel appears ahead of the consonant when it is word-initial (Hayward 1986:317, Leslau 1995:34).

As is the case for roots that are derived by BCR then inflected as verbs, a number of lexical bases derived by BCR from three-consonant roots do not exist in non-reduplicated form. For example, *həɾəc 'rəc*: *alä* means 'make a grating noise', but there is no non-reduplicated form from the root \sqrt{hrc} '. Also, for some lexical bases the semantics of the reduplicated lexical base is quite different from the non-reduplicated verb (e.g., *lək^wəmk^wəm*: *alä* 'be mannered, be lazy' has a very different meaning from the non-reduplicated verbs formed from the same consonants *läkk^wämä* 'chatter, be argumentative').

5.3 Lexical bases derived by BCR from roots of the shape $C^1C^2C^3C^4$

Roots with four different consonants can be reduplicated by BCR, but unlike three-consonant roots, the resulting stem cannot be inflected as a verb. The only way to carry the verbal meaning of a four consonant root that has been reduplicated by BCR is in a compound verb construction. The formation of compound verbs from roots of four consonants is basically the same as for roots of three consonants. Again, as was the case for a number of lexical bases derived by BCR from three-consonant roots, some of the roots do not exist in non-reduplicated form (e.g., there is *bəc 'rəqrəq*: *alä* 'be a failure' but no non-reduplicated form with the root $\sqrt{bc'rq}$). Also, some have very different semantics than the matching non-reduplicated verbs. For example *gärbädbäd*: *alä* means 'walk stumbling over stone', but the non-reduplicated form *gäräbbädä* means 'open a door wide'.

5.4 Compound verbs and vowels

When lexical bases are derived by BCR, epenthetic vowels are inserted into the strings of consonants of lexical bases derived by BCR by the same general epenthesis rules as in other types of Amharic words, as given by Hetzron (1964), Hayward (1986),

Leslau (1995:42-44), Podolsky (1971), and Hudson (in press), plus one additional rule for BCR forms, to be discussed below. Briefly, these rules prevent initial consonant clusters, prevent three consonant sequences word internally (even heterosyllabically), and limit final consonant sequences to certain specified ones, based on sonority. For three-consonant roots, this means that all vowel-less forms will syllabify as follows: $C^1\text{ə}.C^2\text{ə}C^3.C^2\text{ə}C^3$ (e.g., *c'ə.ləm.ləm: alä* 'become dark').

The additional rule for inserting epenthetic vowels in forms derived by BCR requires that the first of the two reduplicated consonants must always be a syllable onset, even if the other rules of epenthesis might allow it to be part of a coda. The result is that in lexical bases the reduplicated consonants usually form their own syllable. The reduplicated string *hrc'rc'* could be syllabified by the insertion of epenthetic consonants as **hər.c'ərc'*, meeting the general conditions of Amharic epenthesis. But the first of the reduplicated consonants must be a syllable onset, *hər.əc'.rəc'*: *alä* 'make a grating noise'. Another example where the effects of this rule can be clearly observed is *fər.əs.rəs* 'dilapidated': the rules of epenthesis would otherwise be expected to insert the minimal number of epenthetic vowels, producing **fər.sərs*.

A minor permutation is found when lexical bases are used with the verb *wätt'a* 'go out', in which case a final vowel *u* is attached to the end of the lexical base (e.g., *fər.əs.rəs.u wätt'a* 'fall to pieces' and *gəl.bət'.bət'u wätt'a* 'become completely confused'). In this process the lexical base will manifest insertion of a final *u*, *məs.qəl.qəl.lu wätt'a* 'get in complete disorder' rather than the word-final consonant of *məs.qəl.qəl: alä*, 'be in complete disorder', changing the syllabification by making the final consonant a syllable onset. However, the first of the two reduplicating consonants is still syllable-initial, though the syllabification rules might be expected to produce **fər.sər.su*.

For BCR forms derived from four-consonant roots, the string of consonants syllabifies in much the same way, only having a closed first syllable, $C^1\text{ə}C^2.C^3\text{ə}C^4.C^3\text{ə}C^4$, as in *sən.t'əq.t'əq: alä* 'split all over'. As always, the first of the two reduplicated consonants is a syllable onset. In the definition of BCR given in chapter 3, it was specified that the final two consonant phonemes of the root reduplicate as a unit, but this does not require that they form a single, inviolable syllable. Examples of strings of reduplicated consonants and possible syllabifications are seen in (5.4).

(5.4) Examples of strings of reduplicated consonants and possible syllabifications

root	BCR string	disallowed syllabification	required syllabification	gloss
\sqrt{hrc}	<i>hrc'rc'</i>	* <i>hər.c'ərc'</i>	<i>hərəc'.rəc': alä</i>	'make a grating noise'
\sqrt{frk}	<i>frkrk</i>	* <i>fər.kərk</i>	<i>fərək.rək</i>	'crumbling'
\sqrt{lks}	<i>lksks</i>	* <i>lək.səks</i>	<i>ləkəs.kəs</i>	'trifle (n.)'
$\sqrt{bc'rq}$	<i>bc'rqrq</i>	* <i>bə.c'ər.qərq</i>	<i>bəc'.rəq.rəq: alä</i>	'be a failure'

BCR has been described in Hebrew as repeating the last syllable, where the reduplicating consonants, together with a vowel, form a single syllable on the surface, as summarized in section 3.10. This is not strictly the case in Amharic, but the reduplicant does begin a syllable, even if it does not close the final surface syllable.

It cannot be required that the two reduplicated consonants form their own syllable on the surface since the reduplicated string can have a vowel-initial suffix *-u*. In this case, the final consonant will become the onset to a new syllable with the suffix vowel (e.g., *fərəs.rəs.u wätt'a* 'fall to pieces' and *gəl.bət'.bət'u wätt'a* 'become completely confused'). Understanding this rule as part of the reduplication process produces a way

to predict the proper syllabification of BCR forms. This syllabification of BCR forms is consistent, providing a solution to Leslau's frustration that "there is no valid rule" for why a string *lksks* is syllabified as *lə.kəs.kəs* and not **lək.səks* (1995:44).

When phonemic vowels are inserted to mark diminished meanings as in (5.5) (diminution being explained in greater detail below), these vowels are inserted in the same places as the epenthetic non-phonemic vowels, such as *c'älämläm: alä* 'become a little bit dark' which inserts phonemic vowels in the same positions as the epenthetic vowels in *c'ələmləm: alä*. This follows the same rules of epenthesis and syllabification as mentioned above for vowel-less forms, including the additional rule that the first of the two reduplicated consonants must be an onset.

In all the Semitic languages that use BCR, all examples follow this rule that the first of the two reduplicated consonants is a syllable onset, such as Modern Hebrew *šrav.rav* 'plumber' not **šra.varv*; Syriac *?et-xlam.lam* 'have bad dreams' not **?et-xal.malm*; Arabic *ga.šam.šam* 'brave' not **gaš.mašm*.

The portion of the root that is reduplicated is not obviously definable as a unit by prosodic criteria, despite the claims of McCarthy and Prince (1990b and 1998). However, the fact that the reduplicant always begins a new syllable, even when the syllabification rules of a language do not obviously require this, suggests that the output of BCR is sensitive to a prosodic principle of some sort.

Whether unreduplicated or reduplicated by BCR, roots used in compound verbs manifest two patterns of vocalization. This patterning is first explained and illustrated with non-reduplicated roots. The forms without phonemic vowels are the most common and basic, the semantically unmarked forms, such as *c'alləm: alä* 'become dark' from the root $\sqrt{c'lm}$. To express the same verb, but with diminished intensity, the phonemic vowel *ä* is inserted, *c'alläm: alä* 'become somewhat dark' (Taddese 1980:123, Amberber 1996, Leslau 1995:586). The diminished intensity is not marked on the

inflected verb of the compound verb, but only on the non-inflected lexical base. In some cases, only the diminished form is listed by Kane, with no intensive form. Further examples of these patterns are shown in (5.5).

(5.5) Examples showing lexical bases with and without vowels, distinguishing intensity

root	gloss	diminished	intensive
$\sqrt{c'lm}$	'become dark'	<i>c'äläm: alä</i>	<i>c'alləm: alä</i>
\sqrt{sbr}	'break'	<i>säbär: adärrägä</i>	<i>səbər: adärrägä</i>
$\sqrt{mšH}$	'become evening'	<i>mäsät: alä</i>	<i>məšət: alä</i>
$\sqrt{glt'm}$	'stagger (a person who has tripped)'	<i>gält'ämt'äm: alä</i>	--
\sqrt{zgyH}	'be late'	<i>zägyät: alä</i>	<i>zəgəyət: alä</i>

Under the principle of iconicity, a related form with more phonological substance is expected to have more intensity than a word with less phonological substance. In the words of Lakoff and Johnson, "More of form is more of content" (1980:127). Therefore, a lengthened or repeated segment generally indicates a greater intensity. This principle of iconicity is seen in Amharic in penultimate reduplication.

(5.6) Examples showing iconic reduplication, penultimately

gloss	non-reduplicated form	reduplicated form	reduplicated gloss
'demolish'	<i>afärräsä</i>	<i>afärarräsä</i>	'demolished repeatedly'
'break'	<i>säbbärä</i>	<i>säbabbärä</i>	'break into many pieces'
'plaster'	<i>märrägä</i>	<i>märarrägä</i>	'plaster all over'

In the examples in (5.6), more of phonological form is more of semantic content, the penultimately reduplicated forms being more intensive. In the lexical bases shown in (5.5), the forms with more phonological form (more phonemes) have less semantic content, counter to what is expected by principles of iconicity. The marking of less intensity by insertion of vowels in lexical bases of compound verbs is also found in Tigrinya⁴ (Mason 1996:106). It is expected that this pattern will be found in other E-S languages, if investigators specifically look for the possibility, especially in Tigré and Argobba. No explanation for this non-iconic pattern in compound verbs has been proposed within Ethio-Semitic.

In a way parallel to the non-reduplicated lexical bases just discussed, lexical bases derived by BCR and used in compound verbs are also marked for diminished intensity by insertion of phonemic vowels (Dawkins 1969:49 and Cohen 1970:267).

⁴Mason's data does not include any BCR forms. Some BCR forms from da Bassano's dictionary suggest that the use of vowels to diminish the meanings of BCR forms may not be used in Tigrinya, or at least not as systematically. For example, the following pair differ only by their vowels, but seem to be unrelated semantically, *käräbräb bälä* 'walk upright' and *käräbräb bälä* 'be full, feel swollen from drinking too much' (1918:592).

(5.7) Examples showing lexical bases with and without vowels, distinguishing intensity

root & gloss	diminished	intensive
<i>c'lm</i> 'become dark'	<i>c'älämläm: alä</i>	<i>c'älämläm: alä</i>
<i>sbr</i> 'break'	<i>säbärbär: alä</i>	<i>säbärbär: alä</i>
<i>t'qr</i> 'be black, dark'	<i>t'äq^wärq^wär: alä</i>	<i>t'äq^wärq^wär: alä</i>
<i>snt'q</i> 'split'	<i>sänt'äqt'äq: alä</i>	<i>sänt'äqt'äq: alä</i>

Some lexical bases that have no relation to any inflected verb root also undergo BCR, a point not addressed in the literature. For example, the non-reduplicated base *c'ərəq* is never inflected, but is always used together with a conjugated form of the verb 'say' *c'ərəq: alä* meaning 'urinate in bursts or squirts'. When reduplicated by BCR, the longer form can serve as the lexical base for a compound verb: *c'ərəqrəq: alä* 'to be let (a little urine)' (Kane 1990:2216). Somewhat surprisingly, a few lexical bases that are not related to any non-reduplicated, inflected verb root can be reduplicated by BCR and then inflected as full verbs. For example, when this base *c'ərəq* is reduplicated by BCR, the result can be inflected as in *täc'räqärräqä* 'drip (v.i)'. Examples of lexical bases that are reduplicated by BCR then inflected as verbs are given in (5.8). In all of these cases, the non-reduplicated forms are only lexical bases and are not inflected. They are only inflected as verbs in reduplicated form.

(5.8) Examples showing lexical bases reduplicated, then inflected as full verbs

BCR verbal form	gloss	root found only in compound base	gloss of the compound verb
<i>täc'räqärräqä</i>	'drip'	<i>c'əɾəq: alä</i>	'urinate in bursts or squirts'
<i>tätg^wälägg^wälä</i>	'billow up (smoke)'	<i>təg^wələl: alä</i>	'billow (of smoke)'
<i>tənb^wəs^wəs: alä</i>	'soft, yielding (of flesh)'	<i>tənb^wəs: alä</i>	'be or look plump'
<i>täq^wläc'älläc'ä</i>	'blink'	<i>q^wələc': alä</i>	'be open (eye)'

Lexical bases that are used in compound verbs can also be reduplicated by BCR to be bases for compound verbs by other E-S languages as well, shown in (5.9). Note that in their non-reduplicated form, two of these examples are doubled verbs, the reduplication of which is discussed in 4.6.

(5.9) Lexical bases reduplicated by BCR in other Ethio-Semitic languages

BCR form	BCR gloss	non BCR form	non-BCR gloss
Tigrinya <i>jəngərgər bälä</i>	'spin on one foot' (da Bassano 1918:806)	<i>jəngərər: bälä</i>	unclear (Yohannis 1955:707)
Tigrinya <i>qəzəḥzəḥ bälä</i>	'be numb with extreme cold'	<i>qəzəḥ bälä</i>	'shudder with cold' (Yohannis 1955:368)
Tigré <i>šänkälkäl belä</i>	'become dizzy'	<i>šänkälul belä</i>	'move in circle' (Littman and Höfner 1962:220)

5.5 Lexical bases with final *H* and the insertion of epenthetic *t*

For roots with final *H*, there is a use of the default consonant *t* that is important in understanding the formation of lexical bases, whether non-reduplicated or reduplicated by BCR. This addition of an epenthetic *t* in the formation of lexical bases has not been described as a regular, productive process, but is an integral part in the derivation of some BCR forms. This is another example of the use of *t* as a default consonant, a concept first explained in 4.3. For roots with final *H*, in a number of grammatical constructions, a slot linked to [-consonantal] *H* (the underspecified glide consonant), must be filled by a segment that is [+consonantal]. When this happens, the slot linked to the *H* is filled by the default coronal consonant *t*, as in the gerund form *gäzt-o* from the root \sqrt{gzH} 'buy'.

This process has been well described for gerunds and infinitives, but without suggesting any motivation as to why this particular consonant was chosen (Hudson 1985b:49, Leslau 1995:510,521,560ff). Broselow was the first to point this out as an

instance of *t* being used as a default consonant in Amharic (1984),⁵ as was discussed in section 4.3.

The use of the coronal *t* for a default consonant is not surprising, either in terms of broader linguistic patterns or of other facets of Amharic morphophonology. The consonant *t* has also been described as a default consonant in the Semitic languages Ge'ez, Chaha (Banksira 2000a:9,10), and Maltese (Hume 1996).

The use of default *t* is most commonly seen root finally with the infinitive and gerund forms of verbs that have geminated final consonants (roots of the class $C^1C^2(C^3)H$). The insertion of *t* for lexical bases comes in the same position, as well. The insertion of epenthetic *t* to fill a consonant slot is found when a segment specified as [+consonantal] is needed to fill a slot where the root contains an underspecified consonant, one symbolized in the root by *H*. This is most commonly found when a root with a final *H* is derived as an "infinitive",⁶ such as *mä-gza-t* 'to buy', or a "gerund" such as *gäzt-o*, 'buying,' as seen in (5.10). The infinitive form is consonant-final, so in these the epenthetic *t* is stem final and word final (unless possessed), as seen in *mä-gzat* < \sqrt{gzH} 'buy'. The gerund stem ends in a consonant also, but always with a vowel-initial suffix marking person and number, so the epenthetic *t* is always the syllable onset, as in *gäzt-o* 'buying'.

⁵Lombardi has since rejected this "default consonant" analysis. A brief discussion of her position is given in section 4.3.

⁶Also called "verbal noun" by some Amharic scholars, such as Leslau (1995).

(5.10) Examples of infinitives and gerunds on three different root types, showing use of default *t*

roots	root type	gloss	derived forms with epenthetic <i>t</i> underlined	part of speech
\sqrt{gzH}	C^1C^2H	'buy'	<i>mä-gz<u>t</u></i>	infinitive
$\sqrt{t'rg}$	$C^1C^2C^3$	'sweep'	<i>mä-t'<u>r</u>äg</i>	infinitive
\sqrt{zrgH}	$C^1C^2C^3H$	'raise up'	<i>mä-zärg<u>t</u></i>	infinitive
\sqrt{gzH}	C^1C^2H	'buy'	<i>gäz<u>t</u>-o</i>	gerund
$\sqrt{t'rg}$	$C^1C^2C^3$	'sweep'	<i>t'<u>r</u>g-o</i>	gerund
\sqrt{zrgH}	$C^1C^2C^3H$	'raise up'	<i>zärg<u>t</u>-o</i>	gerund

This use of the default consonant will be shown to be important in deriving lexical bases from verb roots of the shape $C^1C^2(C^3)H$, whether or not they are derived by BCR. For example, the verb *säläccä* 'be boring' is from the root \sqrt{slcH} , with an underspecified final segment. When a verb root is reduced to a vowel-less form to be the lexical base in a compound verb with 'say' or 'do', the final consonant becomes geminated, seen in the derivation of *kəbəd: alä* 'be very heavy' from \sqrt{kbd} 'be heavy'. Providing a final consonant that will be geminated for \sqrt{slcH} , the default *t* is added, *səlcət: alä* 'be bored'. The discovery of this use of the default consonant, on the end of $C^1C^2(C^3)H$ roots when used in compound verb constructions, is important to understanding how these roots are reduplicated by BCR. Examples of epenthetic *t* being used to fill consonant slots in Amharic forms derived from roots of the form $C^1C^2(C^3)H$ are contrasted with a root that has three fully specified consonants in (5.11).

(5.11) Examples of *t* being used to fill consonant slots in forms derived from roots of the form $C^1C^2(C^3)H$ contrasted with a root that has three fully specified consonants

	$C^1C^2C^3$	C^1C^2H (final <i>a</i>)	C^1C^2H (final <i>ä</i>)	$C^1C^2C^3H$
root gloss	'sweep'	'buy'	'differ'	'extend'
perfect	<i>t'ärrägä</i>	<i>gäzza</i>	<i>läyyä</i>	<i>zärägga</i>
root	$\sqrt{t'rg}$	\sqrt{gzH}	\sqrt{lyH}	\sqrt{zrgH}
infinitive	<i>mä-t'räg</i>	<i>mä-gzaṭ</i>	<i>mä-läyät</i>	<i>mä-zärgat</i>
gerund	<i>t'ärg-o</i>	<i>gäzt-o</i>	<i>läyät-o</i>	<i>zärgat-o</i>

There are a number of examples of fully inflected verbs derived by BCR from verb roots of the shape C^1C^2H (as explained in section 4.7). For these fully inflected verbs, the underspecified [-consonantal] segment is not replaced by the default coronal consonant as is the case in deriving lexical bases for compound verbs. Just as with verbs that are not derived by BCR, derived bases must have fully specified consonants. For inflected verbs in the perfect, however, this is not required; instead, the final vowel is not the usual vowel *ä* but *a*, and the final surface consonant is geminated, as seen in *gäbba* 'enter' from \sqrt{gbH} .

When a verb root is derived to be the lexical base in a compound verb with 'say' or 'do', the final consonant is geminated (e.g., the root \sqrt{kbd} as in *käbbädä* 'be heavy' becomes *käbäd: alä*). When the final consonant of a verb root is underspecified,⁷ to derive a lexical base to use with 'say' or 'do' in compound verbs, the consonant *t* is added and geminated in final position, then a vowel is inserted before the *t*, just as it normally is for final segments of lexical bases. This insertion of *t* results from the fact that the underspecified [-consonantal] segment cannot be geminated, so the *t* is inserted

⁷This can be alternatively stated as "when the final consonant of a past tense form is geminated," the two both being ways of describing almost exactly the same class of examples.

providing a [+consonantal] that can be geminated. Examples of *t* used to provide a [+consonantal] final segment for BCR are presented in (5.12).

(5.12). Non-reduplicated lexical bases that use a final *t* in place of an underspecified [-consonantal] segment

gloss	perfect	root	derived lexical base, with <i>t</i>	gloss of compound verb
'pierce, perforate'	<i>bässa</i>	\sqrt{bsH}	<i>bəsət: adärrägä</i>	'pierce quickly'
'shut'	<i>zägga</i>	\sqrt{zgH}	<i>zəggət: alä</i>	'be completely closed up'
'explode'	<i>fänädda</i>	\sqrt{fndH}	<i>fəndət: alä</i>	'burst suddenly'
'be boring'	<i>säläccä</i>	\sqrt{slcH}	<i>səlcət: alä</i>	'be bored'
'separate into categories'	<i>läyyä</i>	\sqrt{lyH}	<i>läyät: alä</i>	'differ somewhat'
'become evening'	<i>mäššä</i>	$\sqrt{mšH}$	<i>mäšät: alä</i>	'become a little late in evening'
'consume, finish'	<i>fäjjä</i>	\sqrt{fjH}^8	<i>fəjjət: adärrägä</i>	'finish off completely'
'pull out, tear off'	<i>näcc'ä</i>	$\sqrt{nc'H}$	<i>nəcc'ət: adärrägä</i>	'pluck completely'
'be late'	<i>zägäyyä</i>	\sqrt{zgyH}	<i>zəgəyət: alä</i>	'be very late'

⁸Diachronically, the root can be analyzed as having had *d* as its second consonant, evidence for this given in section 4.6, but for this point, the more synchronic root with /j/ is used from Bender and Fulass (1978:120).

The lexical base built on the root \sqrt{zgH} 'shut' is instructive, showing the addition of the word final $-t$, *zəggət: alä*. This form fits the rule just described above. The importance of this $-t$ is seen when this form is compared to a lexical base which has the same two initial consonants as this verb, but lacking the third underspecified segment: *zəg: alä* 'go slowly'. The lexical base for *zəg: alä* is not ever used as a verb, and there is no evidence of a underspecified final segment.

When a verb root with an underspecified final [-consonantal] segment is used in a non-reduplicated compound verb and marked for the diminished quality of the verb by the use of vowels, the default t is not used, *zäga adärrägä* 'shut somewhat', not *zägat adärrägä*. When phonemic vowels are inserted to mark the diminished meaning, the vowels will be the same as in the perfect form of the verb. That is, the final vowel is not \ddot{a} but a . When vowels are used in marking the diminished form, these roots do not take the default $-t$, but have the vowel a in final position, as in *mäta mäta adärrägä* 'tap' from \sqrt{mtH} 'strike', not **mätat mätat adärrägä*. Examples of this are seen in (5.13). Note that in these examples of lexical bases, unlike in the perfect, there is no gemination.

(5.13) Examples of lexical bases with phonemic vowels, marking diminished qualities

root	perfect	perfect gloss	diminished lexical base	diminished gloss
\sqrt{zgh}	<i>zägga</i>	‘shut’	<i>zäga adärrägä</i>	‘shut somewhat’
\sqrt{mtH}	<i>mätta</i>	‘strike, hit’	<i>mäta mäta</i> <i>adärrägä</i>	‘tap’
$\sqrt{q^w t^H}$	<i>tä-q^w ätt^a</i>	‘be angry’	<i>q^w ät^a alä</i>	‘be a little angry’
$\sqrt{nt^H}$	<i>nätt^a</i>	‘be white, clean’	<i>nät^a alä</i>	‘be somewhat white’
\sqrt{lffH}	<i>läffa</i>	‘tire oneself’	<i>läfa alä</i>	‘be somewhat tired’
\sqrt{smH}	<i>sämma</i>	‘hear’	<i>säma adärrägä</i>	‘be heard somewhat’

However, when forms marked by vowels for diminished intensity are reduplicated by BCR, the *t* is obligatorily inserted in both slots then geminated in final position, as in *mäsätsät: alä* ‘become a little dark’.

The data gathered for this dissertation show that this insertion of the consonant *t* in final position applies only to lexical bases derived from verbal roots. A number of lexical bases are not from verb roots, but are only found as lexical bases, such as *quc*: *alä* ‘sit’, with no other use of *quc*’ without an inflected dummy verb. In such cases, even if the final consonant is a palatal (otherwise a qualification to have the final *t* added), the *t* is not added, producing *fänkæc: alä* ‘flinch’, *not *fänkæcət: alä*. There is no inflected verb from this root (**fänäkäccä*). These lexical bases end with palatal consonants, but unlike the roots of inflected verbs, they do not end with an underspecified segment: these lexical bases were coined with fully specified final palatal consonants.

(5.14) Lexical bases that do not add a final *t* after a palatal consonant and have no cognate inflected form

lexical bases with final palatal consonants	gloss	unacceptable addition of word final <i>t</i>
<i>fənkəc: alä</i>	‘flinch’	* <i>fənkəcət: alä</i>
<i>qʷələc': alä</i>	‘be open (eye)’	* <i>qʷələc'ət: alä</i>
<i>quc': alä</i>	‘sit’	* <i>quc'ət: alä</i>
<i>hərc'rəc': alä</i>	‘make a grating noise’	* <i>hərc'rəc'ət: alä</i>
<i>tuš: alä</i>	‘make a hissing sound’	* <i>tušət: alä</i>

If the final consonant of an inflected verb root is a doubled consonant such as *fäcc'äc'ä* ‘ooze pus’ (see section 4.6), even if it is a palatal consonant, then the *t* is not inserted when deriving a lexical base, producing *fəc'əc': alä* ‘squeeze a boil a little’, not **fəc'əc'ət: alä*. Compare this to *nəcc'ət adärrgä* ‘pluck completely’ from $\sqrt{nc'H}$.

5.5.1 Lexical bases derived by BCR from roots of the shape C^1C^2H

As with inflecting derived strings derived by BCR from roots of the form C^1C^2H , the final segment is reduplicated, but in a slightly different form. When roots of the form C^1C^2H are derived to form lexical bases for compound verbs, the underspecified glide consonant is replaced by the coronal default *t*.

(5.15) Examples of lexical bases derived from C^1C^2H roots by BCR

vowel-less form	gloss	root	root gloss
<i>nəfətfət: adärrägä</i>	'cause to become greatly bloated'	\sqrt{nfH}	'become swollen, blow'
<i>zəgətgət: alä</i>	'be completely closed up'	\sqrt{zgH}	'close'
<i>t'əgətgət: alä</i>	'be short'	$\sqrt{t'gH}$	'be close'
<i>ləyətyət: alä</i>	'become separated'	\sqrt{lyH}	'separate'
<i>mäsätsät: alä</i>	'get somewhat dark'	$\sqrt{mšH}$	'become evening'

Note that in the last example, *mäsätsät: alä*, phonemic vowels have been inserted into the lexical base to mark diminution, a point explained above in 5.4.

5.5.1.1 Lexical bases derived by BCR from roots of the shape HC^2H

Kane's dictionary includes only one example of an HC^1H verb that undergoes BCR and is used as a lexical base, but other roots of this shape can also be reduplicated. For these, the default *-t* takes the final slot in the root and the initial consonant slot is phonetically empty, but still must be followed by the epenthetic vowel *ə*. This is illustrated in a form such as *əšətšət: adärrägä* 'clean completely by rubbing between hands' from the root $\sqrt{HšH}$, which has the non-reduplicated form *aššä* in the perfect, meaning 'clean by rubbing between hands'. These ways of dealing with the slots containing *H* in the root are not unique to BCR, but can also be found in non-reduplicated forms of the lexical base (e.g., *əšət: adärrägä* 'clean intensively by rubbing between hands'). The default consonant is not used word-initially for lexical bases, **təšətšət*.

5.5.2 BCR forms derived from roots of the shape $C^1C^2C^3H$

It has been noted that roots with four consonants can be reduplicated and that the resulting stems are used in compound verbs (Cohen 1971:270 and Leslau 1995:569). However, there has been no discussion of roots of the form $C^1C^2C^3H$. As with roots of the shape C^1C^2H , the slot of the final segment is filled by the default consonant in lexical bases. Though examination of Kane's dictionary uncovered only two examples of BCR applied to roots of the shape $C^1C^2C^3H$ (*bəlsətšət alä* 'be completely ruined' and the neologism *gənbətəbatta* 'aggradation, building up a slope or bank'), this class of four-consonant roots can be systematically reduplicated by BCR. Although fact has been overlooked by previous scholars, it has been confirmed by native speakers of Amharic who provided the forms in this section. These forms are reduplicated in much the same manner as other four-consonant roots used as the lexical bases for compound verbs. The small difference in their derivation is that the final consonant of the root (H), is not reduplicated as $[h]$, but rather its place is taken by t . This derivation is otherwise exactly parallel to the application of BCR to roots that have four fully-specified consonants, producing such forms as *wəlkəfkəf. alä* 'be hobbled, have crooked legs' from the root \sqrt{wlkf} 'hinder, hobble', only with t filling the final consonant slot, as in *zərgətət. alä* 'raise up repeatedly' from the root \sqrt{zrgH} . Examples of lexical bases derived from four-consonant roots by BCR are presented in (5.16).

(5.16) Examples of vowel-less forms derived from $C^1C^2C^3H$ roots by BCR

vowel-less form	gloss	root	root gloss
<i>bəlšətšət alä</i>	‘be completely ruined’	$\sqrt{blšH}$	‘be ruined’
<i>fəndətət alä</i>	‘explode repeatedly’	\sqrt{fndH}	‘explode’
<i>zərgətət alä</i>	‘raise up repeatedly’	\sqrt{zrgH}	‘extend’

Lexical bases derived from roots of the shape $C^1C^2C^3H$ follow the usual patterns found in other four-consonant forms, but inserting *t* as the final consonant. This discovery of the application of BCR to roots of the shape $C^1C^2C^3H$ is new, but it is not surprising when the function of the default *t* is better understood.

5.6 Lexical bases derived by BCR from “doubled verbs”

As was shown in 4.6, a number of verbs repeat the final consonant of the root in inflected forms. It was shown there that when these roots are reduplicated by BCR and inflected as verbs, the doubled consonant is treated as a single consonant. In the same way, when the roots of such verbs are reduplicated by BCR and then used as lexical bases, the doubled consonant is treated as a single consonant, as seen in (5.17).

(5.17) Lexical bases derived from the roots of doubled verbs

perfect	perfect gloss	BCR lexical base	BCR gloss
<i>šämäqqäqä</i>	'cinch tight' (v.t.)	<i>šəməqməq: alä</i>	'shrink (of cloth)' (v.i.)
<i>säqätt'ät'ä</i>	'shudder'	<i>səqət'qət': alä</i>	'tremble, shiver'
<i>däbäzzäzä</i>	'be dull (of mind), be clouded'	<i>dəbəzbəz: alä</i>	'be confused'

5.7 Lexical bases derived by BCR from roots of the shape $C^1C^2C^3C^4C^5$

Though previous scholars did not address the matter of deriving forms from five-consonant roots by BCR, the same principles apply as for roots of three and four consonants. There are only a very few roots in Amharic of the pattern $C^1C^2C^3C^4C^5$, but again, lexical bases are derived by reduplicating the final two consonants and inserting epenthetic vowels by the usual syllabification rules. From the five-consonant root $\sqrt{wšnggr}$ 'interlace', the lexical base *wəšəngərgər:* is derived by BCR, producing *wəšəngərgər: adärrägä* 'interlace many things'. Such reduplication produces a very long string of seven consonants, again showing the deficiency of the term "quintiliteral" to refer to forms derived by BCR.

This form was not found in Kane (1991) nor heard in spontaneous conversation, but was presented by the author to a native speaker who readily accepted and defined it. Clearly such a form is on the margin of common usage and must be viewed with some caution, but note that it follows precisely the principles of BCR laid out for more typical types of roots.

CHAPTER 6

REDUPLICATED FORMS WITH AMBIGUOUS DERIVATIONS RELATED TO PREFIXES

6.0 Prefixes and BCR

The study of BCR finds direct application in the study of some forms that may be analyzed either as derived by BCR or as containing prefixes. Though the derivations of most forms derived by BCR are straightforward and structurally unambiguous, there are a number of forms that have homophones or ambiguous derivations due to possible prefixation. These arise when an identical sequence of phonemes results from BCR applied to a root and from the application of prefixes to roots of the shape $C^1C^2C^1C^2$. This chapter will also show that it is not always clear if certain consonants are root-initial or prefixal, not only synchronically but also diachronically. That is, some segments which may have been prefixes historically have been more recently reinterpreted as being part of the root of a BCR form: for some forms, it is not transparent whether the initial consonant of a form is part of the root or whether it is a prefix. There are cases where speakers may have reanalyzed what were originally prefixes as part of the root.

Some of these points of ambiguity have been resolved by a careful study of BCR, including a study of the frequency of certain consonants in root initial position, cognates in related languages, and a questionnaire administered to native speakers. However,

despite these efforts, the morphological origin of some cases cannot yet be resolved, because earlier forms have been reanalyzed.

6.1 The prefix *n-*

In Amharic, there are very few inflected verbs derived by BCR that have an initial consonant *n*, as seen in *tänqäšsaqqäšä* 'smash (v.i.)' from the root $\sqrt{nqš}$ 'break'. On closer analysis, even some of these few are suspicious, seeming to have a prefix *n-*.

In Amharic and across E-S there is a verbal prefix *n-* often related to movement, but with a certain broadness in its meaning. In Chaha, its function has been described as indicating "local movement,"¹ that is movement within a limited space (Prunet and Petros 1996:305). In Tigrinya, Leslau had described its function as marking "verbs with an expressive value (movement, noise, etc.)"² (1941:108). In Tigré, Leslau characterized it as having "an expressive meaning (movement, noise, etc.)" (1945:14). In Argobba, Leslau characterized its function as marking "mainly movement, noise, light, and so on" (1997:88).³ In Amharic, he described the functions of this prefix as including the "expressivity of movement" and also of noise, space, emotions (Leslau 1995:491).

In Amharic, verbs prefixed with *n-* always have an additional prefix, either *a-* or *tä-*, just as with inflected verbs that are formed by BCR. Leslau, in fact, refers to these forms as units, *an-* and *tän-* as single prefixes in his discussion of the prefix *n-* in Amharic (1995:491). However, there are derived nouns that have the *n-*, but without either of the transitivity prefixes, evidence that the *n-* should be treated as a separate

¹"mouvement local"

²"Verbes a valeur expressive (movement, bruit, etc.)"

³There are also nouns and a verb in Argobba that contain *-n-* inserted after the first vowel, but this is a different process (Leslau 1997:8,79).

prefix by itself, as in *ən-qəsqaše* 'a movement' related to *tä-n-qäsaqqäsä* 'move about' and *ən-kəbəl* 'round tablet, pill' related to *tä-n-käballälä* 'roll something'.

This *n-*, together with the transitivity prefix, is almost exclusively prefixed to four-consonant roots,⁴ including forms that have fewer consonants on the surface, but four consonants underlyingly, such as *tä-n-g^wagg^wa* 'make a rumble'. While these forms can be a variety of shapes, including, $n-C^1C^2C^3C^3$, $n-C^1C^2C^3C^4$, the most common shape is $n-C^1C^2C^1C^2$. In some cases, parallel forms with and without the *n-* prefix are found, confirming that the *n-* is a prefix in these forms. But in many other cases, roots are found only with the prefix. A sample of Amharic verbs with prefixal *n-* is given in (6.1).

ታላቅ ገረገሮች ላይ
 ገረገሮች ላይ ገረገሮች
 ገረገሮች ላይ ገረገሮች

⁴There is a single example of the prefix *š-* being attached to a three-consonant verb. Alongside *näqq^wärä* 'make a hole in a gourd to extract insides', we find *šänäqq^wärä* 'make a hole in a pot or gourd'.

(6.1) Amharic verb roots that appear with and without prefixal *n-*

gloss without prefix	root	prefix	prefixed form	prefixed gloss
'rouse, stimulate'	\sqrt{qsqs}	<i>tä-n</i>	<i>tä-n-qäsaqqäsä</i>	'moved about'
'throw down in wrestling'	\sqrt{dbl}	<i>tä-n</i>	<i>tä-n-däbalälä</i>	'roll self in the dust'
'one sitting comfortably, with legs crossed (n.)'	\sqrt{zrf}	<i>a-n-</i>	<i>anzäraffät'ä</i>	'cause to sit comfortably'
'crowd noise'	\sqrt{gHgH}	<i>tä-n-</i>	<i>tä-n-gagga</i>	'make noise in large group'
'rumble'	$\sqrt{g^wHg^wH}$	<i>tä-n-</i>	<i>tä-n-g^wagg^wa</i>	'make a rumble'
'droopy' (adj.)	\sqrt{zrf}	<i>tä-n-</i>	<i>tä-n-zäraffäfä</i>	'droop'

Because *n-* is often prefixed to verbs of the shape $C^1C^2C^1C^2$, forms with this prefix may appear to be derived by BCR. For example, *tänqäsaqqäsä* could be interpreted either as being derived by BCR from a root \sqrt{nqs} , or as being derived from a root \sqrt{qsqs} with a prefix *n-*. In fact, some authors have grouped forms that are derived by $n-C^1C^2C^1C^2$ together with forms derived by BCR from roots of three consonants (Buckley 1990:79, fn. 11).

There are, of course, genuine BCR forms derived from verbs with an initial *n-*, *nəwət'wət'a* 'trembling, shaking' < \sqrt{nwt} 'shake, agitate'. In this case, the *n*-initial, non-reduplicated form confirms that the *n*-initial reduplicated form is derived by BCR; it does not arise by prefixing *n-* in the pattern $n-C^1C^2C^1C^2$.

It may be because of the potential for such ambiguity (in the minds of native speakers as well as outside linguists) that there are so few forms with a clearly root-initial *n-* that are reduplicated by BCR. (Based on a study of the forms found in appendix A, only 3% of the forms reduplicated by BCR begin with *n-*, 19 of 569.) Of the few BCR forms Kane listed that do begin with *n-*, there is only one structurally unambiguous case of an *n-*initial BCR form inflected as a verb, the verb *tānqāšāqqāšā* 'smash (v.i.)' from the attested non-reduplicated root *nqš* 'break'. That is, the forms with root-initial *n-* that are derived by BCR are almost entirely nouns, adjectives, or lexical bases.

The analysis of this *n-* prefix in relation to BCR has three possibilities. First, there are forms that can morphologically be derived equally by BCR from a three-consonant root or by prefixing *n-* to a root of the shape $C^1C^2C^1C^2$. Second, there are forms where the root never appears without *n-*, so it is not clear if the *n-* is truly a prefix or part of the root. Third, there are enigmatic forms that seem to have plausible derivational links to both *n-*initial three-consonant forms and to forms derived by the pattern $n-C^1C^2C^1C^2$, the exact etymologies of these forms being obscure.

Wajnberg seemed to sense in Tigrinya the potential confusion arising from the differing derivations of forms with prefixal *n-* and roots with initial *n-*. Under the heading "Verbal stems with prefix"⁵ he listed some forms that clearly have a prefix, such as *anzäg^wzäg^wä* 'cook legumes' which is related to the non-prefixed noun form *zög^wzag^wä* 'cooked legumes' (1932:84). He labeled this derivation pattern as "*angabrada*," noting the initial *n-* prefix. Then, still under the same heading, he listed forms that seem to have root-initial *n-*, such as *anhärhärä* 'threaten' with related non-reduplicated roots: Ge'ez \sqrt{nh} 'be enraged' and Tigrinya \sqrt{nh} 'be furious'. Wajnberg pointed out that the latter form was, in his terminology, of the pattern *agbarbara* rather

⁵"Verbalstämme mit Präfix"

than *angabrada*. He did not explain how clearly he understood the ambiguity of these words with initial *n*.

6.1.1 Forms that could arise from either BCR on an *n*-initial root or *n*-prefixed to $C^1C^2C^1C^2$

The first type of structural ambiguity related to *n*- is the most straightforward, forms which can be equally derived by BCR or by prefixing *n*- to a root of the shape $C^1C^2C^1C^2$, as in *tānšārāššārā* 'go on excursion'. This form could be derived by BCR from the root \sqrt{nsr} 'aggravate a situation'. Morphologically, it is equally possible to derive it from the root $\sqrt{sršr}$ as seen in the noun *šarāššar* 'an excursion'. By the semantics, and not the morphology, it is clear that *tānšārāššārā* is derived by prefixing *n*- to a root of the shape $C^1C^2C^1C^2$, not by BCR from the root \sqrt{nsr} .

However, a set of $nC^1C^2C^1C^2$ forms which have plausible non-reduplicated roots but whose semantics radically differ, is given in (6.2).

(6.2) $nC^1C^2C^1C^2$ forms which have plausible non-reduplicated roots with semantic differences

$nC^1C^2C^1C^2$ forms	gloss	plausible $C^1C^2C^1C^2$ root	gloss of $C^1C^2C^1C^2$ root	plausible $C^1C^2C^3$ root	gloss of $C^1C^2C^3$ root
<i>tā-nqäsäqqäsä</i>	‘move (v.i.)’	<i>qsqs</i>	‘move’	<i>näqqäsä</i>	‘comb out, pick out’
<i>tā-nšäräššärä</i>	‘go on excur- sion’	<i>šršr</i>	‘excursion’	<i>näššärä</i>	‘aggravate a situation’
<i>tā-nqäläqqälä</i>	‘burn brightly’	<i>qlql</i>	‘burn’	<i>näqqälä</i>	‘uproot’

For the forms given in (6.2), the semantics make it clear that the form of the pattern $nC^1C^2C^1C^2$ is derived from the root of the shape $C^1C^2C^1C^2$, not by BCR from the n -initial root.

6.1.2 Forms of the shape $n-C^1C^2C^1C^2$ with no evidence of a root $C^1C^2C^1C^2$

The second set of ambiguous n -initial forms contains those where the $nC^1C^2C^1C^2$ stem never appears without n -. That is, it is not clear from its phonological shape whether the form *tānšäräššärä* ‘go on excursion’ is derived by prefixing n - to a base *šäräššärä* or whether it is derived by BCR from a root \sqrt{nr} . In a case like this, because of the existence of the cognate noun *šərəššər* ‘excursion’, we can be safe in assuming that *tānšäräššärä* is derived by prefixing n -, rather than by BCR.

However, there are many forms with no such obvious clues as to the origin of the n -. For example, the form *ancäläccälä* ‘read rapidly, fry meat’ has no cognate form,

noun or verb, without the *n-*, such as **cäläccälä*. Moreover, there is no attested root **ncl*. By the rules of derivation, this form could just as plausibly be derived by BCR from a root *ncl* or an *n-*prefixed form *n-clcl*. There is no morphological clue in the form itself.

However, there is a strong indication in the statistics about such forms. Based on the data collected from Kane's dictionary (1990), there is only one unambiguous case of an inflected verb form that is clearly derived by BCR from a three-consonant root with initial *n-*, viz. *tänqäsaqqäsä* 'smash (v.i.)' from the root $\sqrt{nqš}$ 'break'. By contrast, there are at least 25 inflected verb stems⁶ of the shape $nC^1C^2C^1C^2$ where the same root is found both with and without initial *n-*, such as *tänqäsaqqäsä*, 'moved about' and *qäsaqqäsä* 'roused, stimulated'. These cases can then all be analyzed as cases of prefixation. Therefore, statistically, if an inflected verb of the shape $nC^1C^2C^1C^2$ with no attested root (either $C^1C^2C^1C^2$ or $C^1C^2C^3$) is found, it would be highly surprising that it was from a root of the shape $C^1C^2C^3$. Also, many of the verbs of the shape $nC^1C^2C^1C^2$ have a meaning that is consistent with the idea of movement, the most frequently noted concept related to this prefix, such as *tä-nq^wäräqq^wärä* 'to flow slowly in a thin stream', which has no related form without the *n-* prefix.

Sometimes, the candidate three-consonant root does in fact exist, but there is no independent evidence of a base $C^1C^2C^1C^2$ without *n-*. For example, there is *ang^wärägg^wärä* 'grumble', and also a three-consonant verb that could plausibly be morphologically related: *nägg^wärä* 'clarify butter by melting'. However, the semantics are unrelated and there is no form **g^wärägg^wärä* without the *n-* prefix. Therefore, it seems best to interpret *an-g^wärägg^wärä* as being unrelated to the non-reduplicated three-

⁶This category was not systematically counted during the statistical counts made from Kane's dictionary. Rather it is based on an actual list of forms compiled simply in passing. Therefore, the real figure for this category of $C^1C^2C^1C^2$ words both with and without initial *n-* is much higher.

consonant verb root. Since there are no unambiguous cases of *n*-initial inflected verbs that are derived by BCR, it seems best to classify verbs such as *ang^wärgg^wärä* as being derived by prefixing *n*- to otherwise unattested bases of the shape $C^1C^2C^1C^2$, rather than classifying them as derived by BCR from $\sqrt{ng^wr}$.

In discussing possibly *n*-prefixed forms (what he calls "N verbs") in Ge'ez, Lambdin concluded, "When the root is attested without the initial *-n*... the analysis of an N verb is probably justified. With many of these verbs, however, no cognate without the *-n* is attested, and an analysis as an ordinary quinquiliteral [i.e. form derived by BCR] is possible" (1978:230). Though he is correct in saying that analyzing an *n*-initial form with no other evidence as to its root as being derived by BCR is possible (in Ge'ez), the evidence in Amharic is that such ambiguous forms should be analyzed as being derived by the pattern $n-C^1C^2C^1C^2$: contrary to Lambdin's assumption about Ge'ez, unless there is evidence of a non-reduplicated, *n*-initial root, such forms should be assumed to contain a prefix *n*-. This claim is supported by the statistics, as mentioned earlier.

The BCR reduplication process can be applied to roots that take the prefix *n*-, though the *n*-prefix will not appear when the form is reduplicated, as seen in the example *täzrät'ärrät'ä* 'lag behind' that is derived from the same root as the *n*-prefixed verb *tä-n-zärätt'ät'ä* 'walk slowly'.⁷ The resulting form has no trace of the *n*-prefix and is unambiguously derived by BCR.

In summary, there is a prefix *n*- which is sometimes affixed to strings of the shape $C^1C^2C^1C^2$. There are also roots with initial *n*- that have been reduplicated by BCR. But there are many examples where it is not possible to clearly discern which is the origin a particular form.

⁷Retaining the prefix *n*- in the form derived by BCR would add an extra coda consonant to the initial syllable, creating an unacceptable string of three consonants: **tänzrät'ärrät'ä*.

6.1.3 Forms of the shape $n-C^1C^2C^1C^2$ with links to bases of both the shape nC^1C^2 and $n-$ plus $C^1C^2C^1C^2$

There is a small group of words with initial $n-$ for which it is possible to posit two different roots for each of the forms. For each pair of possible roots, one of the roots has initial $n-$ in a root of the shape nC^1C^2 , which could be reduplicated by BCR. The other possible root is two consonants reduplicated, with a prefix $n-$, $n-C^1C^2C^1C^2$. Each of these four words can be logically derived by applying different sets of regular morphological rules of Amharic to two different attested roots. For all of these forms, the semantics of the $n-$ prefix are plausible.⁸

The forms in this class are:

nät'äbt'ab 'drops, dots (n.)' and the verb *tä-nt'äbätt'äbä* 'drip, dribble'

näbälbal 'flame (n.)' and the verb *tä-nbäläbbälä* 'flame, burn'

näg^wädg^wad 'thunder (n.)' and the verb *tä-ng^wädägg^wädä* 'thunder (v.)'

tänfäsäffäsä 'pant (v.i.)'

For each of these four $n-$ initial sets of forms, there are two different roots presented as possible candidates for the derivation of the five-consonant forms. These two roots may be related, but the processes that related them are no longer synchronically productive. This leads us to the question: from which of these forms is the five-consonant form derived today? For example, is *nät'äbt'ab* derived from a root $\sqrt{nt'b}$ or from $n-$ plus $t'bt'b$?

The answers are sought in two ways, though neither proves conclusive. First, an extensive study of the roots, both in Amharic and other Semitic languages was made. Secondly, a questionnaire was administered to native speakers of Amharic, probing their intuitions about the derivation of these forms. The results of the questionnaire, presented in appendix B, do not indicate a strong trend to analyze any of these forms, either the

⁸The semantics related to the prefix $n-$ are broad, but often related to movement and repetition, 6.1.

forms as a group or any specific form, as either containing a prefix *n-* or as having root-initial *n*.

6.1.3.1 *nt'bt'b*

This sequence of five consonants carries the idea of drips and dripping, especially of ink. The inflected verb *tä-nt'äbätt'äbä* means 'drip, dribble' and the related noun *nät'äbt'ab* means 'drops, dots'. The regular rules of morphology could derive this from either a root $\sqrt{nt'b}$ or prefix *n-* and *t'bt'b*.⁹

There is clear evidence of a verb root with initial *n-*, *nätt'äbä* 'fall by drops'. This leads to the conclusion that the root is $\sqrt{nt'b}$. There are many forms derived from this root, including *nät'att'äbä* 'drizzle', *nät'əb* 'dot (n.)', *nät'abi* 'thing which drips'.

There are, however, also forms based on only *t'bt'b*, without the initial *n-*: *t'əbt'əb* 'dripping', *t'əbət'abe* 'leaking of rain', *t'äbbət'äb*: 'falling slowly (of drops)'. Remembering that the root of such a reduplicated string is C^1C^2 , in this case *t'b*, it is instructive to note the compound verb *t'äb*: *alä* 'fall drop by drop', with onomatopoeia being a possible factor. This leads to the conclusion that these words carrying the idea of 'fall by drops' are derived from $t'bt'b < \sqrt{t'b}$.

Under the entry for *nätt'äbä*, Kane listed a set of derived five-consonant forms with the note "see also **t'äbätt'äbä*" (1990:1076). The entry for *t'äbätt'äbä* also contains some five-consonant forms, including *tänt'äbätt'äbä* 'to fall drop by drop', plus a few four-consonant forms without initial *n-*, *t'äbt'äb* 'dropping slowly' (1990:2151,2152). It is important to note that in contrast to the $C^1C^2C^1C^2$ *t'əbt'abe* form, the three-consonant base is fully productive in Amharic, (e.g., *nät'əb* 'a dot, a

⁹Verbs with the shape $C^1C^2C^1C^2$ are held to be reduplicated from C^1C^2 , so their root is only C^1C^2 , even though the non-reduplicated form may not appear on the surface.

punctuation mark', *anät'att'äb* 'manner of dripping', *nät'abi* 'thing which drips', *anätt'äbä* 'punctuate', etc.).

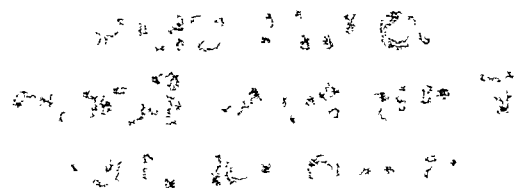
For the five-consonant forms related to *nt'bt'b*, then, we find conflicting evidence as to the root behind it: it could be derived from *t'bt'b* (which is itself derived from $\sqrt{t'b}$) or it may simply be derived from $\sqrt{nt'b}$.

In Tigrinya we find the same basic five-consonant form *nät'äbt'ab* (da Bassano 1918:464), and also find two of the shorter patterns of consonants (i.e., *t'ub* and *nät'äbä*), but da Bassano does not list any four-consonant forms without *n-*, such as *t'əbt'abe*.¹⁰ In Tigré, we find both the $\sqrt{nt'b}$ and $\sqrt{t'b}$ roots for 'drip', but as in Tigrinya, no *t'bt'b* form (Littman and Hofner 1962:343,615). In Ge'ez, also, we find a verb $\sqrt{nt'b}$ meaning 'drip'. Outside of Ethiopia, we also find cognates of the three-consonant root $\sqrt{nt'b}$ meaning 'drop, drip' in Arabic, Hebrew, Soqotri, Aramaic, Syriac, Mandaic (Leslau 1991:408) and also in Mehri (Johnstone 1987:304).

The five-consonant string in *nät'äbt'ab* is found in both Amharic and Tigrinya, indicating that this form is long-established. Amharic has ample evidence of both the appropriate three-consonant *n*-initial root and also the four-consonant stem $C^1C^2C^1C^2$ that matches both the semantics and the consonants of the five-consonant forms. Either one of these two is a back-formation from the five-consonant form, or there has been a coincidental independent development.

There is incontrovertible evidence of an old Semitic three-consonant *n*-initial root $\sqrt{nt'b}$ that fits the requirements for deriving the five-consonant form by BCR (Leslau 1991:408). Though there is evidence in Amharic of a matching four-consonant stem $C^1C^2C^1C$, this *t'bt'b* is not documented in other Semitic languages.

¹⁰He actually does list a form with the matching consonant pattern, but with a totally different meaning, defining it as 'hurrying' (1918:913).



Since the three-consonant *n*-initial root is established as an inherited form and the four-consonant form is documented only in Amharic, it suggests that the four-consonant form is an innovation, derived by reinterpreting the initial *n-* in *tä-nt'äbätt'äbä* as a prefix and then treating *t'bt'b* as the original verb stem.

6.1.3.2 *nblbl*

The five-consonant string *nblbl* carries a meaning associated with fire, as seen in the noun *näbälbal* 'flame' and the inflected verb *tä-nbäläbbälä* 'flamed, burned'. The same reduplicated five-consonant form for 'flame' is also found in Tigrinya and Ge'ez. These are all presumed to be derived from the same root, but there are two attested roots in E-Semitic which may be candidates, though only one of them is independently attested in contemporary Amharic.

For Amharic, Kane cites "**bäläbbälä - tänbäläbbälä*" as the entry for the five-consonant forms (1990:864), the asterisk indicating that it is not conjugated as a verb without the *n-* prefix. In addition to derived forms with five consonants, we find *bäläbälä* 'blazing fire' and *bäläbbäl* 'burning, blazing'. From other Ethiopian Semitic languages, we find evidence of the same root: *bolbol* 'blaze' in Wolane Gurage 'flame', *b^wälb^weat* 'flame' in Muher Gurage (Leslau 1979:3,139), *bälbälä* 'flame' in Tigrinya (da Bassano 1918:307).

Modern Amharic currently has no non-reduplicated form of the root \sqrt{nbl} . However, there is ample evidence of a non-reduplicated root \sqrt{nbl} in other Semitic languages: *näbäl* 'flame' Ge'ez, *nablu* 'flame' Akkadian, and Ugaritic¹¹ *nbl-t*, 'flame' (Leslau 1991:383). It is interesting that Ge'ez has both the five-consonant form *näbälbal*

¹¹Enigmatically, Ugaritic also has *bl²* 'flame', without the initial *n-* (Gordon 1965:372).

'flame' and the three-consonant form *näbäl* 'flame', but does not have the four-consonant form *bälbälä*.¹²

The analysis of the derivation for this five-consonant string cannot be absolutely certain. While it is clear that there was a three-consonant *n*-initial root related to 'fire' in Amharic's ancestry, the non-reduplicated form of this root was lost before the development of modern Amharic, even though the forms reduplicated by BCR have been maintained. During an earlier stage, possibly as early as before the split of North and South Ethio-Semitic, a five-consonant form appears to have been again re-analyzed as containing the prefix *n-*, and forms consisting of only *blbl* were derived as backformations from the five-consonant forms.

6.1.3.3 *ng^wdg^wd*

The string *ng^wdg^wd* 'thunder' is likewise open to analysis as either arising by BCR from a root with initial *n*, or by prefixing *n-* to the string *g^wdg^wd*. The verb *täng^wädägg^wädä* has meanings 'thunder' and also 'bustle about'. There are derived meanings built on the four-consonant string *g^wdg^wd*, but none of these relate to 'thunder', only to 'bustle', such as *g^wädäg^wäd*: 'bustle (n.)'. There is also a verb *nägg^wädä* 'thunder'. Based on the Amharic evidence alone, it would be easy to assume that 'thunder' is derived by BCR from the three-consonant root $\sqrt{ng^wd}$, but the comparative evidence raises serious questions.

In at least two other E-S languages, 'thunder (n.)' is a form similar to *näg^wädg^wäd*, but without the initial *n-*, viz. Ge'ez, Tigrinya. Ge'ez adds the prefix *n-* to form the verb 'thunder' *ṅäng^wädg^wädä* 'thunder'. Leslau concludes "It is from *näg^wädg^wäd* that a secondary verb *ng^wd* developed: Tna. *näg^wädä* (v.), Amharic *nägg^wädä*; also in Cushitic: Bil. *näg^wäd* 'thunder', Kham. *mugəd*" (1987:182). If Leslau is correct, the *n*-initial form

¹²Tigré has roots \sqrt{nbl} and \sqrt{blbl} , but their meanings are unrelated to those under discussion here.

in Amharic and Tigrinya, *näg^wädg^wad*, has been reanalyzed as a BCR form, and then a three-consonant root $\sqrt{ng^w d}$ for 'thunder' has been derived as a back-formation. But historically, the three-consonant root developed from the five-consonant form containing the *n-* prefix, according to Leslau. In this form, then, the *n-* was originally a prefix but has now become part of the root in modern Amharic.

6.1.3.4 *nfsfs*

The fourth consonant string that is structurally ambiguous as to whether the initial *n-* is a prefix or root-initial consonant is *nfsfs* related to breathing and blowing. As an inflected verb, *tänfäsäffäsä*, this five-consonant string means 'pant (v.i.)'. In Ge'ez, the cognate five-consonant form *ʔanfäsäsä* means 'blow'.

The three-consonant root that would underlie this verb if it is derived by BCR is \sqrt{nfs} , which carries the appropriate meaning, *näffäsä* 'blow'. The four-consonant string that could serve as a root for the five-consonant string is *fsfs*, found in the verb *fäsäffäsä* 'play a flute or similar wind instrument'. The three-consonant root has cognates in many Semitic languages, including Akkadian, Ugaritic, Hebrew, Syriac, Arabic, Aramaic, plus many languages in E-S, including Ge'ez, Tigré, Tigrinya, Argobba, Harari, Gurage (including Chaha, Geto, Endegegn, Gogot, Soddo) (Leslau 1979:3.452, 1991:389).

Since the three-consonant root is clearly a Semitic retention and the five-consonant string is also attested in Ge'ez, but the four-consonant string *fsfs* is not, *tänfäsäffäsä* should be analyzed as being derived from a three-consonant root with initial *n*, that is \sqrt{nfs} .

6.2 Homophonous forms resulting from BCR applied to *s-* initial roots and *as-* prefixed to verbs of the shape $C^1C^2C^1C^2$

A number of forms are derived by BCR from roots that have the initial consonant *s-*. When they are prefixed with the causative/transitive prefix *a-*, the result is a sequence

$a-sC^1C^2C^1C^2$. Such forms are homophonous with forms that have roots of the shape $C^1C^2C^1C^2$ and receive the indirect causative prefix(es) *as-*.¹³ For example, from the root \sqrt{slb} 'evirate', BCR derives *aslāballābā* 'keep on slashing'. An identical form can also be derived by prefixing *as-* to \sqrt{lbb} 'singe', resulting in the meaning 'cause or allow to singe'. Several examples of such homophones are presented in (6.3).

¹³Some see this as a sequence of two prefixes, *a-* and another prefix *-s-*, while others see this as a single prefix *as-* (see Appleyard 1972), but the analysis of the prefix is not relevant to the point under discussion.

(6.3) Homophonous pairs that consist of an *s*-initial BCR form and a form with prefix *as-* on a root $C^1C^2C^1C^2$

ambiguous form	BCR gloss	BCR root	$C^1C^2C^1C^2$ base	causative gloss
<i>asbäräbbärä</i>	'keep on breaking'	<i>sbr</i>	<i>brbr</i>	'have a place ransacked'
<i>asgämäggämä</i>	'sing loudly'	<i>sgm</i>	<i>gmgm</i>	'have someone evaluate' ¹⁴
<i>asläbälläbä</i>	'keep on slashing'	<i>slb</i>	<i>lblb</i>	'cause or allow to singe'
<i>asmänämmänä</i>	'cause eyes to flutter'	<i>smn</i>	<i>mnmn</i>	'allow s/o to become thin'
<i>asräkärräkä</i>	'make turbid'	<i>srk</i>	<i>rkrk</i>	'have someone thrash someone'
<i>astäfättäfä</i>	'keep on eating voraciously'	<i>stf</i>	<i>tftf</i>	'have something slashed'
<i>aslalla</i>	'turn over in one's mind'	<i>slH</i>	<i>lHlH</i>	'cause/allow to be loose'
<i>asrägärrägä</i>	'cause to sink'	<i>srg</i>	<i>rgrg</i>	'have someone pile something up'
<i>asläkälläkä</i>	'cause to move at a rapid even pace'	<i>slk</i>	<i>lkll</i>	'caused to butt'
<i>asräqärräqä</i>	'cause to sob, cry'	<i>*srq¹⁵</i>	<i>rqrq</i>	'have someone beat someone'

¹⁴Kane noted this pair of ambiguous forms (1990:581).

Since the shape of these homophones reveals no clue as to which derivational pattern produced them, context alone must be depended on to disambiguate them. Again, semantics is the crucial factor in deciding whether a form is prefixed or the result of BCR. For example, in a context about slashing, the form *astäfättäfä* will be interpreted as derived from *tftf*, but in a context about eating voraciously, it will be interpreted as derived from the root \sqrt{stf} .

This source of ambiguity was briefly noted in Tigrinya by Wajnberg (1932:85), but the possibility of homophones arising by BCR and by causatives with the *as-* prefixes applied to roots of the pattern $C^1C^2C^1C^2$ has not been addressed in print by Amharic grammarians. In his dictionary Kane cross-referenced a few Amharic examples which had this ambiguity, also, including \sqrt{rgrg} , \sqrt{slH} , \sqrt{lbIb} and \sqrt{tftf} (1990:413, 439, 452, 533). In other cases, however, he combined the two meanings of the homonyms under the same derivation. For example, under the verb *räkärräkä* 'hit with cudgel', Kane listed *asräkärräkä* with the definition 'have someone thrash a third party; render turbid, muddy (v.t.)' (1990:399). The meanings related to 'turbid, muddy' more properly belong under the entry for the verb *särräkä* 'become turbid' (1990:491).

By understanding the rules of how BCR is used and applied in Amharic, we can say that the sub-entry for *as-räkärräkä*, under *räkärräkä*, should contain a definition related to 'ambush, thrash' and could be cross-referenced to the entry for *tä-sräkärräkä*, 'turbid' where the sub-entry for *as-räkärräkä* should contain a definition pertaining to 'turbid and confused'.

There is another form for which Kane's entries suggest that the two senses of a homophone have been lumped together under a single entry. He gives the form *asq^wäräqq^wärä* with meanings 'have something founded (e.g., a town)' and 'have

¹⁵There is no non-reduplicated attestation of the root \sqrt{srq} .

something pierced' (1990:725). The meaning 'have something pierced' is from a word derived by BCR from the root $\sqrt{sq}^w r$ 'bore'. This is cognate with the old Ge'ez form $\sqrt{sq}^w r^1$ 'pierce' (Leslau 1991:510). It is also possible to derive $asq^w \text{ärä}q^w \text{ärä}$ as a causative form of $q^w \text{ärä}q^w \text{ärä}$. The non-causative form of this means 'pound a nail, found a town'. The causative form is defined by Kane as 'have something founded', but he also adds 'cause to prick, pierce' (1990:725). If Kane is correct, speakers have reanalyzed the form, adding the sense of 'pierce' to the $q^w \text{ärä}q^w \text{ärä}$ form. What makes this confusing is that both forms exist, and both are defined as 'bore, pierce'. This form $asq^w \text{ärä}q^w \text{ärä}$ is an example of a word with more than one derivation historically.

Examples of homophonous forms that have origins from both BCR and the prefixation of *as-* to verbs of the form $C^1 C^2 C^1 C^2$ are shown in (6.3). For these forms with initial *as-*, comparison of the string $asC^1 C^2 C^1 C^2$ with an *s-*initial root and a form of the shape $C^1 C^2 C^1 C^2$ will clarify the base from which the form is derived.

In non-BCR forms, prefixes *a-*, *s-*, *tä* and the combinations *tästä-* and *astä-* are found, but there is no prefix (combination) **tä-s-* (Leslau 1995:504,505). Therefore, the form *tä-srākārrākā* cannot come from prefixes on *rkrk*. There must be a form with root-initial *s-*; there must be a *srkrk* form that is not from *rkrk*.

Many stems of the shape $C^1 C^2 C^1 C^2$ will have *as-* prefixed forms but have no homophonous BCR form because the corresponding $sC^1 C^2$ root (if it exists) is not reduplicated by BCR. For example, *märämmärä* 'investigated' can be prefixed as *as-märämmärä* 'caused to investigate'. But there is no homophonous form *asmärämmärä* produced by BCR from the extant root *smr*, 'be pleasing'.

Having a number of homophones arise by these two different morphological patterns introduces a certain amount of complexity and ambiguity into Amharic. Languages generally do not allow many homophones, especially among forms that are of the same part of speech. The homophones that arise by these processes are limited in

number, and context is generally assumed to be adequate in clarifying which sense a speaker or writer intends. But out of context, the plural meanings of these homophones have confused lexicographers in their analysis of derivations.

6.3 Ambiguous forms with initial *m-*

When a string of consonants of the pattern $mC^1C^2C^1C^2$ is found on a derived noun, frequently it is not a result of BCR. Rather, the *m-* is a prefix. Amharic has a productive prefix $m(\bar{a})-$ which is used with a variety of derived forms, including the infinitive, agent form, and place forms from verb roots. Examples of this can be seen in (6.4).

(6.4) Various non-reduplicated forms with prefix $m(\bar{a})-$

verbal gloss	root	derived form	derived gloss
'break'	\sqrt{sbr}	<i>mäsbar</i>	'to break' (infn.)
'think'	\sqrt{Hsb}	<i>massäbiya</i>	'a mind'
'become king'	\sqrt{ngs}	<i>mängəst</i>	'government'
'sweep'	$\sqrt{t'rg}$	<i>mät'rägiya</i>	'broom'

When BCR is applied to a verb root that has an initial consonant *m-*, it creates a string $mC^1C^2C^1C^2$ that is the result of BCR, such as *tämlägällägä* 'become slippery' from the root \sqrt{mlg} 'be slimy'. Other *m-* initial forms, however, are not as easily analyzed. For example, *mäläyaləy* (Kane 1990:159) 'organ of the body' might be interpreted as a BCR form from a hypothetical root \sqrt{mly} . However, this is derived from Ge'ez, *lyly* 'separate, distinguish' (Leslau 1991:314).

There are some forms that appear to be derived by BCR, but are actually composed of *m-* prefixed to a root of the shape $C^1C^2C^1C^2$. Note that the only examples are nouns. Examples of this are shown in (6.5).

(6.5) Forms with *m(ä)*- prefixed to verbs of the shape $C^1C^2C^1C^2$

prefixed form	gloss of prefixed form	root	gloss of verb
<i>märäbarəb</i>	'scaffolding'	<i>rbrb</i>	'place one on top of another'
<i>märägräg</i>	'goose'	<i>rgrg</i>	'waddle'
<i>mäsäbsäb</i>	'to gather' (infn.)	<i>sbsbs</i>	'gather'

There are a number of forms with initial *m-* that are genuinely derived by BCR, shown in (6.6). Note that the forms are adjectives or compound verbs, and that the *m-* is followed by an epenthetic vowel in all cases but *mäsätšät: alä*, and there the phonemic vowel is inserted to mark diminution.

(6.6) BCR forms with root-initial *m-*

BCR form	gloss of BCR form	root	root gloss
<i>mərkw'əzk'əz</i>	'supporting one another'	$\sqrt{mrk'wz}$	'lean on'
<i>məsəlsəl</i>	'similar'	\sqrt{msl}	'resemble'
<i>mənqərqər alä</i>	'come apart'	\sqrt{mnqr}	'come undone'
<i>mənt'ərt'ər</i> <i>adärrägä</i>	'clarify, clear away'	$\sqrt{mnt'r}$	'clear a field'
<i>məsəkšək: alä</i>	'be broken to bits'	$*\sqrt{mšk}$	--
<i>məsənšən</i> <i>adärrägä</i>	'to upset, derange'	$\sqrt{mšn}$	'toss grain up for threshing'
<i>mənqərqər: alä</i>	'come apart, come undone'	\sqrt{mnqr}	'tear up'
<i>mäsätšät: alä</i>	'get somewhat dark'	$\sqrt{mšH}$	'become evening'

The form *mənzəgzəg*, 'act of throwing a stick so that it turns end over end' (Kane 1990:277) can easily be misinterpreted. It may appear to be from a root \sqrt{mnzg} or \sqrt{nzg} , but it is actually derived from *zgzg* 'be thrown (of a stick) so that it turns end over end' (1990:1679). The *n-* is a prefix in the verbal form, retained in this six-consonant vowel-less form section (see 6.1).

Comparing the data in (6.5) and (6.6), the following generalizations can be drawn. If there is an epenthetic vowel *ə* after a word-initial *m-* that is followed by four consonants of the pattern $C^1C^2C^1C^2$, then the *m-* is usually part of the root which has been reduplicated by BCR. If, however, there is a phonemic vowel *ä* after a word-initial *m-* that is followed by four consonants of the pattern $C^1C^2C^1C^2$, then the *m-* is prefixal. However, if the word with the initial *m-* is the lexical base for a compound verb, then it is part of the root, as in *mäsätšät: alä* 'get somewhat dark', from *mäsšä* 'become evening'. It will be remembered that vowels are inserted into lexical bases to diminish the intensity of the meaning, explained in chapter 5.

Another source of *m-* initial forms is when the *n-* prefix assimilates to a following bilabial. For example, there is a noun *b^wəšb^wəš* 'a thick, barely fermented beer'. The verb 'brew beer' takes the *n-* prefix *tä-n-b^wäšäbb^wäšä*. The noun for the thick beer has an alternate prefixed form, with the *n-* prefix assimilating to the bilabial stop *əmb^wəšb^wəš*.¹⁶ Such mbC^1bC^1 forms may appear to be derived by BCR, but are better understood as examples of the nasal prefix assimilating to the following bilabial consonant.

¹⁶Note that this form has a prothetic vowel instead of a following epenthetic vowel. A prothetic vowel is also found regularly at the beginning of other words, such as the imperative of *näkka* 'touch' which is *ənka* and the derived noun *ərgo* 'yogurt' from *rägga* 'thicken, coagulate'.

(6.7) Forms with initial *m*- resulting from *n* assimilating to a following bilabial

<i>əmb^w əšb^w əš</i>	'a kind of beer'	<i>n-b^w əšb^w əš</i>	'brew beer'
<i>əmb^w əlb^w əl</i>	'round ball'	<i>tənb^w ələbb^w ələ</i>	'be rolled between hands'
<i>bägäbbägä</i>	'burn up (v.t.)'	<i>təmbägäbbägä</i>	'to blaze'

Despite the initial assumption that the prefix *m*- may lead to ambiguity with BCR, it has been shown that all forms with initial *m*- can be definitively classified as being formed either by BCR or by some other process.

6.4 Ambiguous forms with initial š

Amharic has a verbal prefix *š*- that sometimes makes it difficult to analyze whether some words have root-initial *š*- and are derived by BCR or whether the *š*- is a prefix. The *š*- prefix is not common or systematically productive; fewer than 30 words are found with this prefix (not counting all the derived forms of the same root). Klingenheben has done the most focused study of this prefix, showing that it does not have a consistent semantic component (1964). Leslau examined cases of *š*- which come with the VC prefixes, speaking of prefixes *as*-¹⁷ and *täš*-, pointing out that they usually precede velar consonants (1995:485,486). This *š*- prefix is used with four-consonant verbs of all patterns: $\check{s}C^1C^2C^1C^2$, $\check{s}C^1C^2C^3C^3$, $\check{s}C^1C^2C^3C^4$, $\check{s}C^1HC^1H$. It is less commonly used with roots of three consonants. Examples of words containing *š* in initial position are shown in (6.8).

¹⁷This is not to be confused with the *as*- which does not appear with BCR. If it did, it would create an additional syllable because the prefix-final *s* would close the syllable, hindering the syllabification of the root-initial consonant with the vowel of the prefix. The prefix *as*- can also be analyzed as composed of *a* and *s*, but is usually analyzed as a unit (Appleyard 1972).

(6.8) Words containing *š* in initial position

$\check{C}^1C^2C^1C^2$	<i>a-šbārābbārā</i>	'caused panic'
$\check{C}^1C^2C^3C^3$	<i>tā-šbārāqqāqā</i>	'be in transports of joy'
$\check{C}^1C^2C^3C^4$	<i>tā-šk^wānāttārā</i>	'be dressed up, refined'
\check{C}^1HC^1H	<i>a-šqaqqa</i>	'be evil, wicked'
$\check{C}^1C^2C^3$	<i>a-šg^wabbāt'ā</i>	'bend, bow'

For this study of BCR, the key point is to determine in which cases initial *š* is part of the root and in which cases it is a prefix. In some words that have the consonants $\check{C}^1C^2C^1C^2$, *š-* is clearly a part of a root which has been reduplicated by BCR; in others, it is clearly a prefix and in yet other forms it is not clear how it should be classified. When *š-* is the first consonant of a string $\check{C}^1C^2C^1C^2$, however, it can lead to ambiguity, since it could be a form produced by BCR or a prefix on a verb of the shape $C^1C^2C^1C^2$.

An example of *š* being part of the root that has been reduplicated by BCR comes from the verb *šällämä* 'decorate (v.t.)', which is from the root $\sqrt{šlm}$. The reduplicated form *tā-šlāmällämä* is derived by BCR, meaning 'put on many decorations'. For this form, the initial *š* is clearly a part of the root because the noun appears without it and therefore the form *tā-šlāmällämä* is a genuine case of BCR. The data in (6.9) show examples of BCR forms derived from *š-* initial roots, showing that the initial *š* is not a prefix in these forms.

(6.9) Examples of š- initial verb roots that undergo BCR

root gloss	root	duplicated form	duplicated gloss
'decorate'	√šlm	tä-šlāmällämä	'put on many decorations'
'cover'	√šfn	šəfənfən	'some covered things'
'terrify'	√šbr	a-šbäräbbärä	'cause panic'
'roll up (v.t.)'	√šbl	tä-šbäläbbälä	'curl up (v.i.)'
'be rolled up, cylindrical'	√š ^w m̄l	a-šm ^w älämm ^w älä ¹⁸	'roll clay between the hands'
'pass through'	√š ^w lk	tä-š ^w läkälläkä	'wiggle through'

There are also cases where it is clear that š- is a prefix, not part of the root. This can be seen in cases where there are found semantically related forms with and without the prefix, as in (6.10). Because there are related forms without the prefix, we know that the forms with the š- prefix are not produced by BCR, though they may appear to be the result of that reduplication process. There is no clear, consistent semantic change in these prefixed forms, though intensity seems to be involved.

¹⁸Note that the labialized release in this form and the one following have shifted from the initial consonant š^w to the second consonant. This shift of labialization in BCR is discussed in 7.2.

(6.10) Examples of *š-* as a prefix with $C^1C^2C^1C^2$ verbs

<i>š</i> -prefixed form	prefixed gloss	non-prefixed	root gloss
<i>tä-š-käfäkkäfü</i>	'put on fancy clothes'	<i>käfäkkäfü</i>	'cause to look nice'
<i>tä-š-q^wäläqq^wälä</i>	'go down steep hill'	<i>tä-q^wäläqq^wälä</i>	'go down a slope'
<i>tä-š-m^wänämm^wänä</i>	'dress in one's best'	<i>tä-m^wänämm^wänä</i>	'be adorned'
<i>tä-š-g^wädägg^wädä</i>	'be driven in large numbers' (of animals)	<i>tä-n-g^wädägg^wädä</i>	'come together in large numbers' (of people)
<i>tä-š-bäräqqäqä</i>	'be in transports of joy'	<i>bäräqqäqä</i>	'glow with pleasure'
<i>tä-šqänätt'ärä</i>	'be flung, hurled'	<i>qänätt'ärä</i>	'throw out by shoving'

A homophone results when two conditions are fulfilled. The first condition is that the *š-* prefix is affixed to a form of the shape $C^1C^2C^1C^2$. Second, there is a root that has an initial *š* and has the next two consonants that match the consonants of the $C^1C^2C^1C^2$ form and this *š*-initial root is reduplicated by BCR. This is parallel to the situation with the causative *as-* prefix pointed out in section 6.2, in which the initial consonant of some roots matches a prefix consonant. An example of this homophony with the *š-* prefix is given in (6.11).

(6.11) Example of homophony on form of the shape $\check{s}C^1C^2C^1C^2$

$C^1C^2C^1C^2$	<i>bäläbbälä</i>	‘sway in the wind’
$C^1C^2C^1C^2$ with \check{s} prefix	<i>tä-š-bäläbbälä</i>	‘flutter in the wind’
BCR form	<i>tä-šbäläbbälä</i>	‘roll up, curl up (v.i.)’
$C^1C^2C^3C^3$	<i>šäbällälä</i>	‘roll up, wrap up (v.t.)’

There are forms where \check{s} is clearly a prefix, but the root is never found without the \check{s} - prefix, similar to the way some forms require the *n*- prefix (as explained in section 6.1). The examples seen in 6.12 have this \check{s} - prefix, the roots never appearing without it. But these forms cannot be BCR since the consonants following the \check{s} - prefix do not follow the $C^1C^2C^1C^2$ pattern. Also, the \check{s} - is not root initial.

(6.12) Examples of \check{s} - found as an initial consonant with verbs that are not of the shape $C^1C^2C^1C^2$ and never appear without the \check{s}

<i>tä-š-k^wärämmät ’ä</i>	‘act shy’
<i>tä-š-qänäddärä</i>	‘be decked out in ornaments’
<i>a-š-g^wabbät ’ä</i>	‘mock by flattery’
<i>a-š-g^watt ’ät ’ä</i>	‘speak contemptuously’
<i>a-š-qabbäbä</i>	‘praise ironically’
<i>a-š-kannänä</i>	‘be fed up with something’
<i>a-š-qannät ’ä</i>	‘dance’
<i>a-š-qabbät ’ä</i>	‘seek to ingratiate oneself through flattery’

Unlike the examples in (6.12), there are forms where \check{s} - is clearly a prefix, and the parallel root is found without the \check{s} , but with a totally unrelated meaning. In these cases,

it can be argued that BCR is not involved since the consonants following the *š-* are not of the pattern $C^1C^2C^1C^2$. In (6.13), examples of *š-* as a prefix with $C^1C^2C^3C^3$ and $C^1C^2C^3C^4$ verbs are shown. In all of these examples, the root without the *š-* prefix has a totally unrelated meaning.

(6.13) Examples of *š-* as a prefix with $C^1C^2C^3C^3$ and $C^1C^2C^3C^4$ verbs with unrelated roots¹

	definition	unrelated quadrilateral
<i>tä-šq^wärämmämä</i>	'bow'	<i>q^wrmm</i> 'damage the edge'
<i>tä-šk^wärämmämä</i>	'act shy, put on airs'	<i>k^wärämmämä</i> 'cut a narrow slice'
<i>tä-šk^wänättärä</i>	'be dressed up, refined'	<i>k^wänättärä</i> 'make a contract' (loan word)

Ambiguity concerning the derivation of this prefix arises when there is a string of the shape $šC^1C^2C^1C^2$, with no attested non-reduplicated root $šC^1C^2$ and no extant verb of the shape $C^1C^2C^1C^2$. (In some cases there may exist such a $C^1C^2C^1C^2$ verb, but the meanings of the two forms are totally different.) In these cases, the morphological origin of the prefix *š-* cannot be definitively ascertained, as Klingenberg noted (1964:45). Examples of such forms are given in (6.14).

(6.14) Examples of *š*- initial forms that have no attested non-reduplicated three-consonant roots, but the parallel $C^1C^2C^1C^2$ roots differ in meaning

form	gloss	$C^1C^2C^1C^2$ verb	gloss of $C^1C^2C^1C^2$
<i>tä-šq^wät'äqq^wät'ä</i>	'be afraid'	<i>q^wt'q^wt'</i>	'prune a tree'
<i>tä-š-mädämmädä</i>	'limp on edge of feet'	<i>māmd</i>	'make level'
<i>tä-šm^wärämm^wärä</i>	'deck oneself out in ornaments'	<i>m^wrm^wr</i>	'eat into something'
<i>tä-šmät'ämmät'ä</i>	'take care not to bother one's host'	<i>mt'mt'</i>	'suck'
<i>tä-šrākärrākä</i>	'disintegrate, come apart (v.i)'	<i>rkrk</i>	'ambush'
<i>tä-škäräkkärä</i>	'turned'	<i>krkr</i>	'be acrid'

There are also some *š*- initial forms that are difficult to classify as to whether the initial *š*- is a prefix or not. If a verb with the consonants $šC^1C^2C^1C^2$ has no related roots to compare, either of the form $š-C^1C^2C^1C^2$ or $šC^1C^2$, it is not possible to prove whether the *š* is a prefix on an unattested four-consonant root or the first consonant of an unattested three-consonant root. Examples of such forms are seen in (6.15).

5 4 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

(6.15) Examples of \check{s} -C¹C²C¹C² with no attested \check{s} C¹C² nor C¹C²C¹C² roots

Amharic words	English definitions
<i>tä-šq^wärämmämä</i>	'be shy, bow'
<i>tä-šq^wät'äqq^wätä</i>	'be afraid'
<i>tä-šq^wämäq^wq^wämä</i>	'refuse due to propriety'
<i>tä-šmädämmädä</i>	'limp on edge of feet'
<i>tä-šräkkäräkä</i>	'break up'
<i>tä-šm^wät'ämm^wät'ä</i>	'be timid, not bothering host'
<i>tä-škäräkkärä</i>	'turn, drive car'

There is one contested historical example that illustrates the complexity of the issue well. Amharic has a verb *tä-š-käräkkärä* 'turn, spin' and it never appears without the \check{s} (with this meaning). Leslau has labeled this verb "quintiliteral" (1995:475,476), though it is not totally clear if this means he was categorizing the \check{s} as a prefix. Gordon found a root *krkr* 'to roll' in Ugaritic, and on the basis of this argued against Steindorff that Boharic *skerker* 'to roll' and Sahidic *skorkor* 'to roll' "are *sqt* causatives and not of *qtl* formation" citing, as one piece of evidence, Ge'ez $\sqrt{k^w rk^w r}$ 'turn' (1955:280,281). Historically, he may be correct concerning Boharic and Sahidic: their initial *s* may indeed have been prefixal in origin. While this might have been true of the ancestor of E-S, over the years this prefix has been reanalyzed as being part of the root in some E-S languages, as it seems to be in Amharic.

In modern Amharic, there seems to be a cognate form with the \check{s} - prefix *tä-š-käräkkärä* 'turn, spin'. Without the \check{s} , the form *käräkkärä* means 'be acrid', with no discernible link to the semantics of the \check{s} initial form. There is an Amharic form *ank^wäräkk^wärä* 'rolled', without the initial \check{s} that also seems to be cognate to the Ugaritic

form, matching the labialization of the Ge'ez root $\sqrt{k^w r k^w r}$ 'turn' that Gordon cited. The questionnaire that was used to test native speakers' intuitions about possible prefixes showed that seven respondents analyzed the \check{s} in *täškäräkkärä* as being part of the root, and only two indicated that they thought it was added on as a prefix.

In discussing possibly prefixed forms in Ge'ez, Lambdin concluded, "When the root is attested without the initial $-n$... the analysis of an N verb [*n.b.*, with n - prefix] is probably justified. With many of these verbs, however, no cognate without the n is attested, and an analysis as an ordinary quinquiliteral [*n.b.* derived by BCR] is possible" (1978:230). The same logic leads us to treat Amharic \check{s} -initial forms like *tä-škäräkkärä* as being derived by BCR synchronically. Both the conversations about these forms and the results of the questionnaire in appendix B show a decided tendency to answer that the \check{s} is part of the root, not added at the beginning. However, these results cannot be regarded as conclusive since the consonant \check{s} in the form *tä-š-m^wänämm^wänä* 'dress in one's best' was judged to be part of the root, despite the fact that there is an attested form without the \check{s} , viz., *tä-m^wänämm^wänä* 'was adorned'.

Unless there is evidence in Amharic of a cognate root of the shape $C^1 C^2 C^1 C^2$, it is assumed that native speakers analyze the $\check{s} C^1 C^2 C^1 C^2$ forms in (6.15) as BCR forms with no non-reduplicated root, the survey results pointing clearly to this conclusion. Though cognate forms of the shape $C^1 C^2 C^1 C^2$ without the prefix may be found in some other Semitic languages, these \check{s} -initial forms now seem to be analyzed in Amharic as having no non-prefixed root of the shape $C^1 C^2 C^1 C^2$. Today's speakers clearly classify such forms with those derived by BCR, not seeing the \check{s} - as a prefix. It may be the case that a study of history may give evidence that these forms consisted of a prefix \check{s} - and a $C^1 C^2 C^1 C^2$ root at some point in history, but in the minds of today's speakers, the initial consonant is an inseparable, non-reduplicating part of the root.

There is one example of a form that has a prefix *š-* and is also derived by BCR. This *š-* prefix appears in the nominal form *əšqadəmdəm* 'a race', derived from the verb *qāddāmā* 'preceded' \sqrt{qdm} . This is an example of the prefixal *š-* prefixed to the string $C^1C^2C^3C^2C^3$. The result is a form that is both a genuine example of BCR and an example of the prefix *š-*.

6.5 Ambiguous forms with initial *l-*

For BCR forms with root-initial *l-*, the relative clause prefix *yä-* can lead to homophony on inflected verbs in the perfect. The relative clause marker *yä-* on a BCR form that begins with the prefix *a-* will lose the vowel *ä* in the prefix and result in the initial syllable *ya*.¹⁹ For example, the form *tä-lgäzäggäzä* 'wavered' has a derived causative form *a-lgäzäggäzä* 'cause to waver'. The relative form of this causative verb is *yalgäzäggäzä* 'who caused to waver', it can also mean 'who did not scrape'.

The source of homophony and ambiguity is that the negative prefix in the simple past tense is *al-*, and again, before the vowel *a*, the relative clause prefix reduces to *y-*, producing the initial string *yal-*. There is a verb of the form $C^1C^2C^1C^2$ that matches the final consonants of this BCR form, *gäzäggäzä* 'scraped'. The negative perfect of this verb is *al-gäzäggäzä*. The relative form of this negated verbs is *y-al-gäzäggäzä* 'who did not scrape'. This form is homophonous with *yalgäzäggäzä* 'who caused to waver', cited earlier. Though context can generally be expected to distinguish which form is meant, such forms are genuinely homophonous. A sample of other homophonous forms that consist of a relative BCR form and negated relative form of a root $C^1C^2C^1C^2$ are shown in (6.16).

¹⁹This same vowel deletion rule, the loss of *ä* following *a* (Leslau 1995:36), is the same rule that was mentioned earlier.

(6.16) Homophonous pairs that consist of a relative BCR form and negated relative of $C^1C^2C^1C^2$

<i>l</i> -initial root	gloss of Rel. Cl. of BCR form	ambiguous form	$C^1C^2C^1C^2$ base	gloss of Rel. Cl. of negated $C^1C^2C^1C^2$
\sqrt{lfs}	'who was limp, flabby'	<i>yalfäsäffäsä</i>	<i>fsfs</i>	'who did not play a flute'
\sqrt{lgz}	'who caused to waver'	<i>yalgäzäggäzä</i>	<i>gzgz</i>	'who did not scrape'
$\sqrt{lm\dot{t}}$	'who chewed continually'	<i>yalmät'ämmät'ä</i>	<i>mt'mt'</i>	'who did not suck milk'
\sqrt{lkf}	'who caused to sniff around'	<i>yalkäfäkkäfä</i>	<i>kfkf</i>	'who did not thatch'

6.6 Ambiguous forms with initial *t*

Sometimes, it is not obvious if an initial *t* is from a prefix or is the first consonant of a root that has been reduplicated by BCR. This is complicated by the fact that there is more than one source of initial *t*. The most obvious category consists of words with a root-initial *t*, such as *tərkəm kəm* 'a jumble, indiscriminate collection' from the root *trkm*.

There are at least three sources for an added *t*. First, there are a few derived forms that have *t* as a default consonant for a root-initial *H*. Second, a common prefix with initial *t* is the passive prefix in the perfect: *tä*. Third, there is a prefix *t* for deriving abstract nouns, though it has limited productivity. There are not many examples and most of these are archaic, such as *təmkəhət* 'vanity, boasting' from the root \sqrt{mkH} 'boast' (Leslau 1995:228,229).

There are, of course, words derived by BCR from roots with initial *t*, such as *tä-tmäkämmäkä* 'become soft' which is derived from the root \sqrt{tmk} , seen in the non-reduplicated verb 'become soft'. There are also forms with root-initial *t* that are derived by BCR that are vowel-less. For example, *täl''əgl''əg: alä* 'billow smoke' is derived from a *t*-initial root, seen in *tä-tl''ägäll''ägä* 'send up billows of smoke'.²⁰ In these two cases, the initial *t* on the lexical base is clearly part of the root, since it appears in the inflected BCR verb form and in non-reduplicated forms.

The one example of a word derived by BCR and appearing with initial *t* as a default consonant is the noun *tənəqneq* 'struggle, fight'. Vowel-less noun forms derived by BCR are common, such as in *šəfənʃən* 'covered things' from the root $\sqrt{šfn}$ 'cover'. The word *tənəqneq* is not derived from a root \sqrt{tnq} , but rather the root \sqrt{Hnq} , seen in the verb *annäqä* 'attack, grab tightly'. In *tənəqneq*, the *t* is being used as a default consonant, filling the initial consonant slot of the underspecified consonant represented by *H*, a concept developed by Broselow (1984:23,24) and explained and applied earlier in sections 4.2 and 5.4.²¹ This use of *t* as default consonant for *H* in initial position is also seen in words such as *tənnəs* 'small' from the root \sqrt{Hns} 'be small, inadequate'.

There are also forms derived by BCR where the initial *t* is a prefix on an abstract noun. As was just shown, vowel-less forms are often produced by BCR. The word *tərgədgəd-oš* 'staggering, tottering' is an example of a form with a prefix *t-*. The suffix *-oš* is seen in other words, such as *q''ət'q''ət'oš* 'pruning, lopping off branches' from the stem *q''t'q''t'* 'prune, lop off' and *rəbrəb-oš* 'act of placing one atop another' from *rbrb* 'pile up'. It might appear that *tərgədgəd-oš* is derived from a root \sqrt{trgd} or \sqrt{Hrgd} (with *t*

²⁰The non-reduplicated form of this is found in the lexical base of the compound verb *təg''ələl: alä*, also used of smoke billowing. There has been metathesis.

²¹Alternatively, it might also be argued that this initial *t-* is a prefix marking an abstract noun, regardless of the initial consonant slot.

acting as a default). However, there is a verb *räggäda* ‘shake with fear, tremble violently’, from the root \sqrt{rgd} . It can be reduplicated by BCR to produce *tärgädäggäda* ‘tremble, shake, stagger, be half dead with terror’. The initial *t* in this inflected verb is the standard VC prefix in this form. In contrast, the *t*- in *tärgädgäd-oš* is not a reduced form of this passive prefix, rather it is the abstract prefix.

There is another form that seems to have this abstract prefix, but its derivation is less clear: *tärmasmäs* ‘bustle, confusion’ (Kane 1990:964). An identical form without the *t*- is also found *ärmasmäs* ‘swarm (n.)’ (Kane 1990:375).²² Of the native speaker lexicographers’ work available to this project, only Dästa included one of these forms, listing *tärmasmäs* under *tärammäsa* (1970).²³ It is clear that the form is derived by BCR, but it is not as clear if the *t* is part of the root or is a prefix. The crucial sequence of root consonants is *rms*, with a meaning related to ‘confusion, bustle, commotion’. These three consonants are seen to be the root in the inflected verb *tärmäsämmäsä* ‘be in turmoil, bustle’ and the noun *rämässassa* ‘mass of people milling about’ (Kane 1990:375). Having examined these two forms, it would seem clear that the *t* in *tärmasmäs* is a prefix. However, there is a fully productive stem form with the same semantic coverage and the same three consonants that has an additional initial *t* acting like part of the root, as in the non-BCR form *tä-tärammäsa* ‘crowd together, be in a commotion’ (Kane 1990:964). Further evidence for the existence of a *t*-initial root is the inflected verb derived by BCR *tätmäsämmäsä* ‘swarm, pullulate (ants)’. This form is derived from \sqrt{trms} , but with the loss of the *r*. As is explained in section 7.5, an

²²A possibly parallel pair of synonymous vowel-less forms, with and without initial *t*, is *tənəqnəq* and *ənəqnəq* ‘a struggle, a fight’, from \sqrt{Hnq} .

²³The system used in Dästa’s dictionary does not explicitly link derived forms with their roots under main entries, but his definitions strongly suggest that he thought of *tärmasmäs* as being derived from *tärammäsa*. However, this does not definitively clarify his interpretation of the initial *t*, as to whether it is a prefix or not.

antepenultimate coronal consonant of a four-consonant root sometimes deletes in the process of inflecting a root that has been reduplicated by BCR. This form, then, is evidence that a root \sqrt{trms} with a meaning related to 'swarm, commotion' does indeed exist.

The question arises: could the root \sqrt{trms} have two instances of the passive prefix? There are very, very few cases of a double prefixation of the VC prefix $tä-$, the author knowing of only one: $tä-tä-naffäsä$ 'blow on one another' (Kane 1990:984). Seeing the rarity of a double affixation of the prefix $tä-$, the t at the beginning of $tätärammäsä$ is not easily explained away by positing such a synchronic derivation. However, through history, it may well be the case that the passive prefix was reinterpreted as part of the root, and $tä-\sqrt{trms}$ became reanalyzed as \sqrt{trms} .

This evidence suggests that the initial t in $tärmasmäs$ 'bustle, confusion' is derived from a four-consonant root \sqrt{trms} . The vowel-less morphology of $tärmasmäs$ is perfectly in line with other words derived from four-consonant roots, such as $qəbt'ərt'ər$ 'nonsensical' from $\sqrt{qbt'r}$ 'talk nonsense'.

An item of external evidence suggests that the root has no t : the root \sqrt{rms} 'be confused' in Soddo Gurage (Leslau 1979:3.602). The internal evidence also suggests that there is a root with no initial t , $tä-rmäsämmäsä$ 'be in turmoil, bustle'. The Amharic root $trms$ with the initial t carries the same semantic sense as the form without the initial t . It may be that the (now) root-initial t arose as a reinterpretation of a prefix on the root rms . It is easier to posit the prefix $t-$ being reinterpreted from a prefix to being part of the root than it is to imagine that the t was lost on the forms built on the three-consonant root \sqrt{rms} . In the light of this conflicting evidence, the initial t in $tärmasmäs$ cannot be definitively classified as being a prefix or a root-initial consonant. It appears that both $tätmäsämmäsä$ and $tä-rmäsämmäsä$ now have separate (or, perhaps, separating?) meanings, though they may share a common origin.

6.7 Summary of prefixal ambiguities

In reviewing these ambiguous forms, we see that they fall into three categories: homophones, forms that have ambiguous historical origins, and forms that do not have homophones and whose origins can be definitively classified. The cases of homophones can arise when the initial root consonant is *s* or *l*. The cases with ambiguous historical origins involve *n* and *š*. The forms with initial *m* can all be definitively classified as arising by BCR or some other morphological process.

The prefix *n-* is not fully productive in that it cannot be prefixed to every four-consonant root, but it is still very common with such roots. Forms derived by BCR from roots with initial *n* are few, as seen in the database in appendix A. The results of the questionnaire did not provide any clear picture of how native speakers view initial *n* preceding a string of consonants of the shape $C^1C^2C^1C^2$, not indicating clearly whether they usually interpret it as a prefix or a root-initial consonant.

Those cases of ambiguity arising from forms with initial *s* are finite in number: section 6.2 lists almost all of the examples of homophones that arise from this point. Their number is limited to the number of verb roots with initial *s* that happen to have corresponding roots of the form $C^1C^2C^1C^2$. Likewise, the forms with initial *l* that can have homophones in negated relative clauses are limited to the number of *l*-initial verb roots that happen to have corresponding roots of the form $C^1C^2C^1C^2$. The examples given in (6.5) include most of the examples found.

The cases of ambiguous origins involving *š* are also limited: Kane's dictionary lists very few possible examples of $šC^1C^2C^1C^2$ forms that might be derived by BCR (forms that have no cognate without the sibilant, simply $C^1C^2C^1C^2$).

Forms that appear to be derived by BCR with initial *m* are not homophonous with forms bearing a prefix *m-*. All such forms can be classified as either containing a prefix or a root initial *m*.

For cases with initial *t*, no homophones arise, though their derivation is not always instantly obvious. Some cases are shown to be root initial consonants, others by different prefixes.

u l - v r 7
x z * x 1 x 7 * (1 - 1
2 3 4 5 6

CHAPTER 7

CHANGES BETWEEN ROOTS AND FORMS RESULTING FROM BCR

7.1 Phonological changes within roots and BCR

Though the process of BCR has been defined and described as a process that is fairly straightforward, this chapter describes some small phonological changes between roots and their cognate forms that have been derived by BCR. None of these have been discussed in relation to the BCR reduplication process, and at least the last two have not been noted previously. The first phonological change is the shift of labialization from one consonant to another, explained in section 7.2. The second, much less common, is the loss of the ejective articulation on initial consonants, explained in 7.3. There is also an infix *-n-* that appears in some reduplicated forms, explained in 7.4. A process of deleting roots from consonants when they are reduplicated by BCR is shown in 7.5. A singleton example of palatalization in a reduplicated form is shown in 7.6.

7.2 Labialization and BCR

Previous studies of the loss or shift of labialization on consonants in Amharic have noted how labialization in some words sometimes shifts from one consonant to another, typically from right to left. For example, the name for the city of Axum [*aksum*] (also spelled "Aksum") is alternatively pronounced [*ak^wäsəm*], (this form discussed by Ullendorf 1955:78 and Leslau 1995:10,11). This right to left shift of labialization is also seen in such forms as *mäg^wəzit* 'nursemaid' which is alternatively pronounced as

*m^wägzi*¹ (Leslau 1995:10) and *täkk^wäsä* ‘shoot’ which derives a noun *t^wäks* ‘a shot’. A butcher shop is either a *l^wəkanda*² *bet* or *lək^wanda bet*. Kane’s dictionary cites Arabic *lookanda* with the same meaning (1990:95), which indicates that the Amharic example is a case of left to right shifting of labialization.

Kane gives a word with three alternate pronunciations, each containing different numbers of labialized consonants: *g^wärädämä*, *g^wär^wäd^wäman*, *g^wäräd^wäman*, all meaning ‘loader of pack animals’ (1990:1943). However, in this case the shift of the labialization seems to be left to right, assuming that the labialized velar *g^w* is the only one that is labialized in the root. The assumption that only the *g* is labialized in the underlying form is based on two facts. First, the fact that over 150 roots have labialized velar consonants, but no roots in the database from Bender and Fulass (1978) have a labialized *r*³ and only one has a labialized *d*, viz. *d^wälädd^wämä* ‘be blunt, dull’.⁴ Also, if the *r* and *d* are seen as underlyingly labialized, then this creates the more complex puzzle of understanding how the labialization is lost from the *r* and *d*.

The phonemic status of labialization on certain consonants was discussed earlier in chapter 1: labialized velars are treated as single phonemes here, but labialization on other consonants is not necessarily so. The labial release on consonants is important, differentiating many pairs of words. Examples of words differentiated only by labialization are seen in (7.1).

¹Leslau spelled this as *mogzit*, but the difference in spelling reflects only a more phonetic transcription, no difference of phonological or derivational analysis.

²Orthographically, in the Ethiopian script, there is no symbol for labialized *l* unless followed by the vowels *a* or *ä*. The spelled form of this is *lukanda*, which is reflected in the pronunciation.

³Some may analyze *r^wät’ä* ‘run’ as having a labialized *r* in the root, but it is more accurate to say that it has an underspecified medial consonant that includes the feature [Labial], giving a root *r^wt’*, and this medial underspecified consonant manifests itself as labialization on the initial consonant.

⁴There is a verb *d^wälädd^wälä* ‘be generous’, but this verb was not included in the list of verbs compiled by Bender and Fulass (1978).

(7.1) Examples of pairs of words differentiated only by labialization of consonants

gloss	forms with labialized consonants	forms without labialized consonants	gloss
'count'	<i>q^wätt'ärrä</i>	<i>qätt'ärrä</i>	'hire'
'strew grass on floor'	<i>g^wüzägg^wüzä</i>	<i>güzäggüzä</i>	'cut with difficulty'
'be deficient'	<i>g^wäddälä</i>	<i>gäddälä</i>	'kill'
'prick with spur'	<i>k^wäräkk^wärä</i>	<i>käräkkärä</i>	'be acrid'
'hollow out'	<i>b^wäräbb^wärä</i>	<i>bäräbbärä</i>	'search carefully'
'boast'	<i>f^wäkkärä</i>	<i>fäkkärä</i>	'interpret, clarify'

As seen in (7.1), the phonemic distinction of labialization differentiates pairs of roots in non-reduplicated words. In the same way, labialization is important in differentiating many pairs of words that are reduplicated by BCR, seen in (7.2).

(7.2) Examples of pairs of BCR forms differentiated only by labialization of consonants

gloss	forms with labialized consonants	forms without labialized consonants	gloss
'be shapeless, wriggle'	<i>adg^wälägg^wälä</i>	<i>adgäläggälä</i>	'cause to swell greatly'
'tremble'	<i>tädm^wänämm^wänä</i>	<i>tädmänämmänä</i>	'get very dark & cloudy'
'broken up field, rough road'	<i>dəng^wərg^wər</i>	<i>dəngərgər: alä</i>	'bewilder'
'fearful'	<i>f^wäräqraqqa</i>	<i>täfräqärräqä</i>	'crack, split (v.i.), ooze puss'
'be hard to please'	<i>täšk^wäfäkk^wäfä</i>	<i>täškäfäkkäfä</i>	'cajole'

In BCR, when a labialized consonant is reduplicated, the labialization is maintained on the reduplicated consonant: if a consonant is labialized in the root, both tokens of the consonant will be labialized in the reduplicated form. For example, *bl^wq* reduplicates as *täbl^wäqäll^wäqä* 'billow out (smoke)', not **täbl^wäqälläqä*.⁵ This happens only on penultimate root consonants, since root-final consonants are almost never labialized.⁶ Amharic examples of labialized consonants being reduplicated by BCR are displayed in (7.3).

⁵When the first root consonant is labialized, then the labialization can shift to the second consonant, which may or may not reduplicate in labialized form, *tä-šl^wäkälläkä* 'sneak through' is reduplicated by some as *tä-šlāk^wälläkä*.

⁶One counter example is *ənq^w* 'precious stone'.

(7.3) Examples of labialized consonants being reduplicated by BCR

root gloss	root	inflected BCR verb	gloss of BCR verb
'gush out'	<i>bl^wq</i>	<i>täbl^wäqäll^wäqä</i>	'billow out (smoke)'
'muzzle (v.t.)'	<i>lg^wm</i>	<i>tälg^wämgg^wäm</i>	'speak indistinctly'
'make a hole in a pot or gourd'	<i>šnq^wr</i>	<i>šənq^wərq^wər</i>	'having several holes'
'shriveled'	<i>šrm^wt'</i>	<i>šərm^wət'm^wət': alä</i>	'become shrunken, shriveled'
'grasp, crumple'	<i>c'b^wd</i>	<i>ac'b^wädäbb^wädä</i>	'crumple, rub between hands'
'look at attentively, strive to obtain knowledge'	<i>tk^wr</i>	<i>tätk^wäräkk^wärä</i>	'be industrious, hardworking'

There is one type of seeming exception to this rule that reduplicates labialized consonants in their labialized forms. In reduplicating *š^wälläkä* 'wiggle through unnoticed', some native speakers give the BCR form *tä-šl^wäkälläkä* 'sneak through'. In this example, it is not the case that the labialization on the *š^w* is lost in the reduplication. Rather, the labialization has shifted to the lateral consonant, the result of a rightward shift of the labialization from *š^w*, a process discussed further below.

Labialization is not found on root-final consonants in Amharic, so there are roots \sqrt{flg} 'desire' but not $*flg^w$.⁷ Also, because roots of the pattern $C^1C^2C^1C^2$ are reduplicated from roots C^1C^2 , if the first consonant is labialized, the second token of it will also be

⁷Labialized final consonants with vowel *a* are spelled in the orthography, but they involve a root-final abstract consonant, usually symbolized *h*, e.g., *m^wamm^wa* 'dissolved', from the root *m^whm^wh* (Bender and Fulass 1978:119).

labialized, so there roots of the pattern $C^{1w}C^2C^{1w}C^2$ as in *dʷäläddʷälä* 'be generous', but no roots of the pattern $C^{1w}C^2C^1C^2$, such as **dʷäläddälä*.

In the study of BCR, labialization is seen to behave differently on root-initial consonants and root-medial consonants. It has been seen that it is stable on medial consonants.⁸ Labialization on root-initial consonants is vulnerable to shifting when they are in syllable-final position, which happens exclusively on forms that are fully inflected as verbs. Labialization will be seen to be more stable on (or more attracted to) velar consonants than consonants at other points of articulation. This is true in not just Amharic (Bender 1974:19,20), but across the languages of the world, labialization being most common on velars in languages around the world (Maddieson 1984:37,38 and Silva 1991).

Among forms derived by BCR, however, there are a number of cases where labialization alternates, sometimes being present, other times being lost. This is most likely due to dialect, and possibly idiolect, variation. Examples of words where labialization alternates are given in (7.4).

⁸Labialization on medial consonants does not shift to other consonants, though it may be deleted.

(7.4) Examples of BCR forms that have labialization of consonants alternating (Kane 1990)

forms with labialized consonants	forms without labialized consonants	gloss	root based on non-reduplicated forms
<i>ag^wrarra</i>	<i>agrarra</i>	'bellow'	$\sqrt{g^w rh}$
<i>fæg^wərg^wər: alä</i>	<i>fægərgər: alä</i>	'exert oneself'	$*\sqrt{fgr}$
<i>täg^wtämättämä</i>	<i>tägtämättämä</i>	'bump, collide'	$*\sqrt{gtm} \sim g^w tm^9$
<i>täsm^wädämm^wädä</i>	<i>täsmädämmädä</i>	'limp'	$\sqrt{šmd}$

For the pair *fægərgər: alä* and *fæg^wərg^wər: alä*, both of which mean 'exert oneself to do something thoroughly', the non-labialized form can be taken as basic. Kane lists 11 forms without labialization, but only this one compound verb with the labialization (1990:2338). The single labialized form is an innovation. In one case, it is clear that the non-reduplicated form is labialized and the BCR form loses the labialization. In at least one case, the non-BCR form is not labialized and the labialization appears when the root is reduplicated by BCR. It does not seem possible to write a rule predicting when labialization will be added or lost when roots are reduplicated by BCR.

If a root with a labialized initial consonant undergoes BCR and this initial consonant is syllable-final, the labialization remains if the initial consonant is velar.¹⁰ This is seen in the examples presented in (7.5).

⁹For this form, there is no independently attested root in non-reduplicated forms. Both the labialized and non-labialized forms are found in BCR forms that are inflected as verbs. The non-labialized forms such as *tägtämättämä* all have a sense close to 'bump, collide'. The labialized forms such as *täg^wtämättämä* all have the sense of 'grumble, mutter', but the 'bump' meaning has also bled into the labialized form. The labialized forms meaning 'grumble, mutter' find a close sound-symbolism parallel with other labialized forms such as *arg^wämäg^wämä*, *ag^{wr}ämärrämä*, *täg^wmamma*, *täg^wnäfännäjä*, all with similar meanings.

¹⁰Phonetically, this results in the consonant *u* following the consonant (Leslau 1995:446).

(7.5) Examples of root-initial labialized velar consonants remaining stable

<i>tä-q^wnät'ännät'ä</i>	'fidget, be restless'	<i>ʋq^wnt'</i>
<i>tä-k^wläfälläfä</i>	'become soiled, dirty'	<i>ʋk^wlf</i>
<i>tä-g^wbät'äbbät'ä</i>	'be bent, curved, stooped'	<i>ʋg^wbt'</i>

If the root-initial consonant is not velar, when the root undergoes BCR and if the labialized consonant becomes syllable-final, the labialization can shift to the right. In a word like *š^wälläkä* 'wriggle though', the labialization is attached to the root-initial non-velar consonant. But when this form is reduplicated by BCR, the labialization can shift to a consonant on the right, *tä-š^wäkälläkä* 'slip through unnoticed'. In response to the questionnaire (see appendix B), educated native speakers have given the following different preferences for where the labialization should be spelled in reduplicated forms. Some of these forms are also given as possible pronunciations by Leslau (1995:551).

(7.6) Possible ways of handling labialization on BCR form of *š^wälläkä* ‘wriggle though’

possible forms	frequency chosen by interviewees ¹¹
<i>tä-š^wläkälläkä</i>	0
<i>tä-š^läkälläkä</i>	3
<i>tä-š^wläk^wälläkä</i>	3
<i>tä-š^wläkälläkä</i>	1
<i>tä-š^wläkälläk^wä</i>	1
<i>tä-š^läkäll^wäkä</i>	0

Motivation for the movement of the labialization includes the fact that it is otherwise unknown for Amharic to end a syllable with *š^w*. The only syllables allowed to end with a labialized stop are those with final velar consonants, as in *ag^w.rä.mär.rä.mä* ‘grumbled’. However, when a labialized velar stop ends a syllable, it is generally pronounced with a bit of the vowel *u* (Leslau 1995:10).

It is interesting that for one of the spelled forms given by an Amharic speaker, the labialization first shifts from the *š* to the following consonant, then is repeated in the reduplication *tä-š^läkäll^wäkä*, while another person shifted the labialization to the *l*, but did not transfer the labialization when the consonant was reduplicated, *tä-š^läkälläkä*. These persons minimized the distance that the labialization shifted, moving it only to the following consonant, even though it is *l*, not a preferred consonant for labialization. Others moved the labialization all the way to the velar consonant *tä-š^wläk^wälläkä*,¹² a further jump, but a jump to a preferred class of consonant for labialization. Leslau gave

¹¹For a variety of reasons, some of the Amharic speakers interviewed did not express a choice.

¹²In the Optimality framework, it might be said that for the person who gave the form *täš^wläk^wälläk^wä*, the constraint against labialization of final consonants was outranked by the constraint that selects velar consonants as preferred hosts for labialization.

a non-reduplicated jussive form of the same root in which the labialization moved leftward, attaching to the jussive prefix: $y^w\text{əšlāk}$ 'let him wriggle through' (1995:11), which will be pronounced as $y\text{ušlāk}$. (1995:446). Again, this shift of the labialization to an adjacent consonant (in this case a preceding consonant), prevented the labialized consonant š^w from appearing in syllable final position, even though the normal rules of the jussive paradigm produce $y^w\text{əšlāk}$.

It is instructive to note that the cognate verb root also undergoes BCR in Tigrinya, where Voigt also records variant locations of the labialization: $\text{šəl}^w\text{ək}l^w\text{ək}$ and $\text{šələk}^wl\text{ək}^w$, and even variants of the non-reduplicated form $\text{säläk}^w\text{ä}$, $\text{säl}^w\text{äkä}$, $\text{säl}^w\text{äk}^w\text{ä}$ (1988:531). Again, as in the Amharic variants, we see that some speakers prefer to move the labialization all the way over to the velar consonant, which in this case is reduplicated together with the labialization. In Chaha, Banksira noted examples where labialization of reduplicated forms was optionally applied to one of the tokens, but not the other. However, in his data, it was the right token that was labialized, leaving the left one without labialization (2000:197).

There is an additional root that has a labialized initial š^w and is also reduplicated by BCR $\sqrt{\text{š}^wml}$, 'be rolled up, cylindrical'. In the perfect, the labialization is on the initial sibilant $\text{š}^w\text{ämmälä}$. When it is reduplicated by BCR, the labialization shifts to the right to the m , yielding $\alpha\text{-šm}^w\text{älämm}^w\text{älä}$ 'roll clay between the hands' (Kane 1990:611). The consonant m in this word is preferred for labialization by virtue of its syllable-initial position, by the fact that it is not root-final, and the fact that the labial position is preferred over the palatal for labialization (Bender 1974:19,20; Banksira 2000a:196).

A labialized root-medial consonant is generally stable, since it will be in syllable-initial position, such as in $\text{tä-tk}^w\text{äräkk}^w\text{ärä}$ 'be industrious, hardworking' from \sqrt{tk}^wr and $\text{təmb}^w\text{ək}b^w\text{ək}$ 'soft and plump (of body)' from \sqrt{tmb}^wk . In an interesting contrast, Voigt shows a Tigrinya form where the labialization on a medial velar consonant can be lost:

šäq^wät'q^wät' bälä or *säqät'qät' bälä* 'tremble, wiggle' (Voigt 1988:530).¹³ Note that in this example the medial palatalization is not the only change but palatalization also occurs at the same time, the two changes being linked together, as in Chaha (Banksira 2000:230,231).

Spreading of labialization in BCR is also seen on the form *t'əwl^wəgl^wəg: alä* 'become weak, exhausted' (Kane 1990:2094), derived from *t'wlg*.¹⁴ In this case, the labialization arises from a consonant *w* in the root, rather than from a labialized consonant. Again, labialization spreads right to a following consonant, which is then reduplicated in its labialized form by BCR (though still leaving the *w* in its original position).

There is also a BCR form for which Kane lists an alternate pronunciation where the consonants metathesize, but the labialization stays on the original slot: *tä-tl^wägäll^wägä* and *tä-tg^wälägg^wälä* 'billow (of smoke)' (1990:998). Related to these, we also find two lexical bases in compound verbs, *təl^wəgl^wəg: alä* and *təg^wələl: alä*, both with the same meaning 'billow (of smoke)'. There is no non-reduplicated inflected verb form related to either the *t^wg* or *tg^wl* roots, but the existence of the lexical base *təg^wələl:* suggests that the abstract root is doubled, with labialization on the velar stop rather than the lateral, *√tg^wl*. This would lead to the conclusion that *tä-tg^wälägg^wälä* is the more basic form and that *tä-tl^wägäll^wägä* is the alternate pronunciation. This assumption that the *g* is the labialized consonant and that *l* is doubled is supported by two different statistics. First, a statistical count done of the verb roots from Bender and Fulass (1978)

¹³Neither the dictionary by da Bassano (1918) nor the one by Groupe Dictionnaire (1990) list a non-reduplicated root for either of these forms, so it is not possible to speak confidently of whether the labialization is lost or added.

¹⁴Kane spells the form as *t'uwluhluḡ*, a form that follows the Amharic orthography and is closer to the phonetics, but the derivation entails the root cited above, with subsequent labialization of the epenthetic schwa vowels.

shows that *l* is by far the most commonly doubled consonant, five times more likely to be a doubled consonant than *g* (as seen in appendix C). Secondly, from the same database, there are no examples of *l* being labialized in medial position in a root of three or more consonants (i.e., excluding forms $l^w C^1 l^w C^1$, which are seen as a root of two consonants, then repeated). It is quite certain, then, that the root should be analyzed as having a labialized g^w and the *l* is the final consonant, not the reverse. It is even more certain that the labialization remains in the same position, regardless of the metathesis of the root consonants.

Understanding consonant labialization in Amharic was already known to be complex, and the process of BCR brings out additional complexities.

Voigt wrote of how “labialization has an impact on more than one segment. It is rather the whole word that is affected by this process. Labialization appears as a suprasegmental feature” and he gave an example of how labialization “spread over the whole root” of a word (1988:531,532). One of the results of this spread of labialization in Tigrinya is palatalization of other sibilants, both diachronically and synchronically, seen in comparing the sibilants and velar consonants in Tigrinya *šalk^wäk^wä*, and Amharic *sälakkäkä* ‘be tall’. Writing about Arabic labialization, Watson says “[Labial] spread tends to operate from left to right” (1999:299). In Chaha, the spread is always from right to left by Banksira’s analysis which posits labialization as resulting from a root-final segment (which he symbolizes as /U/) which is manifested by the leftward spread of the labial feature. Banksira also shows how labialization and palatalization are linked in Chaha, similarly to the way they are in Tigrinya (2000:189ff,230). All of these examples of labialization being shifted or spread from one consonant to another (seemingly both leftward and rightward), its connection with palatalization, its independence in metathesis, all of these show that the traditional strategy of treating it as a feature of

individual root consonants must be supplanted by an approach that can handle its independent movement, such as was done by Banksira (2000).

7.3 Loss of ejective articulation

While the data are too limited to make any broad claims, there are three cases where an initial ejective (glottalized) consonant loses its ejective feature in a form derived by BCR. This is in contrast to the overwhelming pattern where the ejective articulation is preserved on the reduplicated form, as in *səqət'qət'*: *alä* 'tremble with fear' from $\sqrt{sq\dot{t}}$.

In all three cases, there is evidence that the ejective form of the consonant is the underlying form of the consonant.

(7.7) Examples of BCR forms that alternate between ejective and non-ejective consonants

root	root gloss	ejective	non-ejective	gloss of BCR
<i>qrf</i>	'peel off (v.t.)'	<i>qərəfrəf: alä</i>	<i>kərəfrəf: alä</i>	'peel off (v.i.)'
<i>*qlš</i>	--	<i>täqläšälläšä</i>	<i>täkläšälläšä</i>	'be upset (stomach)'
<i>*nqš</i>	'be broken'	<i>tänqäšäqqäšä</i>	<i>tänkäšäkkäšä</i>	'smash (v.t.)'

By comparing the unreduplicated forms *qärräfä* 'peel off (v.t.)' and *qərəf-it* 'peel (n.)' with the reduplicated forms, it is clear that the root *qrf* has an ejective initial consonant. That is, the initial consonant in *qərəfrəf: alä* clearly maintains the original ejective, while the initial consonant in *kərəfrəf: alä* represent the loss of the ejective articulation.

For the pair *täqläšälläšä* and *täkläšälläšä*, there is no non-reduplicated form corresponding to either form. However, there is only one derived form listed with the

non-ejective consonant, but several derived forms with the ejective version of the consonant (Kane 1990:682,1369). Of the three Amharic dictionaries consulted that were written by native speakers, Dästa (1970:1070) listed the form with the ejective consonant, but neither Amsalu (1987) nor Ahmed (1992) included either entry.

For the pair *tänqäšäqqäšä* and *tänkäšäkkäšä*, the fact that the ejective pronunciation is more basic is proven by noting the non-reduplicated form *näqqäšä* ‘smash’ and also the large number of derived forms, all with the ejective pronunciation. By comparison, there is only the one verbal form listed with the non-ejective articulation (Kane 1990:759).

It is clear, then, that all of these sets of forms represent examples of the loss of the ejective feature on the root-initial consonant. In all cases, these consonants are voiceless velar stops. Loss of the ejective feature at the velar point of articulation is particularly striking, since ejectives are cross-linguistically most common at back points of articulation (Greenberg 1970:127). In counting consonants from the Amharic lexicon, Bender showed that at the velar point of articulation, ejectives outnumbered non-ejectives 210 to 123 (Bender 1974:19,20).

There is an alleged additional instance of alternation of ejective articulation cited by Kane, *agrarra* ‘bellow, boast’, which he labeled as a “variant” of *agrarra* ‘sing war songs’ (1990:1923). However, *agrarra* should be compared with *ag^wrarra* rather than *agrarra*. This is not a case of alternation of the ejective feature, but alternation of the labialized release, confirmed by comparing *agrarra* ‘bellow’ to *ag^wrarra* ‘bellow’, (see the discussion of this pair in section 7.2 and the data in (7.4).

Though no explanation is offered here, it has been shown that there is a surprising loss of the ejective articulation on the initial consonants of at least three forms derived by BCR. The loss of the labial articulation is more common, but is not confined to the initial consonant. This, too, is unexplained.

7.4 Infixation of *-n-*

There are a few BCR forms that have an additional infix consonant, one not found in the root. The infix *-n-* is found in a variety of Amharic grammatical forms, not just in forms reduplicated by BCR. Leslau has given many examples, including some where the historical infix has now been reinterpreted as part of the root (1995:28ff,556).

No writers have discussed the infixation of this *-n-* in Amharic forms derived by BCR.¹⁵ However, Semitic scholars have been aware (possibly over-aware) of this prefix in their study of some BCR forms, sometimes suggesting that *-n-* has been infixated when a simpler derivation based on BCR would explain how a word is derived, examples discussed later in this section.

There are a few forms that have no *-n-* in the forms not derived by BCR, but they have the *-n-* infix when they are reduplicated by BCR. Examples of such forms are displayed in (7.8).

¹⁵In describing how the VC prefixes are required on inflected verbs derived by BCR, Leslau added "no other stem morphemes are used with this [n.b. BCR] verbal class" (Leslau 1995:568). It is not clear if this infix would be counted as a "stem morpheme" and therefore an exception to this claim.

(7.8) Examples of forms that have no *-n-* in non-derived forms but contain *-n-* in forms derived by BCR

gloss	non-derived forms, without <i>-n-</i>	reduplicated forms, with <i>-n-</i>	gloss
'be spotted, striped'	<i>täžg^wärägg^wärä</i>	<i>žəng^wərg^wər</i>	'striped, mottled'
'spherical'	<i>däbäläl</i>	<i>dämbälbal</i>	'sphere, ball'
--- ¹⁶	<i>täzb^wädäb^wädä</i>	<i>zəmb^wəd^wad</i>	'residue after buttermilk'
'various kinds of colors'	<i>həbər</i>	<i>hənərbər</i>	'spotted, multicolored'

The forms based on the consonants *hbr* represent a retention from an older form of the language, such as in Ge'ez, where Leslau derives "*hənərbəre... from həbərbəre... with inserted n*" (1991:236). The Amharic etymology is further complicated in that Amharic has lost the phonemic distinction between *h*, *ḥ*, and *h̥* (though it has maintained the orthographic distinction). In Ge'ez, *ḥbr* had a meaning related to 'color, a spot' and *h̥br* had a meaning related to 'being together'. Amharic has now collapsed the meanings of the two roots together, so that it means 'having colors together'.

Since the infix comes right after the initial consonant, it does not become involved in the counting of the last two root consonants, the consonants that are reduplicated. Therefore, the presence of the infix *-n-* does not affect the process of reduplication. However, the presence of the infix can confuse the analysis of BCR forms that contain this infix.

¹⁶Kane cited this form as cross-reference, but gave no such entry. This pair of words may possibly fit better in 7.5, as example of the deletion of *n*, rather than the insertion, but there is not enough data to be sure.

This *-n-* infix in forms derived by BCR is found in Amharic, but also in other E-S languages. As noted earlier, Leslau derives “*ḥənbərbəre...* from *ḥəbərḥəre...* with inserted *n*” (1991:236). In addition, Harari, a language where BCR is used in only limited ways (explained more in chapter 9), also has an example of this *-n-* infix. Strikingly, it is on a root to which Amharic also applies BCR, but Amharic does not have the *-n-* infix in its BCR forms. Amharic has *tä-n-käballälä* ‘roll (v.i.)’, from the root *kbl* plus the *n-* prefix. In Harari, with assimilation of the nasal to the bilabial consonant, Leslau gives *kumbulbul* ‘roll’ (Leslau 1979:3.334).

In some cases from other Semitic languages, this *-n-* infix has also been invoked in the derivations of some words where a more straightforward explanation based on BCR is available and more appropriate. In Ge’ez, for example, there is a verb *ʔas’nahənəḥa* ‘swing a censer’. It is readily apparent that it is related to the noun *s’ənḥaḥ* ‘censer’. Leslau suggested that the verb is derived “from *s’ənḥaḥ...* with inserted *n*” (1991:560). However, applying BCR to the consonants of the noun, interpreting the root as having a doubled final consonant $\sqrt{s’nh}$ gives *ʔas’nahənəḥa* and there is no need to invoke this *-n-* infix in the derivation of the verb.

Another example of invoking *-n-* where BCR is probably a simpler explanation involves the consonantal string *xnsns* ‘sun idol’ (Tal 2000:283) from the Aramaic Targums.¹⁷ Alternatively, Jastrow proposes a stem *xss*, with an infixed *-n-*, but it actually requires two cases of this infixation (1971:1.483). Buxtorf, centuries ago, may have been more right when he simply listed the entry *xns*, assuming it was derived by the BCR pattern from such an unattested form (1639:795).

¹⁷It is found in Targum Onkelos in Leviticus 26:30, Targum Jonathan in Isaiah (3:19;17:8,9; 27:9) and Ezekiel (6:4,6).

7.5 Consonant deletion shortening roots

Section 7.4 has shown the addition of *-n-* to forms reduplicated by BCR. This section shows the opposite, the deletion of consonants from roots reduplicated by BCR. There are some examples in Kane's dictionary (1990) where BCR was applied to roots longer than three consonants, but a root consonant has also been deleted, shortening the string of consonants. It was shown in chapter 4 that the inflection of forms derived by BCR is based on the template for four-consonant verbs. It was also mentioned in the same chapter that two native speakers of Amharic suggested that two other reduplicated forms derived from four-consonant roots would be more acceptable if they were shortened by the deletion of a consonant. A process of deleting a root consonant from forms derived by BCR does indeed seem to have happened in a number of cases.

The examples that suggest a process of consonant deletion in conjunction with BCR for roots of four or more consonants show one of two patterns. In the first pattern, an antepenultimate consonant is deleted.¹⁸ In the examples identified so far, these deleted antepenultimate consonants are all coronal sonorants (Amharic coronal sonorants being *n*, *l*, *r*). For roots of four consonants in which the antepenultimate consonant is fully specified, 57% of the time this consonant is a coronal sonorant,¹⁹ so it may simply be that the database is so limited that only these frequent consonants have been found affected by this process. More examples are needed to be able to say if the deletion of

¹⁸It may be equally accurate to that is the second consonant in the root (counting from the left edge), but there are two reasons for choosing to describe it as "antepenultimate". First, it has already been shown that Amharic counts consonants from the right edge of the word in defining BCR, as shown in chapter 3. Secondly, the five-consonant root $\sqrt{wšngr}$ 'cross, interweave' can also be reduced to a four-consonant root $\sqrt{wšgr}$ by deleting the antepenultimate consonant as in *wšäggärä* 'cross the eyes, walk zigzag, interweave' without any duplication being involved. In this case, also, once again specifying "antepenultimate" accurately describes the deleted consonant, but a description counting consonants from the left edge of the root requires a new formulation.

¹⁹This percentage was calculated using the roots in Bender and Fulass (1978). In their list, a total of 333 four-consonant roots were found to have fully-specified second consonants and of these, 84 had *n*, 67 had *r*, and 41 had *l*, for a total of 192.

the consonant is limited to "coronals," "sonorants," or "coronal sonorants." For the second pattern, if the antepenultimate consonant does not fit this class (however it should be defined), then the initial consonant of the root is deleted. Examples of this consonant deletion are shown in (7.9), the consonant that is deleted from the root is underlined. In the second pattern of reduplication, the initial consonant is deleted, as in *tāšmādāmmādā* being derived from $\sqrt{qšmd}$, as seen in the last row of (7.9).

(7.9) Examples of root consonants being deleted in conjunction with BCR

BCR gloss	BCR form	root after deletion	full root	root gloss
'swarm, pullulate (ants)'	<i>tätmä sämmäsä</i>	<i>tms</i>	\sqrt{trms}	'swarm (people or ants)'
'sway, lurch side to side'	<i>täw gäd äggädä</i> ²⁰	<i>wgd</i>	\sqrt{wlgd}	'bent, twisted, distorted'
'gush forth (spring), boil over'	<i>tägfäl äffälä</i>	<i>gfl</i>	\sqrt{gnfl}	'boil, bubble up'
'be weaksighted'	<i>tädbär äbbärä</i>	<i>dbr</i>	\sqrt{dnbr}	'become blind'
'become dusk'	<i>tädgäz äggäzä</i>	<i>dgz</i>	\sqrt{dngz}	'get dark'
'look cross-eyed, be warped'	<i>šängärgär</i>	<i>šngr</i>	$\sqrt{wšngr}$	'cross the eyes, lay wood crossways' (with VC prefix <i>a-</i>)
'sway the hips', derived forms 'broken, one with slovenly gait'	<i>täšmäd ämmädä</i> ²¹	<i>šmd</i>	$\sqrt{qšmd}$	'slovenly posture' ²²

In all of these cases, both those reduplicated by BCR and the additional case of shortening $\sqrt{wšngr}$ to $\sqrt{wšgr}$, producing the synonymous *wäš äggärä*, the result is a

²⁰This form is given as it was shortened by a native speaker, but Kane listed it as *täw lägäd äggädä*.

²¹This form is given as it was shortened by a native speaker, but Kane listed it as *täqmäd ämmädä*.

²²This meaning is found on a derived form of the root; the primary meaning is 'beat with a stick'.

shortened form that then more closely fits the four-consonant template, Amharic's longest standard template.

In some cases, BCR forms are found derived from both the full and the shortened form of the same root. In these cases, the BCR form that is inflected as verb has the shortened root, but the full form of the root is found in BCR forms that are not inflected as verbs. The form that must fit the four-consonant verbal template for inflection is restricted to the shortened three-consonant form of the root, but the full four-consonant form of the root is used for such things as lexical bases, nouns, or adjectives. This can be seen with the root \sqrt{dnbr} . When it is inflected as verb, the antepenultimate consonant is deleted, *tädbäräbbärä* 'be weaksighted'. But the full form of the root appears in *dänbärbär alä* 'be myopic' and *dänbärbär* 'one who cannot see properly'.

In some of these cases, the reduced root that is found in the BCR form matches a different root that is attested in non-reduplicated form. For example, the root \sqrt{dngz} carries the meaning 'get dark', but the reduced form of the root is *dgz*, which is found in the inflected BCR form *tädgäzäggäzä* and matches the attested root \sqrt{dgz} 'be short'. But the inflected BCR form *tädgäzäggäzä* is clearly linked semantically to the root \sqrt{dngz} not \sqrt{dgz} .

In three of the examples presented in (7.9), the deleted consonant is *-n-*. The deletion of this consonant may be motivated by two factors. First, *-n-* in second position is sometimes an infix (see section 7.4), and therefore easily displaced. Secondly, the antepenultimate consonants deleted in other examples are *l* and *r*, also sonorants. In many cases, sonorants are more vulnerable to deletion than obstruents. This would explain why it is not the antepenultimate consonant that is deleted from the root $\sqrt{qšmd}$.

7.6 Other phonological changes

There are other phonological changes, but listed on only one form. These are given for the sake of completeness. There is a single example of a form with a consonant becoming palatalized when the root undergoes BCR. From the root \sqrt{dbz} 'drag one's feet', there is an inflected verb *adbäžabbäžä* 'have difficulty walking'. This does not appear to be a productive pattern, but again, as with the alternation of labialization and ejective discussed in sections 7.2 and 7.3, the change to one token of the penultimate root consonant is carried over to both tokens in the reduplication.

There is also at least one case of metathesis in an inflected verb derived from a three-consonant root. From the root \sqrt{gtl} 'gather, collect' there is a reduplicated verb *agtälättälä* 'tie various objects into a disorderly bundle, 'bring a lot of followers'. A metathesized pronunciation is also recorded, *aglätällätä*. Based on the non-reduplicated form, the former of the two appears to be basic and the latter is the result of reduplication.

There are also examples of metathesis of root consonants in roots that are not attested in non-reduplicated form, such as *täqzämäzzämä* and *täqmäzämmäzä*, both of which mean 'be thrown with a whirling motion'. In cases like this, the possibility of sound symbolism cannot be overlooked.

CHAPTER 8

OBSERVATIONS ON THE SEMANTICS OF BCR

8.1 Previous discussion of the semantics of BCR forms

No previous study of BCR has described the semantics of derived forms with more than two sentences. Though this dissertation concentrates on the morphophonology of BCR, some observations on the semantics of BCR are called for. This chapter examines the semantics of these reduplicated forms from three angles: relationships between reduplicated and non-reduplicated forms, the semantic categories most frequently represented by BCR, and pattern linking certain concepts and meaning. This chapter does not provide final and definitive answers for most questions related to the study of the semantics of a set of reduplicated forms, but it does suggest many hypotheses and points the way for future study of this topic.

For Ge'ez, a precursor to Amharic, it has been observed that a verb derived by BCR "expresses in a very picturesque manner the notion of 'backwards and forwards', 'unremittingly', 'again and again'," and a word derived in this way is sometimes used to "denote colours and savoury things" (Dillmann 1907:143,232). The first sentence generally describes how reduplication modifies the meaning of a verb, indicating repetition of an action. This will be discussed in section 8.2. The second observation refers to semantic categories that are represented by forms derived by BCR. These are discussed in section 8.3

The semantics of BCR forms in Amharic itself has been described as including the concepts “expressive, augmentative, frequentative” (Cohen 1970:271).¹ This list does not list any specific categories, such as “colours and savoury things,” but the ideas of frequentative and augmentative fit with those listed above for Ge’ez.

In studying the semantics of the words derived by BCR, it is useful to make a distinction between the study of the meanings carried by reduplication and a study of the meanings carried by certain consonants and vowels. With this in mind, the chapter is divided into three main sections. First, the semantic relationship between reduplicated forms and their non-reduplicated roots will be examined. Secondly, the types of categories that repeatedly appear in the lists of forms derived by BCR are examined, producing a list of semantic categories that are most frequently reflected by BCR forms. Thirdly, patterns that exist between certain sounds and certain meanings are examined, though some of the results are more definite than others.

8.2 Semantic relationship between reduplicated and non-reduplicated forms

In the languages of the world, reduplication is a common, if not universal, morphological process. Sapir’s classic observation is that reduplication “is generally employed, with self-evident symbolism, to indicate such concepts as distribution, plurality, repetition, customary activity, increase of size, added intensity, continuance” (1921:76). Related to this is the concept of marking an increased number of subjects or objects for a verb. All of these are inherently iconic meanings, the increase of phonological form relating to the increase of a semantic property. They exemplify what Lakoff and Johnson summarize as “more of form is more of content” (1980:127).

¹“expressif, augmentatif, fréquentatif”

Chomsky held that animal communication systems are limited and iconic, and these mechanisms “are entirely different from those employed by human languages” (1972:69). In response, Haiman (1980, 1983) has argued that there are many non-arbitrary facets of language, documenting examples of “iconicity” in language.

The concepts Sapir listed are typical of the meanings carried by reduplication in Amharic, both penultimate reduplication and BCR. Several examples of this are seen in (8.1), including examples formed by BCR and penultimate reduplication.

(8.1) Examples of iconic uses of reduplication in Amharic (Pen = penultimate)

root gloss	root	type	reduplicated form	gloss of reduplicated form
‘write’	<i>s’hf</i>	Pen	<i>täs’as’afu</i>	‘they wrote to each other’
‘divide’	<i>kfl</i>	Pen	<i>täkäffälä</i>	‘be divided up, be shared out’
‘hit, strike’	<i>mith</i>	Pen	<i>tämätatta</i>	‘hit one another’
‘insult, revile’	<i>sdb</i>	Pen	<i>täsädaddäbä</i>	‘insult, revile each other’
‘break’	<i>sbr</i>	Pen	<i>täsäbabbärä</i>	‘be broken into many pieces’
‘break’	<i>sbr</i>	BCR	<i>täsäräbbärä</i>	‘be broken continually’
‘get dark’	<i>c’lm</i>	BCR	<i>täc’lämällämä</i>	‘get too dark to see’
‘be strong’	<i>frt’m</i>	BCR	<i>färt’ämt’äm: alä</i>	‘be very muscular’
‘untie’	<i>fth</i>	BCR	<i>aftatta</i>	‘disentangle’
‘stammer’	<i>g^vldf</i>	BCR	<i>g^väldəfdəf: alä</i>	‘be tongue-tied’

As can be seen from the examples in 8.1, many Amharic words derived by BCR carry the sorts of semantic categories mentioned above as being typical of reduplicated forms, such as intensity and repetition. However, one difference between penultimate

reduplication and BCR is that penultimate reduplication is regularly used to mark reciprocity.

Verbs that are reduplicated by BCR and then inflected often have meanings that include the sense of the non-reduplicated version plus the idea of “keep on doing the action.” For example, *sämmät’ä* ‘sink’ has a reduplicated counterpart, *täsmät’ämmät’ä* which means ‘keep on sinking or going down’. Other examples of this include *rätt’äbä* ‘be wet, damp’, which is reduplicated as *tärt’äbbätt’äbä* ‘keep on being or becoming damp’ and *sännäfä* ‘be lazy, sluggish’, which is reduplicated as *täsnäfännäfä* ‘keep on being or becoming sluggish’. Further examples can be found in appendix D.

However, there is not always such a clear semantic connection between a non-reduplicated form and a form reduplicated by BCR. Buckley’s observation, originally about Tigrinya, is applicable in Amharic, as well: “Some [roots] exist only in reduplicated forms... Other roots are found in plain and reduplicated forms, with the same meaning... [other] verbs are also found in plain and reduplicated forms, but the meanings are unrelated... In other cases, there is some relationship in meaning, though it is not exact” (1990:81). These four categories are illustrated in (8.2), presented in the order of Buckley’s categories. Buckley’s first point (illustrated in row 1 of 8.2) bears reiteration, that for some words their first coinage was in a BCR form, without any non-reduplicated root in their history.

(8.2) Amharic Examples of Buckley's four degrees of semantic links between roots and reduplicated forms

	root	non-reduplicated gloss	BCR verbal form	BCR gloss
1. no non-reduplicated form	*√qls		<i>a-qläsälläšä</i>	'felt sick, nauseated'
2. very similar semantics	√t'lq	'submerge'	<i>a-t'läqälläqä</i>	'flood'
3. some semantic link	√lgt'	'tie jaw of animal'	<i>algät'äggät'ä</i>	'nibble'
4. no visible semantic link	√grbd	'open a door wide'	<i>gärbädbäd: alä</i>	'walk stumbling over stone'

In addition to Buckley's four categories of semantic relationships between reduplicated and non-reduplicated forms, a fifth one, a sort of combination of his second and fourth ones, can be added. This hybrid category contains cases where a reduplicated word shares a semantic link with the non-reduplicated form, but also has other senses that are not related to the non-reduplicated form. For example, the root √gbs gives the non-reduplicated form *gäbbäsä* meaning 'gather, harvest', but the reduplicated form *tägbäsäbbäsä* means not only 'be harvested' but also 'let one's garment drag' and 'walk heavily', senses that have nothing to do with the non-reduplicated verb.

Among reduplicated words that have a clear semantic link to a non-reduplicated form, some derived words carry prototypical meanings for reduplicated words, others carry totally unrelated meanings.

Modern Hebrew is the only Semitic language that has been described as having a consistent semantic change marked by the use of BCR. It uses BCR to derive diminutives, of both nouns and descriptives (Masson 1974, Bolozky.1994), such as *bisalsal* 'small onion' from *bisul* 'onion' and *xataltul* 'kitten' from *xatul* 'cat'. There is no evidence of this marking of diminution in the Amharic data, nor in any other E-S language.

8.3 Semantic categories most frequently reflected by BCR forms

As seen above, the semantics of many BCR forms were shown to be typical of the semantics of reduplication, both in Amharic and in languages around the world. Here, the most common semantic categories reflected in BCR forms are examined, together with totaling the number of roots whose semantics fall under that category. Many of the categories that are represented are negative and many are also non-iconic.

To study the semantic categories most frequently marked by BCR, a database of 308 inflected verbs derived by BCR and detailed definitions was investigated, the database derived from Kane (1990) and prepared by Sharon Rose.² Her database listed all the meanings given by Kane for each verb. Studying this list of verbs, looking for categories that repeated, a list of 61 possible semantic categories was developed, such as "swarm," "lines of people moving," "smoke." Not all verbs fit a category, some having meanings that were not related to any of the established categories. Also, some verbs fit more than one category, since many have multiple senses, such as *tädbäkäbbäkä* 'be turbid' and also 'argue with one another'. Of the 61 categories, several were found to be

²Once again, I wish to thank Sharon Rose for many kinds of help and advice related to this dissertation. Making the database available to me was more than professional courtesy would require, and I am grateful. In contrast to her database that listed all the meanings of each verb, the database found in appendix A of this dissertation lists usually just one meaning per entry, but also lists the meanings of non-reduplicated forms, if any, plus BCR forms that are not inflected verbs. The two databases are complementary.

inconsequential, with few too examples. In table 8.1, the categories and the number of examples for each are listed.

Some generalizations can be made quickly. First, of the two semantic categories that Dillmann had listed for Ge'ez, "colours and savoury things" (1907:143,232), only the first is represented in the list, and that with only four examples. Clearly most the categories found in this study do not match the concepts that he had noted for Ge'ez.

Secondly, several of the categories relate to movement of various sorts: "writhe, wriggle," "lines of people moving," "gait impairment," "shake, vibrate, flutter." Also, several of the categories have to do with liquids: "be wet, damp," "turbid," "slippery, slimy," "dribble, leak, ooze," "gush out, boil, overflow."

It is also clear that a number of the categories have a strongly evaluative component. That is, there are often positive or negative connotations associated with these verbs derived by BCR. Such words often do not merely denote actions or states, but are used when the state or action is one that is not merely neutral. For example, not merely "wearing clothes," but "wearing fine clothes" and not merely being "polite" but "excessively polite."

It is clear that many of the words in this set have negative connotations, more than have positive connotations. For example, of the eight most frequent categories, seven are basically negative. The preponderance of negative terms can be seen by looking for opposite categories for the negative categories. There are some pairs of opposites in the list, including "lazy, idle, delay" is contrary to "try hard, strive" and "hurry, speed, quickly." Also, "dark" is contrary to "light/sparkle," and "relax, happy, carefree" is contrary to "fear, nervous" and "angry." But there are many more negative categories that do not have positive counterparts in this list. For example, there is a category "dirty, fouled," but no contrasting "pure, clean"; there is "dazed, drunk, confused," but no "clearheaded, insightful"; "sick, nauseated" but no "be strong, healthy"; "complain,

grumble, criticize” but no “praise, compliment”; “scattered, in disarray” but no “orderly, tidy.”

Leslau did an innovative study of what he called “echo words” in Amharic, two word phrases such as *zärgaffa mängaffa* ‘bulky, clumsy’ (1960:206). In several ways, these echo word formations are similar to BCR forms.³ They generally involve repetition of final syllables, they can be built either from existing roots or from roots which are otherwise not attested, and their semantics is not always easily derived from the definitions of their roots. Leslau observed of their semantics, “The echo words tend to lend themselves often to the expressions trivial, useless, nonsense, rubbish... acts and qualifications of pejorative and uncomplimentary nature are often expressed by echo words. Indeed a considerable number of words have the meaning clumsy, awkward, bulging” (1960: 205,206). This will be shown to be strikingly parallel to the semantics of BCR forms.

Studies of reduplication across languages have also shown that reduplication is frequently used to mark endearment and positive evaluation (Moravcsik 1978:322). In some cases, though, the opposite is true and reduplication may mark a negative evaluation in relation to the event or object. This is seen in English in the Yiddish-inspired construction “standards-schmandards” and also in Bahnar (Banker 1964:122,123). Much of the Amharic BCR data differs from the broader trend toward positive evaluations, but whether positive or negative, we find that reduplication is used to mark a conventionalized statement of evaluation.

³An echo word construction can even involve BCR forms, as in *qəməzməz t’əməzməz* ‘wiry, agile’ (Leslau 1960:215).

Table 8.1. Semantic fields found with BCR verbs, with number of instances

semantic field	number of examples
gait impairment	26
restless, aimless	18
swarm, turmoil	14
dress up	14
vision impairment	13
curved, round (state or motion)	13
fear, nervous	13
writhe, wriggle	12
hang down, drag along	10
light/sparkle	10
break, strike, crack	10
scattered, in disarray	10
dribble, leak, ooze, expel	10
lazy, idle, delay	10
lines of people moving	9
smoke	8
dirty, fouled	8
gush out, boil, overflow	8
tired, weak	8
make a noise	8
inaccuracy, deception	8
enlarged, grow	8
shiver/shake (body)	7

Table 8.1-Continued.

semantic field	number of examples
fail, do poorly	7
talk (negative: unkind, silly, much, etc.)	7
complain, grumble, criticize, murmur	7
tear, shred	6
try hard, strive	6
sick, nauseated	6
lengthen, long line, stretch	6
posture impairment	6
coil, wrap	5
shake, vibrate, flutter	5
dazed, drunk, confused	5
angry	5
court, be pampered	5
spotted, colored	4
hurry, speed, quickly	4
mixture, collection	4
soft	4
be wet, damp	4
slippery, slimy	4
relax, happy, carefree	4
do evil, mischief	4
politeness (excessive)	4
mouth acts (chew, bite)	3

Table 8.1-Continued.

semantic field	number of examples
dark	3
burn, fire	3
crumple, wrinkle	3
texture & surface (negative)	3
turbid	3
be in disorder	3
voice quality	3
escape, wriggle through	3
decorated, attractive	3
descending motion (fast)	3
be thrown end over end	3

One category that is clearly outside of the expected areas of semantics for reduplication is “dress up, wearing fancy clothes.” In Amharic-speaking society, being well-dressed is very important and this is reflected in the fact that the language is rich in terms related to this.

The semantics associated with BCR seems to have some affinity across E-S. Evidence of cognates that are reduplicated by BCR in several Ethiopian languages is presented in chapter 9. But there is at least anecdotal evidence that BCR is used for similar semantics on non-cognate roots in other Semitic languages. For example, in a Tigrinya-Amharic dictionary, the definitions of many Tigrinya words included Amharic words that were also formed by BCR, but are not cognates, including Tigrinya *šānašnaʿ*

bälä, defined with Amharic *täqbät'äbbät'ä*, *ašqaqqa*, *tägbäräbbärä*, *täškäfäkkäfä* (Dästa 1970).

While looking for examples of BCR in other Tigrinya, it was often profitable to look up English words that had been found to have BCR forms in Amharic. For example, having found “sparkle,” “slippery,” “tangle,” “rattle,” “jumble” to be derived by BCR in Amharic, Isaac’s English-Tigrinya dictionary (1997) was consulted, revealing that these same concepts were represented by BCR forms in Tigrinya, though the roots were not usually cognate.

8.4 Patterns linking certain consonants and meanings in BCR forms

The study of sound symbolism goes back at least to Plato’s version of the dialogue of Socrates with Cratylus. Socrates asserts that certain letters of the alphabet are logically associated with certain meanings, such as that the letter *rho* (*r* in English), logically appears

in the words *tromos* (trembling), *trachus* (rugged); and again, in words such as *krouein* (strike), *thrauein* (crush), *ereikein* (bruise), *thruptein* (break), *kermatixein* (crumble), *rumbein* (whirl): of all these sorts of movements he generally finds an expression in the letter *r*, because, as I imagine, he had observed that the tongue was most agitated and least at rest in the pronunciation of this letter, which he therefore used in order to express motion. (Socrates 215)

Socrates may be right in noting patterns of sound and meaning, such as that *r* is found in words for movements (at least in Greek⁴). However, it is not likely he is correct in trying to explain a pattern of consonants related to certain meanings by looking for an explanation in the movements of the physical articulators, such as *rho*, above. Following the same logic, he asserted other consonant-meaning correlations, such as that “*nu* is

⁴Socrates, based on principle rather than comparative data, claimed that the principles that he was enumerating were as true for “Hellenes as barbarians.” However, if that were indeed true, the languages of the world would have a much greater similarity in their lexicons.

sounded from within, and has a notion of inwardness" (Plato 216), which is subject to the same criticism.

Writing about Semitic languages in particular, Barfield rhapsodized, The Semitic languages seem to point us back to the old unity of man and nature, through the shapes of their sounds, but also, in a manner, as *gestures* of the speech-organs... If we try to think of these roots as 'words', then we must think of words with a potential rather than an actual meaning. Certainly those who have any feeling for sound-symbolism, and who wish to develop it, will be well advised to ponder them (1965:124).

Because of these mystical assumptions about how these correlations were based on the motions of the articulators, this approach has been largely discarded, but examples continue to intrigue scholars, such as the possibility that in English the consonant *w*, which is [+round], may correlate with roundness, such as in 'whirl' (Rhodes and Lawler 1981:340, fn. 13), reminiscent of the Socrates' observation that the letter "o was the sign of roundness" (Plato 216).

Setting aside these articulatorily based assumptions, many have looked at language specific correlations between certain sounds and certain semantic categories. Rhodes and Lawler (1981) showed how English has many examples of "athematic metaphor" and they use these to argue for sub-morphemic analyses of certain sounds that recur frequently with certain meanings, such as *gl-* for "reflected light" and *sn-* "nose."

Turning to actual Semitic data, Fox (1982:56,57) pointed out a series of words related to 'cut' whose first two consonants are similar. However, his paper is more programmatic than analytical, calling for a systematic study of sound symbolism in Semitic rather than documenting it.

The roots that are found in each of the semantic categories listed in table 8.1 are presented in appendix D. In the discussion that follows, phonological patterns within these categories are examined, all observations based only on this corpus, taken from

Rose's database. These findings may or may not be confirmed by a broader study of Amharic. They are presented here to inspire discussion, debate and further research.

In seeking patterns of sounds in these roots, it is important to compare classes of consonants (such as "velar," "nasal," "ejective"), but also compare positions in the root, initial, medial, final. A pattern involving initial consonants can be seen in the category "mouth acts (chew, bite)," where all three roots in the category have initial *l*. For the medial position, a pattern is found in the category "texture & surface (negative)," all three examples having medial *r*. There are also patterns involving initial and second consonants together, such as in "politeness (excessive)," three of four roots in the category involve an initial *š* followed by a labialised medial consonant. There are also patterns involving final consonants, such as "lengthen, long line, stretch," in which all six roots in the category end with *l*.

In studying positions within the root, it should be remembered that the last two consonants will repeat, so that they form a sequence twice, for example *rgb* reduplicates as *rgbgb*. Therefore, the sounds in the last two consonants have more opportunity to be aurally prominent, being repeated. This does not mean that initial consonants cannot carry sound-symbolism, but suggests that the final consonants may carry a higher component of sound symbolism. This is seen with the final consonants *-ms*, in the category "swarm, turmoil." This pair of consonants is found in four of the 14 roots found in this category, plus another with *-bs*, all preceded by coronals.

Not surprisingly, there are also patterns that involve similarity or identity of initial, medial, and final consonants simultaneously, such as *wzg*, *frg*, *mzg* all meaning 'be thrown end over end'. The validity of sound symbolism in some semantic categories is demonstrated by the fact that some words are metathesized forms of others within the same category: *skr* and *srk* in "turbid" and *mnš* and *šmn* in "dress up." Metathesis is also seen in the synonymous lexical bases *bəc'ərəqrəq alä* and *c'əbrəqrəq alä* 'be a failure (of

a celebration)', with no non-reduplicated form of the root to establish which is the original and which is the metathesized version.

In other cases, sets of similar consonants are distinguished only by very minor changes in consonants, seen in such sets as *šmn*, *šmr*, *šm^wn*, *šm^wr*, *zmn* in "dress up" and *t'ml*, *t'wn*, *t'mz*, *c'md* in "coil, wrap."

Not surprisingly, some semantic categories have much more phonological homogeneity than others. This is due to several factors, including the fact that some categories are marked by a high degree of sound symbolism and some are not. Also, some of the semantic categories chosen here match categories in the minds of Amharic speakers more than other categories. Additionally, the larger the number of roots in a category, the harder it is to maintain strong sound symbolism. For example, the category "descending motion" has a very high degree of phonological similarity, with all three of the roots in this category having an initial voiced sibilant, the voiced velar stop, and a sonorant: *žg^wl*, *žg^wm*, *zlg*. Similarly, in the category 'be thrown end over end', all three roots in this class share an initial labial, a voiced coronal continuant, and a final *g*: *wzg*, *mzg*, *frg*. But this extreme degree of phonological similarity cannot be maintained in a large number of roots, this category having only three members. A similar situation is seen in the category 'coil, wrap', with all five roots having an initial coronal followed by a medial labial, four having an initial coronal ejective, and all five having a nasal in the repeating final consonants: *c'md*, *jbn*, *t'ml*, *t'mz*, *t'wn*.

An examination of the data in appendix D shows that the degree to which these semantic categories are marked by sound symbolism varies on a continuum. There are some very clear cases of categories with sound symbolism in words derived by BCR, such as "descending motion (fast)" *žg^wl*, *žg^wm*, *zlg*. There are also other categories which show weaker sound symbolism such as "decorative, attractive" *šm^wr*, *šqh*, *tl^wk* and some with no discernible sound symbolism, such as "voice quality" *srq*, *rgb*, *škf*.

One notable example of strong sound symbolism is “mouth acts,” which has three examples that refer to mumbling and types of chewing. All three examples have initial *l*, followed by two consonants that involve total closure of the oral air stream at different points of articulation. This sequence of consonants results in a significant amount of mouth motion, opening and closing. This combination of meaning and sound gives a clear case of sound symbolism. But it is not a completely arbitrary combination of sound and meaning. There is an element of similarity between the sounds and actions. It even approaches the sort of explanation given by Socrates to Cratylus, in that the motions of the articulators opening and closing relate to the meanings of the words.

8.5 Summary of sound symbolism

This first study of sound symbolism in Amharic BCR forms leads to several new insights, some more definite than others. First, and not at all surprisingly, this type of reduplication follows some of the same semantic changes as found in other types of reduplication, such as repetition and intensity, including “shake, vibrate, flutter” and “writhe, wriggle.” The use of BCR to mark these categories is generally iconic, repetition of action being reflected by repetition of sound.

Secondly, the study of semantic categories represented by BCR shows some surprises, several categories having no obvious relation to the iconic types of semantics often associated with reduplication, including “dress up,” “smoke,” “vision impairment,” “complain, grumble, criticize” and “politeness (excessive).” The use of BCR to mark these categories is not iconic but arbitrary and language specific. (In saying that the use of BCR to mark these semantic categories is language specific, that does not mean that these similarities are not shared with related languages, a point that is further explored in chapter 9.)

Thirdly, it has been shown that the semantic categories are marked by varying degrees of sound symbolism. Some sets of semantically similar words are marked by close degrees of phonetic similarity, that is, high degrees of sound symbolism. Other sets of semantically similar words are marked by less phonetic similarity, or no similarity. Some of these examples of sound symbolism have been identified, including an initial voiced sibilant and a voiced velar with a sonorant, seen in the roots $\text{z}^{\text{v}}\text{g}^{\text{v}}\text{l}$, $\text{z}^{\text{v}}\text{g}^{\text{v}}\text{m}$, zlg related to 'descending motion (fast)'.

CHAPTER 9

HISTORICAL AND COMPARATIVE NOTES ON BCR

9.1 Observations on BCR beyond Amharic

This dissertation has studied many points of the BCR process in Amharic, describing a number of rules that have not previously been noted by scholars of Amharic. In this process, many times it has been enlightening and helpful to compare similar data from other Semitic languages, especially E-S languages. In this chapter, data will be systematically presented to show that this process is widespread in Semitic.

It will be shown that this BCR reduplication pattern is found in all the highest-level divisions of Semitic,¹ certainly more widespread than the passing references in the comparative literature might lead one to believe. As noted by some, this pattern of reduplication is indeed found much more frequently in some of the Ethiopian Semitic languages than other Semitic languages (Gesenius 1910:102), but at the same time it is not found at all in some other Ethiopian Semitic languages.

The few works found that mention this reduplication process on a comparative level generally make only very brief remarks. Brockelmann (1908a:180,181 and 1908b:368) and Gray (1934:45,80) give the broadest treatment of this topic, each devoting almost an entire page to listing such forms from a variety of Semitic languages, but with little reference to the distribution of these within the branches of Semitic. Brockelmann cites forms from a total of nine languages, while Gray's list includes data from six. They list the forms under various stem types by vocalization (e.g., *qataltal*,

¹The Akkadian data, as will be seen, is not unanimously accepted.

qatalal, etc.) and grammatical category, (e.g. “adjective”). Writing about Semitic broadly, Moscati *et al.* observe “These [five-consonant stems] are fairly infrequent and mainly attested in West Semitic as adjectives (e.g., Heb. **yaraqraq* > *yəraqraq* ‘greenish’, Ar. *šarakrak* ‘thick’, Eth. *hamalmil* ‘greenish’), but there also exist a few nouns (e.g. Heb. *šāsaqsuuf* ‘common people’, Syr. *pəraxruxtaa* ‘spark’)” (1964:79). In Moscati *et al.*’s section on “verbs,” the only language mentioned as having this BCR pattern to produce verbs was Ge’ez/Ethiopic (1964:130). Lipiński gave part of a paragraph of BCR forms, citing examples from seven languages (1997:214). Gesenius’ grammar of Biblical Hebrew includes a footnote on five-consonant stems, saying “In Hebrew they are comparatively rare, but more numerous in the other Semitic languages, especially in Ethiopic”² (1910:102). Dillmann observes that this reduplication is a “general formative tendency in Semitic languages” (1907:134).

None of these authors, then, made a systematic study of the distribution of this reduplication pattern.

O’Leary speculates that in Semitic “*qtltl* stands half-way between *qtlqtl* and *qttl* in historical evolution” (1923:215). Since this dissertation shows that the *qtltl* pattern goes back to the earliest stages in Semitic, it is not clear when O’Leary’s proposed evolution would have taken place. It will be shown below that there is evidence of this reduplication pattern in other Afroasiatic languages, as well, so the pattern could be very ancient.

9.2 BCR in Semitic languages outside of Ethiopia

This reduplication pattern is documented outside of Ethiopia, though judging by the degree of mention in the literature, it is much less productive in the Semitic

²It is not clear if “Ethiopic” here in this quote includes all Ethiopian Semitic, or just “Ethiopic” which is now more frequently called “Ge’ez”.

languages outside of Ethiopia. Note that in all the examples the first consonant of the reduplicant is syllable initial, as was pointed out in chapter 3.

9.2.1 Akkadian

Brockelmann (citing Halevy) gives a single Akkadian noun that may be derived from a case of BCR: *zuqaqiipu* < **zuqapqiipu* ‘scorpion’ (1908a:1.247). However, the Assyrian Dictionary does not follow this derivation (1961:16).

9.2.2 Ugaritic

Two Ugaritic examples of BCR are cited in the literature: *ysmsm* ‘beautiful’ < *ysm* ‘pleasant’ and *qblbl* ‘sandal straps’ < **qibaal*³ ‘sandal straps’ (Gordon 1955:273, 318 and Segert 1984:42).

9.2.3 Arabic

BCR forms are found in Arabic⁴ also, many with no attested unreduplicated root. Again, we find many of the examples to be descriptives: *Sarakrak* ‘thick, strong’ (Moscatti *et al.* 1964:79), *gašamšam* ‘brave’ (Brockelmann 1908a:1.180), but also nouns, such as *duraxrax* ‘cantharide fly’. Some forms have been interpreted as undergoing a deletion or weakening of a medial consonant, such as *imlaxlaxa* < **imlaxlaxa* ‘be salt’ from *malx* ‘salt’ (Gray 1934:80), but Yip gives an alternate interpretation (1988:554).

9.2.4 Hebrew (Biblical and Modern)

In Biblical Hebrew, there are only a few BCR forms, including *yəraqraq* ‘greenish’, *ḥaparperah* ‘burrower, mole’, *šəḥarḥor-et* ‘blackness’, *šarḥar* ‘palpitate (of heart)’.

³The non-reduplicated form of this is not documented in Ugaritic but is found in Arabic, meaning ‘sandal straps’ (Aistleitner 1963:273).

⁴None of my Arabic forms, either these or others in my file, are unanimously recognized by any of my Arabic-speaking contacts. There may be significant difference on this issue among Arabic dialects.

In Modern Hebrew, BCR is used on a number of nouns and adjectives as a mechanism for forming diminutives (Bolzky 1994, Masson 1974), including *kelevlav* ‘puppy’ < *kelev* ‘dog’, *šmanman* ‘chubby, a bit fat’ < *šamen* ‘fat’ (adj.). Semantically, reduplication is an unusual way to derive diminutives, but it is found in a small number of languages scattered around the world (Jurafsky 1996).

9.2.5 Aramaic

Reduplication by BCR is found in varieties of Aramaic from different eras, but does not seem to be part of any form of present-day Neo-Aramaic. Targumic Aramaic data includes one example that is a translation of a BCR form in Psalm 38:11 of Biblical Hebrew, but done on a different root. Examples of Aramaic forms derived by BCR follow.

(9.1) Aramaic BCR forms

Basic gloss	root	BCR form	reduplicated gloss
‘glisten’	<i>špr</i>	<i>šprpr</i>	‘dawn’ (Biblical, Daniel 6:20), (Segert 1975:153)
none	* <i>šmr</i>	<i>šəmarmar</i>	‘feel terror’ (Targumic, Psalm 38:11) ⁵
‘small coin’	<i>proʔ</i>	<i>proʔroʔ</i>	‘small money’ (Jewish Palestinian) (Sokoloff 1990: 444,445)
‘gather’	<i>hsp</i>	<i>(h/ʕ)spsp</i> ⁶	‘mob’ (Samaritan) (Macuch 1982:254)

⁵Note that the Aramaic form is a translation of the Hebrew BCR form *šarḥar* ‘palpitate (of heart)’ in this passage, though the Hebrew and Aramaic forms do not appear to be cognates.

⁶Note that there are BCR forms of the cognate verb root in Arabic and Hebrew, also.

9.2.6 Syriac

A few cases of BCR have been noted in Syriac, some without corresponding attested non-reduplicated roots: *šragrag* 'hallucination' < *šrg* 'dimness of eyes' (Payne Smith 1903:597), *šəlamlam* 'welcome, complete' < *šlm* 'peace, complete' (Brockelmann 1908a:1.180), *šraqraqā* 'piper (kind of bird)' < **šrq* (Nöldeke 1904:75), *ʔet-xlamlam* 'to have bad dreams' < *xlm* 'dream' (*ibid.* 132).

9.2.7 South Arabian

The South Arabian languages are the closest relatives of Ethiopian Semitic, together comprising "South Semitic" (Appleyard 1996, Hetzron 1992), formerly "South-East Semitic" (Leslau 1944, 1953). Despite the author's study of South Arabian descriptions by Simeone-Senelle (1998) and lexicons by Johnstone (1977, 1987) and Ricks (1982, 1989) and correspondence with South Arabian scholars⁷ no BCR forms in this cluster of languages were found. This is striking in that they are held to be closely related to E-S. It may be that specific efforts to seek such forms will discover some in spoken style of South Arabian languages, possibly in more informal registers of the languages.

9.3 BCR in other E-S languages

In the Semitic languages of Asia, BCR produces forms which are adjectives and nouns and a few stative verbs, but does not produce active verbs, even though the root may be verbal. In contrast, several Ethio-Semitic languages use BCR frequently to create stems that are fully conjugated active verbs, even transitive verbs. E-S languages are also distinctive in that they use BCR to produce lexical bases to use in compound verbs,

⁷The author wishes to thank Anda Hofstede, then at Manchester University, for special help on South Arabian questions.

compound verbs being an innovation in E-S, borrowed from Cushitic (Palmer 1974, Tosco 2000:349).

9.3.1 Ge'ez (Ethiopic)

BCR in Ge'ez has been discussed by several scholars, including Chaine (1907:51), Conti Rossini (1941:69,70), and Dillmann, who noted "Many Multiliteral Roots have been developed from Triradical roots already fully formed; *by repetition of...the last two radicals...*[*n.b.* italics in the original]...the only thing peculiar in this matter to Ethiopic perhaps consists in its scarcely ever retaining, or its never having developed, the trilateral forms alongside of such longer forms" (Dillmann 1907:133,134).

9.3.2 Tigrinya

Buckley describes Tigrinya reduplicated verbs "with a quinquiliteral template, resulting in $C_1C_2C_3C_2C_3$ (all of which are causative or passive)" (1990:81). Tigrinya BCR forms had earlier been noted by Leslau (1941:96-99,125) and Wajnberg (1932, 1936). A perusal of the dictionaries by da Bassano (1918) and Yohannis (1955) shows a large number of Tigrinya BCR forms, the majority with 'say', and many of them with six consonants, such as *jəngərgər bälä* 'spin on one foot' (da Bassano 1918:806).

9.3.3 Tigré

The formation and use of BCR verbal forms in Tigré was discussed by also Leslau (1945:25,26) and Höfner (1951). Raz observed, "There are some verbs of five consonants, of the order 1.2.3.2.3. A few of these have semantically corresponding triradicals, such as *ʔaglablaba* or *galba* 'to be startled'" (1983:66). In Tigré, many forms produced by BCR are lexical bases for compound verbs. Inflected verbal forms take prefixes, as seen in *ʔa-glablaba* 'be startled'.

9.3.4 Argobba

In Argobba, also, Leslau found “quintiliterals,” such as *ablāc’āllāc’ā* ‘cause to scintillate, sparkle’, *arkāfākkāfā* ‘sprinkle’ *ag^wrāmārrāmā* (1959:271, 1997:87). Again, the VC prefix *a-* and the passive prefix are found on inflected verbs derived by BCR. In Argobba, the passive prefix is *ə-*, not the *tā-* found in a number of other E-S languages, but it is used on inflected BCR verbs in the same manner. The available data does not include any compound verb forms derived by BCR.

9.3.5 Gafat

In the Gafat language, now reported to be extinct, Leslau reported two verbs that underwent BCR (Leslau 1945a:77 and 1956:143): *tā-kbālabbālā* ‘to roll’ (presumably from *√kbl* ‘roll over’) and *si-dbālābāl s-ālā* ‘while he whirls’. The first bears the prefix *tā-*, as in Amharic. The second is in a compound verb.

9.3.6 Harari

In his Gurage dictionary, Leslau mentions a Harari form *kumbulbul baya* ‘roll’ (1979:3.334), but does not comment on its status as derived by BCR.⁸ He also cited *likiskis* ‘untidy’, which is either related to or borrowed from Amharic *lakaskas* (Leslau 1979:3.377). The research for this dissertation has discovered that BCR forms in Harari can be formed productively with the verb ‘say’ *baya*, such as *c’ailama* ‘be dark’ > *c’ilimlim baya* ‘be very dark’, *sabara* ‘break’ > *suburbur baya* ‘shatter’ (Salahdin Wazir p.c. 1998). However, though these BCR forms are a traditional part of the language, they are not considered proper adult speech, rather found only in the speech of children (Hakim Mohammed, p.c. 2001). Note that these are used only in compound verbs.

⁸Of course, Leslau would not be expected to use the label “BCR”, but rather “1.2.3.4.3.4” or “sexiliteral”, but he used neither of these.

Despite attempts to elicit inflected verb forms from Harari speakers, using Amharic forms as a model, all such suggestions were rejected.

9.3.7 Silt'e

In Silt'e, most closely related to Harari, the literature does not address the topic of BCR, but the available dictionary does have at least one form: *sirkitkit baala* 'be very messy, disorderly' < *sirakata* 'be disorderly' (Gutt and Hussein 1997a:79, 219, Gutt and Hussein 1997b:154,427), note that the epenthetic vowel in Silt'e is *i*, functionally equivalent to *ə* in Amharic (Gutt and Hussein 1997b:903). Mengistu Mulat has provided some additional examples, *suburbur baala* 'shattered' (p.c. 2001). As in closely related Harari, BCR verb stems are used only with the verb 'say', and are formed with an epenthetic vowel *i*, or with the vowel *u*, as in *butuntun baala* 'be very disorderly'. In Silt'e and Harari, the limited data suggests that *u* is used as the epenthetic vowel when there is a /b/ in the root. Again, all efforts to elicit inflected verb forms were rejected.

9.3.8 Gurage

In the grammars of Gurage languages of Ethiopia, no mention is found of "quinquiliterals," but Leslau noted in his dictionary that sometimes a verb has "a 1.2.3.2.3 root" (1979:3.248) and also that Gogot (*a*)*c'əbäräbbärä* 'glitter' was "from the root *c'br*... with reduplication of the last two radicals" (1979:3.177). In Leslau's three-volume Gurage dictionary, there are additional examples that have been formed by BCR, including *bələc'ləc'-ta* 'lightning' in Wolane (1979:3.140), *näbälbäl* 'flame' in Gogot (1979:1.586). In Zway, Leslau cites the form *(tä)rmamät'ä* 'roll', "perhaps to be identified with Amh.[aric] *armät'ämmät'ä* (that is, *rmt'-mt'*)" (1979:3.526). Further examples of words formed by BCR in Gurage languages are shown in (9.2).

(9.2) BCR forms from Gurage languages, all similar to Amharic forms

root gloss	root	duplicated form	duplicated gloss	Gurage language
'split off'	√ <i>frq</i>	<i>fəṛəqrəq</i>	'spoil a child'	Gogot and Soddo (3:244)
'try'	√ <i>fir</i>	<i>fətərtər</i> (with 'say')	'make an effort'	Gogot (3:248)
none	√ <i>qlš</i>	<i>qələšləš</i>	'feel nauseated'	Gogot (1:590)
none	√ <i>g^wrm</i>	(a) <i>g^wərämärrämä-m</i>	'grumble'	Gogot (1:570)
none	√ <i>škt</i>	<i>šəqətqət</i> (with 'say')	'shudder, feel unpleasant'	Gogot (1:602)
'sparkle in sun'	√ <i>c'br</i>	(a) <i>c'əbäräbbärä</i>	'blink at the sun'	Gogot (1:555)
none	√ <i>gbš</i>	<i>gəbəšbəš</i> (with 'say')	'eat so much food as to not want more'	Wolane (1:1149)
'flash'	√ <i>blc</i>	<i>bələc'ləc'-ta</i>	'lightning'	Wolane (3:140)
none	√ <i>dbl</i>	<i>dubulbulʔar,</i> <i>dumbulbuliit</i>	'round, circular'	Endegegn and Zway (3:196)

However, no Gurage BCR forms have been found that do not have corresponding BCR forms in Amharic. That is, for every BCR form found in Gurage languages, there is a corresponding BCR form in Amharic or some other E-S languages. It is concluded, therefore, that all of the BCR forms in Gurage languages are the result of influence from Amharic (or other E-S languages). The immediate ancestor of Gurage languages seem to have lost BCR as a productive process.

9.4 Valence changing prefixes on verbs

In producing inflected verb forms, as just given, the usual pattern is to prefix either (ʔ)a- or tā-, two prefixes that are used in many of these languages to mark active/transitive and passive/intransitive. Though Tigrinya does not use prefixes in this way as frequently as the other languages, Buckley categorizes Tigrinya BCR verbs saying "all... are causative or passive" (1990:81). Examples of prefixes on inflected verb forms derived by BCR collected from several E-S languages are shown in (9.3).

(9.3) Examples of prefixes on inflected verb forms derived by BCR in E-S languages

Language	root gloss	root	duplicated form	duplicated gloss
Amharic	'melt'	<i>qlt'</i>	<i>tä-qälätt'ät'ä</i>	'be greasy'
Argobba	'scintillate'	<i>blc'</i>	<i>a-bläc'alläc'ä</i>	'cause to sparkle'
Gafat	'roll over'	<i>kbll</i>	<i>tä-kbälabbälä</i>	'to roll'
Ge'ez	'shine'	<i>s'dl</i>	<i>ʔa-s'däldälä</i>	'gleam'
Tigré	'flee'	<i>glb</i>	<i>ʔa-glāblāba</i>	'be frightened'
Tigrinya	'pigeon, dove'	<i>rgb</i>	<i>ʔa-rgäbgäbä</i>	'pulsate'

9.5 Cognate BCR forms found in multiple Ethiopian languages

There are many Amharic BCR forms that are reduplicated by BCR in other E-S languages, also. A number of these same roots that are found reduplicated in Amharic and in other E-S languages are shown in (9.4).

(9.4) BCR forms which do not have non-reduplicated roots in Amharic and are found in reduplicated form in other E-S languages

Gloss (may vary slightly in different languages)	BCR pattern (vowels and prefixes omitted)	languages with the BCR form
'sparkle, glisten'	<i>blc'lc'</i>	Amharic, Argobba, Tigré, Tigrinya
'be dark, dim'	<i>c'lmml</i>	Amharic, Tigrinya, Harari, Silt'e
'be/make round'	<i>dblbl</i>	Amharic, Tigrinya
'shake, earthquake'	<i>dlk'lk'</i>	Amharic, Ge'ez, Tigré, Tigrinya
'debris, rubble'	<i>frsrs</i>	Amharic, Tigrinya
'complain, grumble'	<i>g^wrmm</i>	Amharic, Tigré, Tigrinya
'be green, verdant'	<i>Hmlml</i>	Amharic, Ge'ez, Tigré, Tigrinya
'roll over'	<i>kblbl</i>	Gafat, Harari, Tigrinya
'complain while idle'	<i>lg^wmg^wm / mlg^wlg^w</i>	Amharic, Tigrinya
'worthless'	<i>lksks</i>	Amharic, Harari, Tigrinya
'flutter, vibrate'	<i>rgbgb</i>	Amharic, Tigrinya
'grope, feel one's way'	<i>rmsms</i>	Amharic, Ge'ez, Tigré, Tigrinya
'broken piece'	<i>sbrbr</i>	Amharic, Harari, Silt'e, Tigrinya, Tigré
'lose consciousness'	<i>slmlm</i> , with 'say'	Amharic, Silt'e, Tigrinya
'shine'	<i>s'dldl</i>	Amharic, Ge'ez
'dazzle, glare'	<i>t'brbr</i>	Amharic, Tigrinya
'golden, shining'	<i>wrqrq</i>	Amharic, Ge'ez, Tigrinya
'multi-colored'	<i>zngrgr</i>	Amharic, Tigrinya, Tigré
'go around'	<i>zwrwr</i>	Amharic, Tigrinya

The data from the Ethiopian Semitic languages leads us to the matter of how many vowel slots can be inflected in a verb in a Semitic language. Note that in Amharic, Ge'ez, Tigré, and Tigrinya, apart from the initial root consonant, the rest of the BCR verb is inflected as a standard quadriliteral verb.⁹ That is, the first consonant of a BCR derived verb is not inflected, so a four-consonant template is used with no modification. These Semitic languages have a maximum number of vowel nodes in a verb template that they will sanction for inflection. In any of these languages, a verb stem formed by BCR cannot have all five consonants inflected with a vowel, only a maximum of four.

The position for inserting an augment vowel (defined in chapter 3) is also a specific similarity between the inflection of four-consonant roots and the inflection of verbs derived by BCR, as explained in chapter 4.

It appears that in Amharic four consonants is the maximum preferred number of stem consonants in verbs, though five consonants can be permitted with certain limitations. It will be shown below that some other E-S languages do not allow five at all. Instead, for these other languages, three is the maximum preferred template, with four consonants permitted only with limitations. This will be shown to be crucial in explaining which languages use BCR and which do not.

In Silt'e and Harari, and in Soddo and Chaha Gurage, for four-consonant verb roots, only the final three consonants are inflected in the simple perfect. The first consonant in these four-consonant roots receives only an epenthetic vowel to prevent a consonant cluster, as in Chaha Gurage *masäkär* 'testified' (Rose 1997). This is in contrast to the Amharic quadriliteral form, with a theme vowel following the first consonant, *masäkkärä* 'testify'.

⁹The details of quadriliteral inflection differs between these languages, but all inflect these BCR derived verbs forms as quadrilaterals. Gensler has reconstructed the Proto-Semitic pattern for inflecting quadrilaterals as being of the pattern $C^1_C^2C^3_C^4$, like Ge'ez, rather than like Amharic (1997).

In the Northern Ethio-Semitic languages, (Tigrinya, Tigré, Ge'ez), for verbal forms derived by BCR, it is both the first and third root consonants that do not take a vowel: prefix- $C^1C^2_C^3C^2_C^3$ - (unless the first consonant is a laryngeal consonant). In the Amharic simple perfect, for verbs derived by BCR, it is the first consonant of the five that is prohibited from connecting to a vowel. This would be diagrammed as prefix- $C^1C^2_C^3_C^2_C^3$ -. In all of these languages, this applies only to verbs, not to BCR forms which function as adjectives or nouns, which insert vowels by rules which vary more, even within a single language.

With a template limited to inflecting a maximum of four vowels in Amharic, this not only explains the lack of a vowel on the initial consonant in reduplicated triradicals, it also gives a reason why four-consonant roots undergoing BCR, resulting in six-consonant strings, cannot be conjugated as verbs, but can serve only as the lexical component to appear with the conjugated verb 'say' or 'do'. It is true that four-consonant verbs can reduplicate as five-consonant verbs in Amharic, but not by BCR, but only by penultimate reduplication: *tä-gäläbbät'ä* 'was turned over' (v.i.) reduplicates as *tä-gäläbabbät'ä* 'changed ones mind many times' (v.i.) (Amsalu 1987:270). In such cases, the fifth root-based consonant is inserted by a different morphophonological process, together with a vowel, and the first root consonant is fully inflected with the usual vowel.

The data from the Ethiopian Semitic languages leads us to the matter of how many and which consonants can be inflected in a verb in a Semitic language. Table 9.1 shows where different E-S languages insert vowels for quadrilateral verbs in the simple past and where the vowel nodes are in BCR verb forms. For each language, the use of BCR forms is classified as "inflected" indicating that the language inflects verb roots reduplicated by BCR, and "compound" indicating that the language uses reduplicated lexical bases in compound forms. For the languages that insert phonemic vowels, the slots where these

vowels are inserted is marked with an underline. For those languages that only use BCR for lexical bases of compound verbs, the slots are marked only with hyphens.

Table 9.1. Comparison of how E-S languages inflect four-consonant roots and use BCR

Language	Vowel nodes for quadrilaterals	Use of BCR for verbs	Vowels in BCR
Northern (Ge'ez, Tigré, Tigrinya.)	$C^1_C^2C^3_C^4$	inflected & compound	prefix- $C^1C^2_C^3C^2_C^3$
Amharic	$C^1_C^2_C^3_C^4$	inflected & compound	prefix- $C^1C^2_C^3_CC^2_C^3$
Argobba	$C^1_C^2_C^3_C^4$	inflected & compound	prefix- $C^1C^2_C^3_CC^2_C^3$
Gafat	$C^1_C^2_C^3_C^4$	inflected & compound	prefix- $C^1C^2_C^3_CC^2_C^3$
Harari	$C^1C^2_C^3_C^4$	compound	$C^1-C^2-C^3C^2-C^3$
Silt'e	$C^1C^2_C^3_C^4$	compound	$C^1-C^2-C^3C^2-C^3$
Gurage (Chaha, Soddo, Inor, etc.)	$C^1C^2_C^3_C^4$	none	----

Note in table 9.1 that the languages that insert a phonemic vowel after the first consonant when inflecting four-consonant roots (the second column) all inflect verb forms derived by BCR. Those languages that do not insert a vowel after the first consonant of a four-consonant root cannot inflect verbs derived by BCR, but can only use BCR on lexical bases.

9.6 Classification issues within Ethiopian Semitic

Within the Ethiopian branch of Semitic, the branch of Semitic that seems to have the most extensive use of BCR, there is also a pattern of deriving verbs by BCR. Within Ethiopian Semitic, the languages that currently have BCR are not from a single lower branch. The languages of the northern node have retained this, but most in the southern branch have not retained it (or linguists had overlooked it, as in the case of Harari). The Ethiopian Semitic languages that are reported as not having BCR are neighbors geographically but do not comprise a united node on the family tree chart¹⁰, Gurage and Silt'e being of the South West and South East nodes of the chart, respectively (Fellman 1996). Amharic, in the South Central node, seems to have the greatest BCR productivity of any Semitic language, at least as reflected in the literature. We may safely conclude that those languages without BCR lack it because they have lost it, not because they did not develop it.

Gafat (reported to be extinct) is intriguing because it is the only language in the Western node of the Southern wing of Ethio-Semitic which can inflect verbs derived by BCR. At the same time, it is the only language in the Western node that handles quadrilaterals like Amharic, with a theme vowel immediately following the first consonant: $C^1_C^2_C^3_C^4$.

¹⁰I follow Fellman's chart on classification of Ethiopian Semitic languages, except on the place of Ge'ez (1996). Though other scholars use different labels and differ in details from Fellman, for the purposes of this topic, there is general agreement among scholars on the groupings and divisions of the languages under discussion.

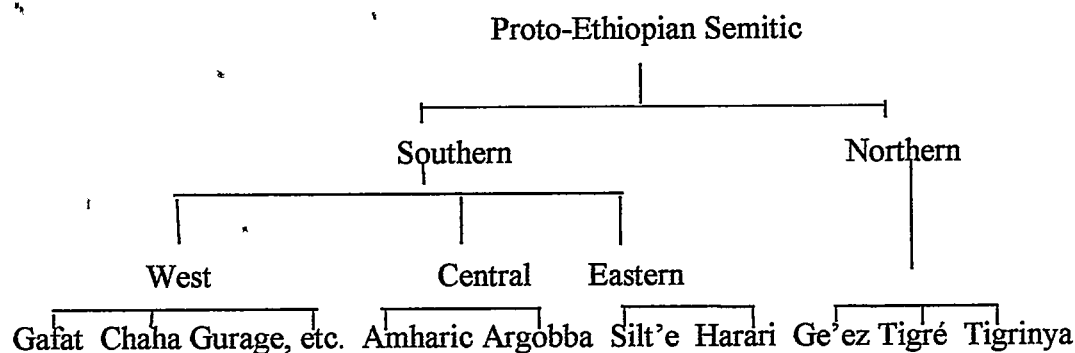


Figure 9.1. Historical relationships between Ethio-Semitic languages.

Those E-S languages which have not retained BCR are also generally those languages which do not insert an inflectional vowel after the first consonant in quadriradical roots. To put it another way, those languages which can inflect the first consonant of a quadriradical root are those languages which also use BCR. Harari and Silt'e seem to have found a middle path, using BCR with the verb 'say' so that the string of consonants does not have to be inflected. In this way, Harari has avoided the problem of inflecting augmented numbers of consonants. If a language with four-consonant verb roots does not inflect the first consonant, then if BCR verbal forms were conjugated as four-consonant roots, it would produce an awkward initial consonant string $C^1C^2C^3_C^2_C^3-$.

9.7 BCR forms found in non-Semitic Afroasiatic languages

The evidence presented here has shown that BCR is found throughout Semitic. There is also evidence that suggests that BCR is found in other languages within Afroasiatic, the higher language family of which Semitic is a part. Some earlier authors had noted some such forms in Egyptian and pointed out the similarities. O'Leary noted that this pattern in Semitic is "extremely interesting as sharing a parallel to the ancient Egyptian methods of reduplication" (1923:215). Gordon had noted that "*qtltl* is common

adjectivally in Egypto-Semitic" (1965:60), citing Egyptian *wʔdʔd* 'be green' and Coptic *trošroš* 'become red'.¹¹ Other examples include Egyptian *ḥbʔbʔ* 'waddle', *nftft* 'spring away' (Gardiner 1957:216) and Coptic *ḥtrtr* 'trouble, disquiet' (Steindorff 1951:121).

In Afroasiatic languages besides Semitic and Egyptian, examples of BCR are found in some Chadic languages. Al-Hassan observed that "Base+CVC is rare in Chadic" (Al-Hassan 1998:71,72). He gave Hausa examples including *tafasfas-* from *tafas-* 'to boil', *makalkal-* from *makal-* 'to entangle'. In the Chadic language Bidiya, there are some examples with a reduplication of final CVC, including *botoṭile* 'paths' from *bòṭòl* 'path' and *garawriwe* 'words, stories' from *gàràw* 'word, story' (1998:92). However, in both of these Chadic languages, the rules for these reduplication patterns are more complex than this dissertation can cover.

Among Berber languages, also, there is evidence of BCR. In Touareg, there is *maləwləw* 'shinel' and *imilawlaw* 'it shines', both built on the root $*\sqrt{mlw}$, though the root is not found in non-reduplicated form. Other examples include *səṛəghrəgh* 'make a sharp, loud sound repeatedly' from the root \sqrt{srgh} 'make a sharp loud sound' and *bələzləz* 'shine very brightly with a stable fixed light' from \sqrt{blz} as in *bələzzət* 'shine brightly and briskly'.

It is interesting that the Afroasiatic languages cited here as containing examples that resemble BCR all fit within the same lower node of Ehret's division of Afroasiatic, what Ehret calls "North Erythraean," which consists of Chadic, Egyptian, Berber, Semitic (1995:490).

It could be argued that the repetition of two final consonants is common in the world's languages so that finding it would not be a significant piece of evidence. Admittedly, it is found in other languages of the world, (though the following examples

¹¹Note that using BCR to mark colors is also found in Biblical Hebrew, *yəraqraq* 'greenish', *šəḥarḥor-et* 'blackness'.

all show reduplication of a final -CVC sequence, not merely the final two consonants). Moravcsik lists two Malayo-Polynesian languages with -CVC reduplication, Mokilese and Marshallese (1978:309). Also, Diffloth records it in Semai of Malaysia (1976a:251). But this type of reduplication is still much less common than reduplication at the beginning of a stem, as shown by a series of postings on Linguistlist in 1991, an electronic discussion forum. In discussing reduplication as being usually stem-initial, Covington asked "Is there any language in which you could get ABCC or ABCBC?" (1991). In reply to this, the only posting with an example of ABCBC reduplication pointed to Siouan languages (Koontz 1991). This seems to indicate that reduplication of two final elements in reduplication is not common in the languages of the world, though the coverage of this study is admittedly limited.

This brief list of examples of BCR forms in other Afroasiatic languages certainly does not conclusively confirm that this pattern of reduplication is a retention from Proto-Afroasiatic (or some portion thereof, such as "North Erythraean"). But it does raise the question to a more substantial level than it has been before.

APPENDIX A

A TABLE OF ALL THE BCR FORMS USED AS THE BASIS
FOR THIS DISSERTATION, BASED ON
KANE'S DICTIONARY

Table A1 in this appendix is an attempt to present an exhaustive list of BCR forms found in Kane's dictionary (1990). However, the discovery that BCR forms are derived from roots of the form C^1C^2H did not come about until the systematic study of Kane's dictionary was completed. Subsequently, a rigorous, though not exhaustive, attempt was made to find all BCR forms derived from roots of the pattern C^1C^2H . Therefore, this list is not totally exhaustive.

In addition to those forms found in Kane (1990) a few others have been added that were elicited during interviews. Note that definitions are abbreviated from those given by Kane. Also, when there are multiple senses, only the sense that is relevant to the BCR discussion is listed, even though it may not be the primary meaning of the root. Those roots preceded by an asterisk are not attested in non-reduplicated form. Those preceded by the symbol "≠" are attested in non-reduplicated form, but with different meanings than the reduplicated forms.

If a BCR verbal form is listed by Kane (1990) bearing the $tä-$ prefix, the entry for the root is listed in this appendix with this verbal form. If Kane listed no verbal form with the $tä-$ prefix, but listed a form with the $a-$ prefix, then this is the form that is listed in this appendix. If there is no inflected verb form listed by Kane, then the next choice is a vowel-less lexical base. If that is not listed, then a lexical base marked for diminution with inserted phonemic vowels is listed. If that is not listed, then a derived noun or adjective is given as the entry.

Entries are alphabetized by roots. Ejective consonants t' , c' and s' are alphabetized after their non-ejective counterparts. The ejective velar is alphabetized as q . Labialized segments are alphabetized as modified versions of their non-labialized counterparts and immediately follow them. Under this system, $\sqrt{f''}rq$ is found immediately following $\sqrt{fr}q$, and $\sqrt{sg''}m$ is found immediately after $\sqrt{sg}m$. Note that entries that begin with the labialized velar stops (k'' , g'' , q'') are found as a group after

their non-labialized counterparts, so that all entries that begin with *g^w* are found after the last entry that begins with non-labialized *g*. The palatalized fricative *š* is alphabetized immediately after the non-palatalized *s*, so *fnds* immediately precedes *fndš*.

For reduplicated forms which are shortened by the deletion of consonants, both the shortened form of the root and the full form of the root are listed, cross-referenced to each other.

In the far left column is a number indicating the number of root consonants in the root of the form. Following the number, "D" indicates that the final consonant is doubled, this consonant being underlined in the root. The letter "H" after the number indicates that the final consonant of the root is underspecified, symbolized by *H*.

Table A1. Exhaustive list of roots derived by BCR in Kane (1990)

	BCR form	definition	root	gloss	notes
3	<i>b^wæc'erc'er</i>	'scratched (Adj.)'	<i>b^wc'r</i>	<i>b^wac'r</i> 'scratch, claw'	
4	<i>bæc'ræqræq: alä</i>	'be a failure'	* <i>b^wc'rq</i>		
3	<i>täbgänäggänä</i>	'be enraged by many things'	<i>bgn</i>	'be angry'	
3	<i>täbkänäkkänä</i>	'be squandered quickly'	<i>bkn</i>	<i>bHkn</i> 'squander'	
3	<i>täbkätäkkätä</i>	'well up, ooze up'	<i>bkt</i>	'be wet soiled'	
3 <i>H</i>	<i>täblalla</i>	'be digested'	<i>bIH</i>	'eat'	
3	<i>täbläc'alläc'ä</i>	'glitter, sparkle'	<i>blc'</i>	'shine, glitter'	
3	<i>täbläsälläsä</i>	'burn with rage'	<i>bls</i>	'get angry'	
4	<i>bälšətšət: alä</i>	'be completely	<i>blšH</i>	'be spoiled'	

H		spoiled'			
3	<i>täblät'allät'ä</i>	'try to fool people, show off'	<i>blt'</i>	'excel, swindle'	
3	<i>täbl^wäqäll^wäqä</i>	'billow out (smoke)'	<i>bl^wq</i>	'gush out'	
3 H	<i>täbqaqqa</i>	'be made adequate'	<i>bqH</i>	'be enough'	
4	<i>bərcəncən</i>	'ceremonial toast'	<i>*brcn</i>		
3	<i>abrägärrägä</i>	'cause to shiver'	<i>*brg</i>		
3	<i>täbräjärräjä</i>	'stagger in drunkenness, tremble, be blurry (vision)'	<i>*brj</i>		
3	<i>täbräkärräkä</i>	'tremble, fear, unable to stand'	<i>brk</i>	'kneel, knock (knees, in fear)'	
3	<i>täbräqärrägä</i>	'flash, shine, do lightening'	<i>brq</i>	'shine, do lightening'	
3 D	<i>täbrät'ärrät'ä</i>	'be disagreeable'	<i>brt'</i>	'be extremely conceited'	
3 H	<i>bəsətsət: alä</i>	'be full of holes'	<i>bsH</i>	'puncture'	
3	<i>täbsäkässäkä</i> <i>täbsäksaki</i>	'disintegrate' & 'coddled' 'dressed up well'	<i>bsk</i>	'tear something rotten'	
4	<i>bəšqət'qət'</i>	'completely soaked, jumbled up'	<i>bšqt'</i>	'be wet, soiled'	

4	<i>bəʃrəkrek</i>	'torn to bits (Adj.)'	<i>bʃrk</i>	'tear something easily'	related to <i>bsk</i> ?
3	<i>təbt'älätt'älä</i>	'be torn to shreds'	<i>bt'l</i>	'become torn, tattered'	
3	<i>təbt'ärätt'ärä</i>	'explain in detail'	<i>bt'r</i>	'be winnowed, combed'	
3	<i>təbt'äsätt'äsä</i>	'be spoiled, torn to bits'	<i>bt's</i>	'sever, shred'	
3	<i>təbtäkättäkä</i>	'form "eyes" in ənjära bread'	<i>≠btk</i>	'become thin, moth eaten'	semantic narrowing
3	<i>təbtänättänä</i>	'be dissipated'	<i>btñ</i>	'dissipate, squander'	
3	<i>ac'bʷädäbbʷädä</i>	'crumple, rub between hands'	<i>c'bʷd</i>	'grasp, crumple'	
4	<i>c'əbrəqrəq: alä</i>	'be cross-eyed, be out of step dancing'	<i>*c'brq</i>		
3	<i>täc'bäräbbärä</i>	'be blinded by light, be swindled'	<i>≠c'br</i>	'turn gray (hair)'	
3	<i>täc'bäsäbbäsä</i>	'be smoky, sting (of eyes from smoke)'	<i>*c'bs</i>		
3	<i>täc'fänäffänä</i>	'misty, barely able to open eyes'	<i>c'fn</i>	'shut eyes, misty, rainy'	
3	<i>ac'gʷänäggʷänä</i>	'beat around the bush'	<i>*c'gʷn</i>		
3	<i>täc'lämällämä</i>	'get darker, too dark to see, eyes become watery'	<i>c'lm</i>	'become dark'	

3	<i>täc 'läqälläqä</i>	'sparkle, shine, glitter'	<i>≠c'iq</i>	'make flax seed tea'	
3	<i>täc 'mädämmädä</i>	'writhe, wriggle, coil (v.i.)'	<i>c'md</i>	'crease, wrinkle'	
4	<i>c'əmləqləq: alä</i>	'be completely fouled, soiled'	<i>c'miq</i>	'be soiled, fouled'	
3	<i>täc 'mäqämmäqä</i>	'sting (eyes from smoke)'	<i>c'mq</i>	'shed tears, due to smoke'	
3	<i>c'ämärmär: adärrägä</i>	'add some more'	<i>c'mr</i>	'add something'	
4	<i>c'əmtərtər: alä</i>	'be completely shrunken, wrinkled'	<i>c'mtr</i>	'shrivel, wrinkle'	related to <i>c'rmt</i>
4	<i>c'ənbəsbəs: alä</i>	'eyes to water'	<i>c'nbs</i>	'eyes to be full of tears'	also <i>c'ämbäsbäs: alä</i> related to <i>t'nbs</i>
3	<i>c'əqəlqəla</i>	'bird (sp.)'	<i>≠c'ql</i>	'sire offspring'	
3	<i>täc 'q'änäqq'änä</i>	'blink the eyes'	<i>≠c'q'n</i>	'oppress, repress'	
4	<i>c'ərmətmət: alä</i>	'be completely crumpled'	<i>c'rmt</i>	'shrivel, wrinkle'	relation to <i>c'mtr</i>
3	<i>täc 'räqärräqä</i>	'drip'	<i>c'rq</i>	'urinate in bursts or squirts', w/'say' only	
3	<i>tädäkäbbäkä</i>	'be mixed together, turbid', crowd, argue, push (all in	<i>*dbk</i>		

		groups)			
3 D	<i>tādbäläbbälä</i>	1. 'swell, be fat & rounded' 2. 'wiggle, crowd, be chaotic'	<i>dbl</i>	'roll (v.i.), writhe, cause to flap & flail'	see also <i>tādb^wäl</i> <i>ābb^wälä</i>
3 D	<i>tādb^wälābb^wälä</i>	'be made round, into a ball'	<i>*db^wl</i>		part of the <i>dbl</i> family
4	<i>dəbləqləq</i>	'confusion, mixture'	<i>dblq</i>	'mix, confuse'	
3	<i>tādbärābbärä</i>	'be weaksighted'	<i>≠dbr</i>	'display merchandise, raise rank of church'	shorten ed from <i>dnbr</i>
3	<i>tādbäsābbäsä</i>	1. 'not be done well, not investigated' 2. 'swarm, pullulate, be disorderly'	<i>dbs</i>	'tarnish, fade, become effaced/illegible, not to be investigated well'	
3 D	<i>dəbəzbəz: alä</i>	'be confused'	<i>dbz</i>	'become clouded, be dull (of mind)'	
3 D	<i>adbäžäbbäžä</i>	'have difficulty walking'	<i>dbz</i>	'drag one's feet'	
3 H	<i>adfaffa</i>	'finish something quickly'	<i>dffH</i>	'tip over (v.t.)'	
3	<i>tādfänāffänä</i>	'barely able to open eyes'	<i>dfn</i>	'hide, cover, conceal'	
3 D	<i>tādfat'affat'ä</i>	'be squeezed, burst (a boil)'	<i>dft'</i>	'burst a boil (v.t.)'	

3	<i>dəgəfgəf</i>	‘supporting one another’	<i>dgf</i>	‘support, prop up’	
3	<i>adgäləggälä</i>	‘cause to swell greatly’	<i>dgl</i>	‘make round by wrapping’	
3	<i>adg^wäləgg^wälä</i>	‘be shapeless, wriggle’	<i>≠dg^wl</i>	‘cook small bread in coals’	
3	<i>dəgəmgəm</i>	‘repetition’	<i>dgm</i>	‘repeat’	
3	<i>dəg^wəng^wəna</i>	‘tree, used for making yokes’	<i>*dg^wn</i>		
3	<i>dəgəsgəs: alä</i>	‘become dark’	<i>dgs</i>	‘become dark, twilight’	
3	<i>tädgäzəggäzä</i>	‘become dusk’	<i>≠dgz</i>	‘be short, scrawny’	from <i>dəngəzgzə: alä</i> ‘get dark’
3	<i>tädk^wäləkk^wälä</i>	‘toddle’	<i>dk^wl</i>	‘short, broad’	
3	<i>dəkəmkəm: alä</i>	‘be very exhausted’	<i>dkm</i>	‘become tired’	
3	<i>adləqəlləqä</i>	‘shake, cause to tremble’	<i>≠dlq</i>	‘strike, stamp the ground’	
4	<i>dəlqəfqəf: alä</i>	‘slip, stagger’	<i>dlqf</i>	<i>dlaqf</i> ‘trip, stumble’	
3	<i>tädmänämmänä</i>	‘get very dark & cloudy’	<i>dmn</i>	‘be cloudy’	
3	<i>täd^wm^wänämm^wän</i>	‘tremble’	<i>*dm^wn</i>		
3	<i>dəməqməq: alä</i>	‘glitter’	<i>dmq</i>	‘be bright’	
3	<i>täd^wmäsämmäsä</i>	‘grope, swarm,	<i>≠dms</i>	‘tarnish, be tired’	possibly <i>r > d</i> ,

		pullulate'			from <i>trmsms</i>
3	<i>dəmət'mat'</i>	'report, rumor'	<i>dms'</i>	'sound, voice'	
3	<i>dəmət'mət': alä</i>	'be completely ruined'	<i>dmt'</i>	'crush'	
4	<i>dənbərbər: alä</i>	'walk bumping into things, be myopic'	<i>dnbr</i>	'become blind'	
4	<i>dəmbušbuš</i>	'round-faced (child)'	<i>dnbs'</i>	'be fattened, attractive'	
4	<i>däng'äläg'äl</i>	'rough terrain w/ large rocks'	<i>dng'l</i>	'large rock'	noun to noun
4	<i>dəngərgər: alä</i>	'bewilder'	<i>dngr</i>	'be agitated'	
4	<i>dəng'ərg'ər</i>	'broken up field, rough road'	<i>dng'r</i>	'break up the soil'	
4	<i>dəngəzgəz: alä</i>	'get dark'	<i>dngz</i>	'get dark'	
3	<i>dənəqnəq: alä</i>	'marvel wonder'	<i>dnq</i>	'be marvelous, wonderful'	
4	<i>dənqəfqəf: alä</i>	'walk stumblingly'	<i>dnqf</i>	'stumble, stagger'	
4	<i>dənqərqər</i>	'encumbrance'	<i>dnqr</i>	'block a door with object'	
3	<i>tädqäsäqqäsä</i>	'be indisposed, weak'	<i>dqs</i>	'lie down to sleep'	
3	<i>dəq'əsq'əs</i>	'crushed, pulverized (Adj)'	<i>dq's</i>	'pulverize'	
3	<i>dərəbrəb:</i> <i>adärrägä</i>	'put on layers of clothing'	<i>drb</i>	'put something over something else'	
4	<i>därgämgamma</i>	'almost blind'	<i>drgm</i>	'extinguish a light'	

3	<i>tädrämärrämä</i>	'grumble, mutter'	<i>*drm</i>		
3	<i>tädräqärräqä</i>	'roar, shout loudly'	<i>≠drq</i>	'dry out'	
3	<i>tädwäläwwälä</i>	'be upset, deranged'	<i>≠dwl</i>	'ring a bell'	
3 H	<i>afc'acc'a</i>	'one who causes everyone to talk at once'	<i>fc'H</i>	<i>afc'acc'ä</i> 'cause all to talk at once'	
3	<i>täfc'äräcc'ärä</i>	'be very industrious, try hard'	<i>fc'r</i>	'toil, labor'	
3	<i>täfgämäggämä</i>	'stagger, tremble, shake with fear'	<i>fgm</i>	'knock down'	
3	<i>täfgäräggärä</i>	'strive, make a fence'	<i>≠fgr</i>	'come out, appear'	
3 H	<i>affajja</i>	'prodigal, one who consumes everything'	<i>fjH</i>	'consume'	
3	<i>täfläkälläkä</i>	'swarm with vermin, pullulate, be restless'	<i>*flk</i>		
3	<i>täfläqälläqä</i>	'boil (v.i.), gush out, bubble'	<i>flq</i>	'gush up, oil'	
3	<i>fäləsləsu wätt'a</i>	'fall to pieces, be destroyed'	<i>fls</i>	'be broken'	
3	<i>fələt'lət': alä</i>	'split all over'	<i>flt'</i>	'split (v.t.)'	
4	<i>fəndəqdəq: alä</i>	'be extremely happy'	<i>fndq</i>	'be joyful'	

4	<i>fəndəsədəs: alä</i>	'crack all over (v.i.)'	<i>fnds</i>	'crack'	
4	<i>fəndəsədəs</i>	'be soft, yielding (human flesh)'	<i>*fndš</i>		
4	<i>fəngəlqəl: alä</i>	'fall (of several things)'	<i>fngl</i>	'overturn'	
3	<i>täfnäkännäkä</i>	'be overcome with joy'	<i>*fnk</i>		
4	<i>fənkərkər: alä</i>	'be completely spread (legs)'	<i>fnkr</i>	'spread the legs'	
4	<i>fənkətəkət</i>	'broken up'	<i>fnkt</i>	'break with a blow, divide'	
4	<i>fəngəlqəl: alä</i>	'be pried up (plural things)'	<i>fnql</i>	'pry up'	
3	<i>täfnäsännäsä</i>	'take one's ease, dress up'	<i>*fnš</i>		
4	<i>fənt'əqt'əq: alä</i>	'splash in all directions (v.i.)'	<i>fntq</i>	'sprinkle, splatter (v.t.)'	
4	<i>fənt'ərt'ər: alä</i>	'disperse in all directions (v.i.)'	<i>fnt'r</i>	'spring out, flip out'	
3	<i>täfnäzännäzä</i>	'move erratically, be restless'	<i>fnz</i>	'shake, tremble, move'	
3	<i>täfrägärrägä</i>	'be thrown with whirling motion, totter (inanimate)'	<i>≠frg</i>	'set aside'	
3	<i>täfräkärräkä</i>	'crumble, tremble'	<i>*frk</i>		

		with fear'		
4	<i>fērəkəskəs: alä</i>	'crumble (v.i.), be smashed to bits'	<i>frks</i>	'break with a blow'
3	<i>täfrämärrämä</i>	'thrash about (animal with slit throat), work hard'	<i>≠frm</i>	'sign a document' (originally from Italian)
3	<i>täfräqärräqä</i>	'crack, split (v.i.), ooze pus'	<i>≠frq</i>	'separate, divide'
3	<i>f'äräqraqqa</i>	'fearful'	<i>*f'rq</i>	
3	<i>fērəsrasu wätt'a</i>	'fall to pieces, fall down'	<i>frs</i>	'fall apart, fall down'
3	<i>täfrät'ärrät'ä</i>	'be squeezed out (boil), burst (boil)'	<i>fri'</i>	'burst (boil, v.i.)'
4	<i>färt'əmt'əm: alä</i>	'be very muscular'	<i>fri'm</i>	'become strong'
4	<i>fət'əmt'əm: alä</i>	'be completely used up'	<i>fs'm</i>	'finish, end'
3	<i>aftatta</i>	'disentangle; throw into confusion, destruction'	<i>fiH</i>	'untie, rout an army'
3	<i>aftälättälä</i>	'cause cramps (food), twist threads'	<i>fil</i>	'spin thread'
4	<i>fätlökklök: alä</i>	'slip out (many small objects)'	<i>filk</i>	'escape quickly'
3	<i>täft'ärätt'ärä</i>	'manage by oneself'	<i>fi'r</i>	'create'
3	<i>tägbabba</i>	'reach an agreement'	<i>gbH</i>	'be appropriate' or

E				'enter'	
3	<i>tägbäräbbärä</i>	'dress up fancy; be multi-colored'	<i>gbr</i>	'pay taxes'	
3	<i>tägbäsäbbäsä</i>	'be harvested' 'move in disorderly way (crowd), be scattered, let one's garment drag, walk heavily'	<i>gbs</i>	'harvested, gathered'	
3	<i>gədəfdəf</i>	'something that is tightly joined'	<i>≠gdf</i>	'forget, be inattentive'	
3	<i>tägdäräddärä</i>	'stagger, fake an attitude'	<i>≠gdr</i>	'rebuke, despise'	
3	<i>tägfät'äffät'ä</i>	'be collected, amassed'	<i>gft</i>	'collect'	
3	<i>tägläbälläbä</i>	'flare up and scorch, get angry over trifle, be inconsequential'	<i>glb</i>	'be worthless, scorch'	
4	<i>gəlbət'bət'u</i> <i>wätt'a</i>	'become completely confused, chaotic'	<i>glbt'</i>	'turn over, empty out, invert'	
4	<i>gəldəwdəw: alä</i>	'walk cumbersomely, lurch'	<i>glđw</i>	with 'say', means 'fall over'	
3	<i>tägjäläjjälä</i>	'be dazed, stupefied'	<i>glj</i>	'be dazed, groggy'	
3	<i>tägläsälläsä</i>	'be parted, divided'	<i>glš</i>	'part grass or hair'	

d		(hair)'			
3	<i>aglätällätä</i>	'bring many followers'	<i>gl̥t</i>	'gathered together, collected'	metath. from <i>agtälättälä</i>
3	<i>gələt'lət': adärrgä</i>	'reveal completely'	<i>gl̥t'</i>	'reveal, disclose'	
4	<i>gält'ämt'am: alä</i>	'stagger (after tripping)'	<i>gl̥t'm</i>	'uproot, throw down, smash'	
4	<i>gəlwədwəd</i>	'idler'	<i>gl̥wd</i>	'be idle, wander aimlessly'	
3	<i>tägmänämmänä</i>	'seethe with rage, jealousy'	<i>gmn</i>	'be angry'	
3	<i>gəmət'mət'</i>	'a broken piece or chip'	<i>gmt'</i>	'chip, break edge'	
4	<i>gənbət̥batta</i>	'aggradation (neol.)'	<i>gnbH</i>	'do masonry, build up'	
3	<i>tägfäläffälä</i>	'gush forth (spring), boil over'	<i>gnfl</i>	'boil, bubble up'	from <i>gnfl</i> , by deleting
4	<i>gəntəftəf: alä</i>	'be flexible, soft'	<i>*gntf</i>		
4	<i>gärbädbäd: alä</i>	'walk stumbling over stone'	<i>≠grbd</i>	'open a door wide'	
4	<i>agrädämäddämä</i>	'knit one's eyebrows'	<i>≠grdm</i>	'crunch, munch'	
3	<i>tägrägärrägä</i>	'fall down turning	<i>*grg</i>		

		over'			
3 E	<i>agrarra</i>	'render dull, stupid'	<i>grH</i>	'become mild tempered, domesticate'	
4	<i>gärjäffälälä</i>	'be olden, ancient'	<i>grjf</i>	'be old'	
4	<i>gärmädmadda</i>	'chipped (adj.)'	<i>grmd</i>	'bite, wash away chunks of soil'	
4	<i>gärsämsäm: alä</i>	'stagger, stumble repeatedly'	<i>grsm</i>	'bump, collide'	
3	<i>agtälättälä</i> <i>- tägtälättälä</i>	- 'tie various objects into a disorderly bundle - 'walk in single file, come or go in disorderly fashion (group)'	<i>gtl</i>	'gathered together, collected'	
3	<i>tägtämättämä</i>	'bump into, collide'	<i>≠gtm</i>	'take a large mouthful'	<i>täg^mtämättämä</i> & <i>tägtämättämä</i> now intermingled
3	<i>tägtärättärä</i>	'strive, work hard, struggle to stay upright'	<i>gtr</i>	'stand erect, pull tight'	
3	<i>gät'äbt'äb: alä</i>	'be covered with abrasions or saddlesores'	<i>gt'b</i>	'abrade skin, make a saddlesore'	

3	<i>gət'əmt'əm: alä</i>	'fit together (v.i.)	<i>gt'm</i>	'fit, join together'	
3	<i>täg^wbät'äbbät'ä</i>	'be bent, curved, stooped'	<i>g^wbt'</i>	'bend, be bent'	
3	<i>täg^wfät'äffät'ä</i>	'be in flood (river)'	<i>≠g^wfl'</i>	'be aged and infirm'	
4	<i>g^wəldəfdəf: alä</i>	'be tongue tied'	<i>g^wldf</i>	'stammer, be thick of speech'	
3	<i>täg^wlalla</i>	'undergo hardship'	<i>*g^wIH</i>	'be visible, conspicuous'	
3	<i>täg^wlämällämä</i>	'be courted, pampered'	<i>≠g^wlm</i>	'work one's own land'	
3	<i>ag^wlämällämä</i>	'gum one's food'	<i>g^wlm</i>	'chew with bad teeth'	
3	<i>g^wəmədməd: alä</i>	'be cut into small pieces'	<i>g^wmd</i>	'cut off a piece'	
3	<i>täg^wmamma</i>	'slander, grumble'	<i>≠g^wmH</i>	'be foggy'	
3	<i>täg^wmätämmätä</i>	'murmur, mumble (grumble)'	<i>≠g^wmt</i>	'divide a carcass'	
3	<i>ag^wmät'ämmät'ä</i>	'gargle, rinse mouth'	<i>g^wmt'</i>	'rinse the mouth'	
4	<i>g^wənc'əfc'äf: alä</i>	'pull up the worst weeds, here and there'	<i>g^wnc'f</i>	'weed land, pulling out only the largest weeds'	
4	<i>g^wəndəbdəb: alä</i>	'be completely cut up'	<i>g^wndb</i>	'trim a tree'	
3	<i>täg^wnäfännäfä</i>	'be surly, grumble,	<i>≠g^wnf</i>	'bury in ashes'	

		complain'			
4	<i>g^wäntäfiäf: alä</i>	'bend down (heavy grain)'	<i>≠g^wntf</i>	'give subordinate a garment of rank'	
4	<i>g^wäntältäl: alä</i>	'be completely torn apart'	<i>g^wntl</i>	'tear off'	
3	<i>täg^wräbärräbä</i>	'be covered with blisters'	<i>g^wrb</i>	'have blisters'	
4	<i>g^wärbät 'bät'</i>	'uneven ground, knobbly'	<i>g^wrbt'</i>	'be bumpy, hilly'	
3	<i>täg^wrädärrädä</i>	'cut long stick short'	<i>g^wrd</i>	'cut short'	
4	<i>ag^wrädämäddäm ä</i>	'crackle (of food being eaten)'	<i>g^wrdm</i>	'crunch, munch'	
3	<i>täg^wräfärräfä</i>	'be scattered; be unclean (grain)'	<i>g^wrf</i>	'our, flood'	
3	<i>ag^wrarra</i>	'roar several times'	<i>g^wrH</i>	'roar'	
3	<i>ag^wrämärrämä</i>	'grumble, rumble, mutter'	<i>*g^wrm</i>		
3	<i>g^wärätratta</i>	'piled (stones, logs) (adj.)'	<i>g^wrt</i>	'pile up stones, logs'	
3	<i>täg^wrät 'ärrät 'ä</i>	'be wide eyed'	<i>g^wrt'</i>	'stare with eyes wide open'	
3	<i>täg^wtämättämä</i>	'grumble, mutter'	<i>*g^wtm</i>		<i>täg^wtämättämä & tägtämättämä now intermingled</i>

3	<i>tägzämäzzämä</i>	'be weak, faint (voice)'	<i>gzm</i>	'become sleepy'	
3	<i>agžäläžžälä</i>	'render foolish, cause to be clumsy, stretch'	<i>*gž</i>		
3	<i>abärbara</i>	'a kind of nettle'	<i>*Hbr</i>		
4 ?	<i>hnbrbr</i>	'spotted, multicolored, compounded of several elements'	<i>Hbr</i>	'be together'	Contain s -n-, see Ge'ez <i>hnbrbr</i>
3	<i>əfəgfəg</i>	'things crowded or bunched together'	<i>Hfg</i>	'enclose, cram together'	also <i>təfəgfəg</i>
3	<i>hələmləm: alä</i>	'disappear, vanish'	<i>hlm</i>	<i>hlm alä</i> 'vanish'	
3	<i>ʔələšləš: alä</i>	'nauseate'	<i>*Hlš</i>		
3	<i>hamälmal</i>	'green, verdant'	<i>hml</i>	'gather plants'	
8	<i>haminamina</i>	'children's begging song'	<i>hmn</i>	<i>hamina</i> 'singing beggar'	
3	<i>tənəqnəq</i>	'a struggle, fight'	<i>Hnq</i>	'choke, strangle'	also <i>ənəqnəq</i>
3	<i>hərəc 'rəc': alä</i>	'make a grating noise'	<i>*hrc</i>		
3	<i>ährägärrägä</i>	'draw designs, interlace'	<i>hrg</i>	<i>häräg</i> 'vine'	
3	<i>ʔəsərsər</i>	'one whose limb	<i>Hsr</i>	'tie'	

		does not function properly'			
3	<i>ʔəšəšət:</i> E <i>adärrägä</i>	'rub grain between palms'	<i>HšH</i>	'rub between palms'	
4	<i>ʔəškəmkəm</i>	'type of dancing'	<i>Hškm</i>	'shoulder shrugging dance'	
3	<i>ʔət'əft'əf</i>	'folded up (Adj.)'	<i>Ht'f</i>	'fold, bend (v.t.)'	
3	<i>hazänzin</i>	'a liturgical reading on the Crucifixion'	<i>hzn</i>	'be sad'	from Ge'ez; Amh. has the cognate root
3	<i>täjbäläbbälä</i>	'curl up (v.i.)'	<i>*jbl</i>		
3	<i>täjb^wäläbb^wälä</i>	'attain full growth quickly'	<i>*jb^wl</i>		
3	<i>ajb^wänäbb^wänä</i>	'cover up completely'	<i>jb^wn</i>	'cover up'	
3	<i>täjmälämmälä</i>	'to go together in long line, flow evenly'	<i>ʔjml</i>	'add, sum up'	
3	<i>käbädäd: alä</i>	'be somewhat heavy'	<i>kbd</i>	'be heavy'	
3	<i>täkbäsäbbäsä</i>	'be unworthily honored, sham, dress in fine clothes, walk heavily'	<i>ʔkbs</i>	'wrap a cloth on head'	
3	<i>kəfəlfəl</i>	'divided up, partitioned (Adj.)'	<i>kfl</i>	'divide'	

3	<i>täkläballäbä</i>	'run about like a dog'	<i>klb</i>	'poke about like a dog, be restless'	denominative of Sêmitic 'dog', but the noun is not in E-S
3	<i>täkläfalläfä</i>	'be a meddler, busybody'	<i>ʔklf</i>	'steal, rob'	
3	<i>täkläšälläšä</i>	'be upset (of stomach)'	<i>*klš</i>		variant of more common <i>qlš</i>
3	<i>täkmäkämmäkä</i>	'swarmed'	<i>*kmk</i>		odd root: 121
3	<i>känäbännäbä</i>	'cover one's head'	<i>knb</i>	'wrap oneself with blanket'	marginal, not accepted freely
3	<i>täknäfännäfä</i>	'fly, flutter, wander'	<i>knf</i>	'fly, flutter'	
3	<i>täknäzännäzä</i>	'wander, be restless'	<i>*knz</i>		
3	<i>kəṛəfrəf: alä</i>	'scale off, peel off'	<i>ʔkrf</i>	'smell bad'	alternate to <i>qəṛəfrəf: alä</i>
3	<i>täkrätärrätä</i>	'be aimless, unsettled'	<i>ʔkrt</i>	'spread grain on grinding stone'	
3	<i>täkrät'ärrät'ä</i>	'slip away, evade task'	<i>ʔkrt'</i>	'be properly spicy'	

4	<i>kærtəftəf</i>	'fine silk' (in a compound, so unclear)	<i>ʔrtf</i>	'chop finely'	
3	<i>kəsərsər</i>	'one who has gone bankrupt repeatedly'	<i>ksr</i>	'go bankrupt'	
3	<i>täktəfättäfä</i>	'be quick in doing job'	<i>ktf</i>	'do s/t quickly'	
4	<i>k^wəltəftəf: alä</i>	'stammer, stutter'	<i>k^wltf</i>	<i>k^wlatf</i> 'lisp, stammer'	
3	<i>täk^wläfalläfä</i>	'become soiled, dirty'	<i>k^wlf</i>	'spot, dribble onto clothes'	
4	<i>k^wəmtərtər</i>	'badly wrinkled'	<i>k^wmtr</i>	<i>k^wmatr</i> 'crease, wrinkle'	
3	<i>täk^wänäsännäsä</i>	'dress up, be decked out in one's best, behave unnaturally'	<i>*k^wns</i>		
3	<i>täk^wäräfärräfä</i>	'form froth, lather'	<i>k^wrf</i>	'foam, froth'	
4	<i>k^wərmətət: alä</i>	'be flexed, clenched'	<i>k^wrmt</i>	'flex, contract'	
4	<i>k^wəršəmšəm</i>	'make crunching noise'	<i>k^wršm</i>	'crunch, munch s/t'	
3	<i>k^wərtəmtəm</i>	'shrivel, contract'	<i>k^wrtm</i>	'cripple, cause to become clenched'	
4	<i>k^wəstərtər: alä</i>	'furrowed (of brow)'	<i>k^wstr</i>	'knit the brow'	
3	<i>ləbəsəbəs alä</i>	'embellish'	<i>lbs</i>	'dress'	
3	<i>tälfäsäffäsä</i>	'be limp, flabby'	<i>*lfs</i>		
3	<i>algät'äggät'ä</i>	'nibble, bite lightly & repeatedly'	<i>lgt'</i>	'tie lower jaw of animal'	

3	<i>tālg^wāmgg^wām</i>	'speak indistinctly'	<i>lg^wm</i>	'muzzle (v.t.)'	
3	<i>tālgāzāggāzā</i>	'waver'	<i>*lgz</i>		
3	<i>tālkāfākkāfā</i>	'sniff about like a dog, be restless'	<i>lkf</i>	'sniff, taste a bit'	
3	<i>lākāhkah</i>	'vine with edible root'	<i>*lkH</i>		
3	<i>tālkāsākkāsā</i>	'be in disorder, confusion, swarm, move aimlessly'	<i>≠ks</i>	'be tired'	
3	<i>tālk^wāfk^wāfā</i>	'be slobbered on, be befouled'	<i>≠k^wf</i>	'tap, touch'	
3	<i>lāk^wēm^wēm: alā</i>	'be mannered, be lazy'	<i>lk^wm</i>	'chatter, be argumentative'	variant of <i>lkm</i>
3	<i>tālk^wāsākk^wāsā</i>	'be trampled, soiled'	<i>lk^ws</i>	'ignite, singe'	
3	<i>tālmāt'āmmāt'ā</i>	'be chewed continually'	<i>lmt'</i>	<i>lamt'</i> 'chew'	
3	<i>tālmāt'āmmāt'ā</i>	'stagger, keep on being flexible'	<i>lmt'</i>	'be about to fall, caress, be flexible'	
3	<i>almāzāmmāzā</i>	'have intestinal cramps'	<i>lmz</i>	'twist fibers together'	
3	<i>lāqəmāqəm: adārrägā</i>	'pick up many scattered items'	<i>lqm</i>	'pick up'	
3	<i>tālwāsāwwāsā</i>	'wriggle, writhe, limp'	<i>lws</i>	'cripple (v.t.), paralyze legs'	
3	<i>lāwət'wət'</i>	'varying' Adj.	<i>lwt'</i>	'change'	

3	<i>ləyətət: alä</i>	'become separated'	<i>lyH</i>	'separate'	
E					
3	<i>tämlägällägä</i>	'become slippery'	<i>mlg</i>	'be slimy'	
3	<i>mələsləs</i> <i>adärrägä</i>	'do something repeatedly'	<i>mls</i>	'return'	
3	<i>mələt'lət': alä</i>	'be completely bald'	<i>mlt'</i>	'become bald'	
4	<i>mənc'ərc'ər</i> <i>adärrägä</i>	'scatter s/t completely'	<i>mnc'r</i>	'strew'	
3	<i>tämnäkännäkä</i>	'walk fast'	<i>*mnk</i>		
4	<i>mənqərqr: alä</i>	'come apart, come undone'	<i>mnqr</i>	'tear up'	
3	<i>tämnäšännäšä</i>	'relax, be carefree'	<i>mnš</i>	'be carefree'	
4	<i>mənt'ərt'ər</i> <i>adärrägä</i>	'explain clearly'	<i>mnt'r</i>	'clear a field'	
4	<i>mərk^wəzk^wəz</i>	'supporting one another'	<i>mrk^wz</i>	'lean on a stick'	
3	<i>amsälässälä</i>	'ponder'	<i>msl</i>	'resemble, explain by parable'	
3	<i>məšənšən</i> <i>adärrägä</i>	'to upset, derange'	<i>mšn</i>	'toss grain up for threshing'	
4	<i>məsqəlqəl</i>	'mess, chaos'	<i>msql</i>	'be in disorder'	derived forms with 'do', 'say', 'go'
3	<i>mäsätsät: alä</i>	'get somewhat dark'	<i>mšH</i>	'become evening'	

E					
3	<i>tämšākāššākā</i>	'go about giving at the knees'	<i>mšk</i> ε	'give at the knees'	
3 E	<i>tämtatta</i>	'be jumbled together, panic-stricken, uproar'	<i>mtH</i>	'strike'	
3	<i>m^wəc'əlc'əlla</i>	'genet' (carnivorous mammal)	<i>m^wc'l</i>	one of the templates to which this noun root is affixed	Kane listed variants <i>m^wəc'əlc'əlla</i> , <i>m^wəc'm^wəc'əlla</i> , <i>m^wəc'əlc'əlla</i> , see also <i>mət'mat'</i>
3	<i>täm^wläc'älläc'ä</i>	'become slippery'	<i>m^wlc'</i>	'be slippery'	
3	<i>täm^wnäšännäšä</i>	'be very wealthy'	<i>*m^wnš</i>		
3	<i>tämzägäzzägä</i>	'be thrown in a whirling motion'	<i>anzg</i>	'gather'	
3	<i>näbälbal</i>	'flame'	<i>nbl</i>	'flame' (Ge'ez)	
3	<i>nəbərbər</i>	'pile up, heaped up'	<i>nbr</i>	'be in a place, sit'	
3	<i>tänb^wəc'əbb^wəc' ä</i>	'gurgle (liquid in a container)'	<i>nb^wc'</i>	'splash'	according to Kane, from <i>n-b^wc'b^wc'</i>
3	<i>nədəldəl</i>	'riddled with holes'	<i>ndl</i>	'bore, pierce'	
3 E	<i>nəfətfət: adärrägä</i>	'cause become greatly bloated'	<i>nfh</i>	'become swollen, blow'	
4	<i>nəfrəqrəq: alä</i>	'crack all over (of	<i>nfrq</i>	'be full of pus, burst (of	

		'scab'		'boil (v.i)'	
3	<i>tānfāsāffāsä</i>	'pant, let a series of farts'	<i>nfs</i>	'blow (wind), breathe'	
3	<i>tāng^wädägg^wädä</i>	'thunder'	<i>ng^wd</i>	'to thunder, roar'	
3	<i>ənkəlkalo</i>	'chips, shavings, kindling'	<i>ənk</i>	'hop on one leg'	
3	<i>ənk^wərk^wərit</i>	'lump of <i>ənk^wəro</i> bread'	<i>nk^wr</i>	<i>ənk^wəro</i> , type of bread	Leslau says the non-redup. verb is denominative (1995:556)
3	<i>nəkəkət: alä</i>	'break (v.i.)'	<i>nkt</i>	'break, smash'	
3	<i>nəqəfqəf: alä</i>	'criticize one another'	<i>nqf</i>	'criticize'	
3	<i>tānqaqqa</i>	'be parched (throat)'	<i>nqH</i>	'crack (drying), wake up'	
3	<i>tānqäsäqqäšä</i>	'smash (v.i.)'	<i>nqš</i>	'break'	
3	<i>tānt'äbätt'äbä</i>	'fall by drops'	<i>nt'b</i>	'drip'	
3	<i>nät'äbt'ab</i>	'drops, spots, dots'	<i>nt'b</i>	'drip, fall by drops'	related to <i>t'bt'b</i> ?
3	<i>nət'əlt'əl: alä</i>	'become detached'	<i>nt'l</i>	'detach'	
3	<i>nəwət'wət': alä</i>	'be completely disturbed'	<i>nwt'</i>	'disturb'	
3	<i>ənzälzay</i>	'a plant (sp.)'	<i>*nzl</i>		<i>l > y</i> by

				rule	
3	<i>qəbuc</i> 'bucc'- <i>ənnät</i>	'restlessness'	<i>qbuc</i>	'be suddenly lacking'	
3	<i>aqbabba</i> E	'cause to spread by contact'	<i>qbH</i>	'paint, spread a liquid'	
4	<i>qəbjərjər: alä</i>	'talk nonsense'	<i>qbjr</i>	<i>qbajr</i> 'be delirious'	cf. <i>qbat'r</i>
3	<i>täqbät</i> 'äbbät'ä d	'be restless, mischievous' or 'well dressed'	<i>qbt</i>	'behave unsuitably'	
4	<i>qəbt'ərt'ər: alä</i>	'babble, talk incoherently'	<i>qbt'r</i>	<i>qbat'r</i> 'babble, talk incoherently'	cf. <i>qbajr</i>
3	<i>täqbäzäbbäzä</i>	'wander about aimlessly'	<i>qbz</i>	<i>qabz</i> 'go here and there seeking'	
3	<i>täqc'äläcc'älä</i>	'ring, clink (v.i)'	<i>qc'l</i>	'ring'	
3	<i>täqc'ämäcc'ämä</i>	'chatter, crack knuckles'	<i>qc'm</i>	'be full of nits, fleas'	
3	<i>qədəmdəmoš</i>	'a race, competition'	<i>qdm</i>	'precede'	
3	<i>täqläbälläbä</i>	'be restless, in a hurry'	<i>qlb</i>	'snatch in midair'	
3	<i>täqlalla</i> E	'spread (red color)' 'become red many times' (Dästa)	<i>qlH</i>	'be red'	Dästa also gives a Ge'ez-type form <i>aqyähäyähä</i> , p. 1056

3	<i>täqläsälläsä</i>	'hang the head'	<i>qls</i>	'bow'	
3	<i>täqläsälläsä</i>	'be upset (stomach)'	<i>*qlš</i>		
3	<i>täqlät'ällät'ä</i>	'melt, drip (v.i., of butter)'	<i>qll'</i>	'melt'	
4	<i>qəlt'əft'əf: alä</i>	'be quick, nimble'	<i>qll'f</i>	'do s/t quickly'	
4	<i>qəlt'əmt'əm</i>	'broken to pieces (usually of bones, Adj)'	<i>qll'm</i>	'break a bone (v.t.)'	
3	<i>täqmädämmädä</i>	'writhe injuredly, limp, have broken spine'	<i>*qmd</i>		
3	<i>aqmamma</i>	'hesitate, falter'	<i>≠qmH</i>	'rob, pillage'	
3	<i>täqmat'ämmät'ä</i>	'sit in disorderly way, moving about'	<i>qmt'</i>	'sit'	
4	<i>qəmt'əlt'əl</i>	'poorly made bread'	<i>qmt'l</i>	<i>qmat'l</i> 'be pampered, spoiled'	
3	<i>täqmäzämmäzä</i>	'totter' or 'whirl (v.i. of thrown stick)'	<i>*qmz</i>		
4	<i>qənbərbər: alä</i>	'become well coordinated'	<i>qnbr</i>	'make a yoke' (oxen must coordinate)	
4	<i>qənc'əbc'əb</i> <i>adärrägä</i>	'take a little from many different things'	<i>qnc'b</i>	'take a small quantity'	
3	<i>aqnanna</i>	'recommend	<i>qnh</i>	'succeed'	

		someone'			
3	<i>qänäsänäs:</i> <i>adärrägä</i>	'take off a little here, a little there'	<i>qns</i>	'reduce'	force
4	<i>qənt'əbt'abi</i>	'small chunks of meat'	<i>qnt'b</i>	'cut off small piece'	
4	<i>qänt'äft'affa</i>	'thornbush (sp.)'	<i>qnt'f</i>	'thornbush (sp.)'	derived from a noun, no cognate verb
3	<i>täqnäzännäzä</i>	'be restless, wander'	<i>qnz</i>	'lower the voice'	
3	<i>qərəbrəb: alä</i>	'approach each other'	<i>qrb</i>	'come close'	
4	<i>qərc'əmc'əm</i> <i>adärrägä</i>	'make a crunching sound'	<i>qrc'm</i>	'make a crunching sound'	also <i>qərc'əmc'ə</i> <i>mit</i> 'ankle'
3	<i>täqräfärräfä</i>	'peel off here and there (v.i.)'	<i>qrf</i>	'scrape, peel (v.t.)'	
4	<i>täqšämädämmädä</i> <i>qəšmədmed</i>	'sway the hips' 'broken (Adj.), one with rolling gait'	<i>qšmd</i>	'beat with a stick, break'	4C root reduplic ated as a verb
3	<i>täqt'äft'äftä</i>	'be fictitious'	<i>qt'f</i>	'dupe, swindle'	
3	<i>täqt'älätt'älä</i>	'follow one another, be joined together'	<i>qtl</i>	'join parts (v.t.)'	
3	<i>täq^wläc'alläc'ä</i>	'blink'	<i>q^wlc'</i>	<i>q^wlc': alä</i> 'be open (eye)'	

3	<i>q^wələfləf</i>	'interlocked'	<i>q^wlf</i>	'lock (v.t.)'	
3	<i>aq^wlalla</i>	'fry onions'	<i>q^wlH</i>	'parch (cooking), heat'	
3	<i>täq^wmät'ämmät'ä</i>	'be cut to pieces'	<i>q^wmt'</i>	'sever, chop off'	
3	<i>aq^wmäzämmäzä</i>	'brandish a sword'	<i>*q^wmz</i>		
3	<i>täq^wnät'ännät'ä</i>	'fidget, be restless'	<i>q^wnt'</i>	'acting unsuitably'	
4	<i>q^wənt'əlt'əl</i>	'torn or ragged clothes'	<i>q^wnt'l</i>	'tear, lacerate'	
4	<i>q^wənt'ərt'ər</i>	'thing which has had many pinches taken away'	<i>q^wnt'r</i>	'take a pinch'	
4	<i>q^wərʃədfəd: alä</i>	'very stiff and dry'	<i>q^wrfd</i>	'dry out, stiff & hard'	
3	<i>täq^wrämärrämä</i>	'to adopt an attitude no in keeping with one's feelings'	<i>≠q^wrm</i>	'hit slightly'	
4	<i>q^wərmədməd</i>	'be extremely shriveled'	<i>q^wrmd</i>	'become gaunt'	
3	<i>q^wərəsraš</i>	'bits of bread'	<i>q^wrs</i>	'tear off bread'	
3	<i>täq^wräsärräsä</i>	'peel off (v.i.)'	<i>≠qrš</i>	'regurgitate (baby)'	
4	<i>q^wəršəmšəm</i>	's/t smashed'	<i>q^wršm</i>	'break to bits'	
4	<i>q^wərt'əmt'əm</i> <i>adärrägä</i>	'chewed to a pulp'	<i>q^wrt'm</i>	'munch'	
3	<i>aq^ws'äläss'älä</i>	'send out shoots, sprouts'	<i>q^ws'l</i>	<i>q^wäs'əl</i> , in <i>q^wäs'əl wärq</i> , 'tinkling gold ornaments hanging down'	

3	<i>täq^wt'ärätt'ärä</i>	'snarled, tangled'	<i>q^wt'r</i>	<i>q^wat'r</i> 'tangled'	
3	<i>täqzämäzzämä</i>	'thrown with whirling motion'	<i>*qzm</i>		compare <i>täqmäzämm</i> <i>äzä</i>
3	<i>tärbädäbbädä</i>	'be nervous'	<i>≠rbd</i>	'sink down' of ground	
3	<i>tärbätäbbätä</i>	'filled with fear'	<i>rbt</i>	'fear, be upset'	
3	<i>tärfädäffädä</i>	'be late in morning'	<i>rfd</i>	'be late, esp. morning'	
3	<i>tärgäbäggäbä</i>	'waved, fluttered'	<i>rgb</i>	'flutter, flap'	
3	<i>tärgädäggädä</i>	'tremble, shake'	<i>rgd</i>	'shake with fear'	
3	<i>tärgäfäggäfä</i>	'drop off (leaves off tree)'	<i>rgf</i>	'drop off'	
3	<i>ərgət'gət'</i> <i>adärrägä</i>	'trample repeatedly'	<i>rgt'</i>	'trample'	
3	<i>arg^wämägg^wämä</i>	'grumble, mutter'	<i>*rg^wm</i>		
3	<i>tärkäfäkkäfä</i>	'be sprayed, sprinkled'	<i>*rkf</i>		
3	<i>tärmäsämmäsä</i>	'swarm, be in disorder'	<i>rms</i>	'swarm'	see also <i>trms</i>
3	<i>tärmät'ämmät'ä</i>	'be dirty, roll in ashes, do work poorly'	<i>rmt'</i>	'put into ashes'	
3	<i>tärqäfäqqäfä</i>	'continually be allowed to touch the ground'	<i>rqf</i>	'allow to touch the ground'	
3	<i>tärt'äbätt'äbä</i>	'keep on being	<i>rt'b</i>	'be wet'	

		moist'			
3 E	<i>mästāratʕat</i> ¹	'means for straightening'	<i>rtH</i>	'improve, overcome' (Ge'ez 'be straight')	
3	<i>täsbädäbbädä</i>	'tremble with fear'	<i>*sbd</i>		
3	<i>täsbäqäbbäqä</i>	'quiver in flight (javelin), move by crawling, slithering'	<i>sbq</i>	'brandish a spear'	
4	<i>səbqəlqəl: alä</i>	'be smartly dressed'	<i>sbql</i>	'be fine, handsome'	
3	<i>täsbäräbbärä</i>	'be broken continually'	<i>sbr</i>	'break'	
4	<i>səbt'ərt'ər: alä</i>	'continually be varied'	<i>sbt'r</i>	'vary in form'	
3	<i>täsdämäddämä</i>	'push (trying to get s t)'	<i>*sdm</i>		
3 E	<i>täsfaffa</i>	'enlarge, expand (v.i.)'	<i>sffH</i>	'become wide'	
3	<i>täsgäbäggäbä</i>	'be greedy'	<i>sgb</i>	'make a sheath'	
3	<i>täsgämäggämä</i>	'rumble'	<i>sgm</i>		
3 E	<i>täskakka</i>	'laugh uproariously'	<i>skH</i>	'string beads, insert s/t'	

¹ The form *mästāratəʕat* is from *mästärʕatʕat*, the /ʕ/ dropping out after the /r/, leaving only the vowel. The consonant /ʕ/ has been reduced to /t/, /ʔ/ or even zero in modern Amharic pronunciation, but it is preserved orthographically. This form may be the result of applying BCR in history, not to the contemporary root. It is discussed in chapter four.

3	<i>täsläbälläbä</i>	'continually be slashed'	<i>slb</i>	'slash, lop off, castrate'	
3	<i>sälägläg: alä</i>	'be flexible, slender'	<i>slg</i>	from noun <i>soläg</i> 'a type of whip'	
3 E	<i>aslalla</i>	'have several matters turn out well'	<i>slH</i>	'be in good condition'	
3 E	<i>aslalla</i>	'sharpen somewhat or a great deal'	<i>slH</i>	'be sharp'	
3 E	<i>aslalla</i>	'ponder, turn over and over in one's mind'	<i>slH</i>	'be counted, reckon'	
3	<i>täskäräkkärä</i>	'become turbid, muddy'	<i>≠skr</i>	'get drunk'	
3	<i>täsläkälläkä</i>	'keep on moving at rapid, even pace'	<i>slk</i>	'move at rapid pace'	
3	<i>täslämällämä</i>	'eyes become heavy, swoon, be weak'	<i>slm</i>	'faint, swoon'	
3	<i>täsläqälläqä</i>	'keep on being ground fine'	<i>slq</i>	'rind finely'	
3	<i>säləwləw: alä</i>	'become limp'	<i>*slw</i>		
3 E	<i>täsmamma</i>	'be in harmony'	<i>smH</i>	'hear'	
3	<i>täsmälämmälä</i>	'meander (troops in a column)'	<i>≠sml</i>	'smoothen (v.t.)'	

3	<i>täsmänämmänä</i>	'be tired'	<i>smn</i>	'count to eight'	
3	<i>täsmät'ämmät'ä</i>	'sink, go down'	<i>smt'</i>	'sink'	
4	<i>sənbərbər: alä</i>	'keep on being bruised'	<i>sibr</i>	'bruise appeared'	
4	<i>sənbəbət: alä</i>	'stay a great deal in several places'	<i>sibt</i>	'stay a while'	
4	<i>sənbət'bət': alä</i>	'flaking off in several places'	<i>sibt'</i>	'scrape outside surface'	
4	<i>sənb"əkb"ək: alä</i>	'keep on getting dented'	<i>sib"k</i>	'make a dent'	
3	<i>täsnäfännäfü</i>	'keep on being sluggish'	<i>snf</i>	'lazy'	
4	<i>sənkəlkəl: alä</i>	'continually stumble a lot'	<i>snkl</i>	'trip (vt.)'	
4	<i>sənkərkər</i>	'upside down, topsy- turvy'	<i>snkr</i>	'be interspersed, mixed'	
4	<i>sənqərq'ər: alä</i>	'keep on being tucked in'	<i>snqr</i>	'jam s/t into a tight space'	
4	<i>sənt'əqt'əq: alä</i>	'keep on getting cracked'	<i>snt'q</i>	'crack (v.t.)'	
4	<i>sənt'ərt'ər: alä</i>	'keep on flaking off considerably'	<i>snt'r</i>	'remove the outside'	
4	<i>səntərtər: alä</i>	'keep on tearing a great deal'	<i>snt'r</i>	'tear open'	
3	<i>səqət'qət': alä</i>	'tremble with fear'	<i>sqt'</i>	'shiver' not <i>sqt'</i> 'tell a	

D				lie'	
3	<i>asq^wäräqq^wärä</i>	'have something pierced'	<i>sq^wr</i>	'bore, pierce'	
3	<i>täsrägärrägä</i>	'sink into s/t soft, become sunken'	<i>srg</i>	'sink'	
4	<i>sərg^wədḡ^wəd alä</i>	'be dented, uneven'	<i>srg^wd</i>	'make an imprint'	
3	<i>täsräkärräkä</i>	'be turbid'	<i>srk</i>	'be turbid, unfiltered'	
3	<i>täsräqärräqä</i>	'sob, cry'	<i>≠srq</i>	'steal'	
3	<i>tästäfättäfü</i>	'keep on missing one's aim, keep on talking to much'	<i>≠stf</i>	'be eager, in a hurry'	
3	<i>səwəlwəl alä</i>	'be nauseous, have indigestion'	<i>swl</i>	'look poorly'	
D					
3	<i>täswänäwwänä</i>	'take one's ease'	<i>*swn</i>		
3	<i>səwərwər</i>	'hidden, indirect'	<i>swr</i>	'conceal'	
3	<i>täšbäläbbälä</i>	'curl up (v.i.)'	<i>šbl</i>	'wrap, curl up'	
D					
3	<i>ašbäräbbärä</i>	'cause a panic'	<i>šbr</i>	'panic'	
3	<i>šäbätbatta</i>	'dark hair with flecks of gray'	<i>šbt</i>	'turn white or gray (of hair)'	
3	<i>šəfənʃən</i>	'covered up thing'	<i>šfn</i>	'cover'	
3	<i>täšg^wädägg^wädä</i>	'be driven (of animals)'	<i>*šg^wd</i>		
3	<i>täšg^wämägg^wämä</i>	'to go end over end (hurled stick)'	<i>≠šg^wm</i>	'criticize indirectly'	

4	<i>täškäfakkäjä</i>	'dress up'	<i>škf</i>	'dress up ostentatiously'	
3 E	<i>täškakka</i>	'neigh, whinny, cackle'	<i>*škH</i>		
3	<i>täškämäkkämä</i>	'frolic'	<i>škm</i>	'carry'	
3	<i>täškäräkkärä</i>	'turn (v.i)'	<i>*škr</i>	but old Semitic has <i>krkr</i>	
3	<i>täšk^wäfäkk^wäfä</i>	'be fastidious'	<i>*šk^wf</i>		
3	<i>täšk^wämäkk^wämä</i>	'flirt'	<i>*šk^wm</i>		
3	<i>täšk^wäräkk^wärä</i>	'begin to appear (of fruit)'	<i>šk^wr</i>	<i>šak^wr</i> 'be spherical'	
3	<i>täš^wläkälläkä</i> <i>täš^läkäl^wläkä</i> <i>täšläkälläkä</i>	'slip through unnoticed'	<i>š^wlk</i>	'slip through, sneak'	
3	<i>täšlämällämä</i>	'put on many decorations'	<i>šlm</i>	'decorate'	
3	<i>š^wäləqləq: alä</i>	'hide a weapon for attack'	<i>š^wlq</i>	'do s/t in underhanded way'	
3	<i>š^wäləwləw-it²</i>	'marmoset-like creature' or 'kind of bird'	<i>*š^wlw</i>		
3	<i>täšmädämmädä</i>	'limp'	<i>šmd</i>	<i>šamad</i> 'one who limps'	
3 D	<i>täšmälämmälä</i>	'curl up like dry leaf' (and others	<i>šml</i>	'roll up something'	

² The orthography used by Kane is *šuwliw-it*, but the form given in the table is presumed to represent a more phonemic interpretation.

		meanings)			
3	<i>ašm^wälämm^wälä</i>	'roll clay' (for pot making)	<i>*šm^wl</i>		
3	<i>täšm^wänämm^wän</i> <i>ä</i>	'wear fancy clothes, show-off with elegance'	<i>*šm^wn</i>		
3	<i>täšm^wärämm^wärä</i>	'dress fine, arrange one's hair'	<i>šm^wr</i>	'stir fire, insult'	
3	<i>täšm^wät'ämm^wät'</i> <i>ä</i>	'be timid, not bothering host'	<i>*šm^wt'</i>		
3	<i>šämät'mät'e</i> D	'a species of plant'	<i>šmt'</i>	'weave branches into fence, strip off leaves/fruit'	
4	<i>šəngəlgəl: alä</i>	'be cracked all over'	<i>šngl</i>	'split open, cleave'	
4	<i>šəngərgər</i>	'cross-eyed, warped'	<i>šngr</i>	'look cross-eyed, be warped'	note ³
4	<i>šənkəfkəf: alä</i>	'be unable to walk'	<i>šnkf</i>	'hobble (v.t.)'	
4	<i>šəng^wərq^wər</i>	'having several holes'	<i>šng^wr</i>	'make a hole in a pot or gourd'	<i>nq^wr</i> possible source, with š-
4	<i>šəng^wət'q^wət'</i>	'well proportioned'	<i>šng^wt'</i>	'be handsome & slender'	
4	<i>šəntərətər</i>	'slashed all over (Adj)'	<i>šntr</i>	'slash along the edge'	

³ Kane links this to *awäšänaggärä*, making this a true BCR sexiliteral from what has been labeled as quinquiliteral.

3 E	<i>ašqaqqa</i>	‘be evil, wicked’	*šqH ⁴		
3	<i>täšqäräqqärä</i>	‘be well dressed’	*šqr		also <i>täqšäräššärä</i>
3 D	<i>täšq^wät’äqq^wät’ä</i>	‘be obsequious’	šq ^w t’	‘be obsequious’	
3	<i>täšräfärräfä</i>	‘be coarse, rough’	šrf	‘break edge, chip, notch’	
3	<i>täšq^wämäqq^wämä</i>	‘refuse to eat out of propriety, hesitate’	*šq ^w m		variant of <i>täšk^wämäkk^wämä</i>
3	<i>täšräkärräkä</i>	‘disintegrated’	šrk	‘become partners’	
4	<i>šerkəkət: alä</i>	‘be torn all over’	šrkt	‘tear to bits’	
4	<i>šerm^wət’m^wət’: alä</i>	‘become shrunken, shriveled’	šrm ^w t’	‘shrivel’	
3	<i>as’däläddälä</i>	‘shine, glitter, sparkle’	s’dl	‘shine, gleam’	
3	<i>tätbäsäbbäsä</i>	‘refuse to work, dawdle’	*tbs		
3 d	<i>tätg^wälägg^wälä</i>	‘billow up (of smoke)’	tg ^w l	‘billow (of smoke)’ with ‘say’	see <i>täl^wəgl^wəg: & təg^wələl: alä</i>
3	<i>tätkänäkkänä</i>	‘grieve, become angry’	tkn	‘seethe with rage, be in great sorrow’	
3	<i>tätk^wäräkk^wärä</i>	‘be industrious,	tk ^w r	‘look at attentively,	

⁴ Kane cites “šäqa”, unattested but based on the correct root.

		hardworking'		strive to obtain knowledge'	
3	<i>atlägällägä</i>	'make nauseous'	<i>*tlg</i>		
3	<i>tätl^wäkäll^wäkä</i>	'be soft (of body)'	<i>*tl^wk</i>		
4	<i>tənb^wək^wək</i>	'soft and plump (of body)'	<i>tmb^wk</i>	'be soft and yielding'	seems related to <i>t^wəmb^wəs</i>
3	<i>tätmägämmägä</i>	'pullulate, be in turmoil, confusion'	<i>*tmg</i>		
3	<i>tätmäkämmäkä</i>	'become soft' 'smolder, smoke, become confused'	<i>tmk</i>	'become soft' ⁵	
3	<i>tätmäsämmäsä</i>	'swarm, pullulate (ants)'	<i>≠tms</i>	'tarnish'	shortened from <i>trmsms</i>
4	<i>tənb^wəs^wəs: alä</i>	'be or look plump'	<i>tnb^ws</i>	<i>tənb^wəs: alä</i> 'soft, yielding (of flesh)'	
3	<i>tätträfärräfä</i>	'be in excess, overflow'	<i>trf</i>	'be in plenty, in excess'	
3	<i>təgræg: alä</i>	'pulsate' also 'be crisscrossed, jumbled'	<i>trg</i>	'pulsate'	
4	<i>tərkəmkəm</i>	'jumble, indiscriminate	<i>trkm</i>	<i>trkm</i> 'be collected, amassed (jumble of	

⁵ Seems to be two very different meanings, 'soft' & other. Kane refers to *m^wäkkäkä* but semantics are much closer with *tmk*

		collection, made of shabby parts'		objects)	
4	<i>tərməsməs</i>	'disorder, confusion, hustle & bustle, chaos'	<i>trms</i>	'crowd, be in commotion'	see also <i>tətmäsä</i> <i>mmäsä</i>
3	<i>tät'wänäwwänä</i>	'be twisted, coiled'	<i>t'wn</i>	<i>t'awn</i> 'be enemies, rivals'	
3	<i>tät'bäräbbärä</i>	'flash, shine, glitter'	<i>t'br</i>	'attach spangles to harness'	
3	<i>at'däläddälä</i>	'glisten, shimmer'	<i>t'dl</i>	'shine, sparkle'	
3	<i>t'əfəfət:</i> E. <i>adärrägä</i>	'render nauseous'	<i>t'fH</i>	'disappear'	only in the idiom <i>ləbun t'əfəfət:</i> <i>adärrägä</i>
3	<i>t'əgətət: alä</i> E.	'be short'	<i>t'gH</i>	'be close'	the sense most clearly seen in <i>tät'ägaggä</i> 'get close together'
3	<i>t'əgəngən</i>	'something repaired'	<i>t'gn</i>	'repair, mend'	
3	<i>tät'läfälläfä</i>	'wander aimlessly; be muddled, in disorder'	<i>ʌ'lf</i>	'embroider, snatch'	
3	<i>tät'lägällägä</i>	'become dark (at sunset)'	<i>*t'lg</i>		
3	<i>tät'läqälläqä</i>	'be flooded', 'meddle'	<i>t'lq</i>	'dip, sink, meddle'	
3	<i>tät'läsälläsä</i>	'become stunted,	<i>t'ls</i>	'be charred, wilt'	

		droop (grain), blackened (by fire)'			
3	<i>at'läzälläzä</i>	'defer, postpone, put off'	<i>ʔ'lz</i>	'hit hard'	
3	<i>t'əmädmäde</i>	'coupled, linked together' (other sense, 'writhing')	<i>t'md</i>	'yoke together'	
3	<i>tät'lämällämä</i>	'coil, twist, writhe, be in disorder'	<i>t'ml</i>	'roll up, fold, curve'	
3	<i>at'mänämmänä</i>	'twist'	<i>ʔ'mn</i>	'anoint, smear'	
3	<i>tät'mäsämmäsä</i>	'be trampled down' & 'swarm, be in confusion,	<i>t'ms</i>	'break through, trample'	
3	<i>t'əm^wət'm^wət'</i> <i>honä</i>	'be a vagrant'	<i>*t'm^wt'</i>		seems a noun, odd MSC
3	<i>tät'm^wärämm^wär</i> <i>ä</i>	'be besmudged'	<i>t'm^wr</i>	'become black'	
3	<i>tät'mäzämmäzä</i>	'twist, coil, walk slowly	<i>t'mz</i>	'wring clothes, twist'	
4	<i>t'ənbərbər: alä</i>	'look through squinted eyes'	<i>t'nbr</i>	'blur the vision'	
4	<i>t'ənbəsbəs: alä</i>	'not see well, burn poorly'	<i>t'nbs</i>	'not see well'	
4	<i>t'ənbəzbəz</i>	'blurry visioned'	<i>t'nbz</i>	'become blind by illness'	

4	<i>t'əngərgər</i>	'cross-eyed, one-eyed'	<i>t'ngr</i>	'be cross-eyed, have poor vision'	
3	<i>t'əq^wərq^wər: alä</i>	'be extremely black'	<i>t'q^wr</i>	'be black'	
3	<i>tät'räbärräbä</i>	'be fearful, take pains to welcome s/o'	<i>ʔ'rb</i>	'carve, hew, shape'	
3	<i>t'ərəgrəg: adärrägä</i>	'sweep away completely'	<i>t'rg</i>	'sweep'	
3	<i>tät'rähärrähä</i>	'sully, dirty, debase'	<i>*t'rh</i>		an actual phonetic [h]
3	<i>tät'räkärräkä</i>	'be completely soiled, messed up'	<i>t'rk</i>	'dirty, soil, stain'	
3	<i>tät'räqärräqä</i>	'be splattered with mud'	<i>ʔ'rq</i>	'nail, fasten'	
4	<i>t'ərqəmqami</i>	'mixture, conglomeration'	<i>t'rqm</i>	'pack people into a room' (derived: gather, collect)	
4	<i>t'ərsəmsəm</i>	'fragments, broken pieces'	<i>t'rsm</i>	'break shatter'	
3	<i>tät'wäläwwälä</i>	'have nausea, sway in wind (grass)'	<i>ʔ'wl</i>	'become big & husky'	
4	<i>t'əwl^wəgl^wəg: alä</i>	'become weak, exhausted'	<i>t'wlg</i>	'be fatigued, weary'	
3	<i>täwčäläccälä</i>	'be hopelessly entangled'	<i>wcl</i>	<i>wacäla</i> 'bag or mat of fiber, raincoat of woven stalks'	verb from noun

3	<i>wäsälsäla</i>	unclear, refrain from a song	<i>wsl</i>	<i>wäsäla</i> 'block of clarified butter'	
4	<i>wäsmädmed</i>	'knock-kneed'	<i>wšmd</i>	<i>wäsmadda</i> 'knock- kneed, pigeon-toed'	
4	<i>wæ'mädmed</i>	'scrawny, knock- kneed'	<i>wc'md</i>	'wrinkle, crease' <i>t-wc'amd</i> 'be knock- kneed'	
3	<i>awdäkäddäkä</i>	'go from house to house sponging food'	<i>*wdk</i>		
3	<i>täwdäläddälä</i>	'idle away one's time'	<i>≠wdl</i>	'be fat, stout'	
3	<i>wədəqdaqi</i>	'of low value or price'	<i>wdq</i>	'fall, become cheap'	
3	<i>täwdäsäddäsä</i>	'wander, rove, be idle'	<i>≠wds</i>	'praise, extol'	
3	<i>täwdäsäddäsä</i>	'wander idly, go from house to house sponging'	<i>*wdš</i>		
3	<i>wəfədfad</i>	in compound, 'destroy completely'	<i>*wfd</i>		
3	<i>täwgamäggämä</i>	'stagger, totter'	<i>*wgm</i>		
3	<i>awgänäggänä</i>	'cause to spurt or gush'	<i>≠wgn</i>	'form a team, faction'	
3	<i>täwjäbäjjäbä</i>	'stagger, totter'	<i>wjb</i>		

3	<i>wäjbärbär: alä</i> <i>wäʒbärbär</i>	'be very confused'	<i>wjbr</i>	'talk off the top of one's head'	
3	<i>täwläbälläbä</i>	'flap, flutter, chatter'	<i>ʒwlb</i>	'slip out, sneak away'	
4	<i>wəlfəsfəs</i>	'shirker, one who speaks w/o reflection, scamp'	<i>wlfs</i>	'shirk work, be rogue, prattle, be worthless'	
4	<i>wəlfəfət</i>	'invented, fictitious'	<i>wlft</i>	'chatter, prattle, wander'	
3	<i>awlägällägä</i>	'be idle, roam aimlessly'	<i>wlg</i>	'sneak away from work'	
4	<i>täwlägädäggädä</i>	'sway, lurch side to side'	<i>wlgd</i>	'bent, twisted, distorted'	
3 E	<i>awlalla</i>	'vast, open and level'	<i>wlH</i>	'get out of the way' with 'say'	
3	<i>täwläkälläkä</i>	'move at a rapid even pace'	<i>*wlk</i>		
4	<i>wəlkəfkəf: alä</i>	'be hobbled, have crooked legs'	<i>wlkf</i>	'hinder, hobble'	
4	<i>wəlmət'mət'</i>	'dodger, shirker'	<i>wlmt'</i>	'avoid, dodge'	
3	<i>täwläqälläqä</i>	'fall apart, crumble'	<i>wlq</i>	'fall out, fall off'	
4	<i>wəlqəmqəm</i>	'twisted, deformed'	<i>wlqm</i>	'become twisted'	
3	<i>täwläwälläwä</i>	'roam, move aimlessly'	<i>*wlw</i>		non- standard MSC
4	<i>wəngərgər: alä</i>	'be placed across,	<i>wngr</i>	'bar a door'	

		hindered'			
3	<i>täwnäkännäkä</i>	'crawl, swarm'	* <i>wnk</i>		
4	<i>wənkərkər: alä</i>	'toddle'	<i>wnkr</i>	<i>t-wnkr</i> 'obstruct, entangle', 'stagger, walk unsteadily'	
3	<i>täwrägärrägä</i>	'walk swaying, dress up in finery, be restless'	* <i>wrg</i>		
3	<i>täwräkärräkä</i>	'walk lurching, give way (knees)'	<i>wrk</i>	'cause to kneel'	
3	<i>täwrägärrägä</i>	'shine, gleam, sparkle'	<i>wrq</i>	'gold (noun)'	
3	<i>täwsäbässäbä</i>	'be entangled, complicated'	<i>wsb</i>	'entangled, intertwined'	
4	<i>wəšgərgər: alä</i>	'walk in a zigzag'	<i>wšgr</i>	'walk zigzagging, interweave'	cf. <i>wšngr</i> 'interweave'
3	<i>wəškətət: alä</i>	'talk in one's sleep'	<i>wškt</i>	'tell tales, chatter'	
3	<i>täwšäläššälä</i>	'made in a slipshod way'	<i>wšl</i>	'do in a slovenly fashion'	
4	<i>wəslətət: alä</i>	'be completely idle'	<i>wslt</i>	'avoid work'	
3	<i>täwšänäššänä</i>	'be waved, wagged'	* <i>wšn</i>		
	<i>wəšənəgərgər</i> <i>adärrägä</i>	'interlace many times'	<i>wšngr</i>	'interweave'	see also <i>wəšgərgər</i> : <i>alä</i>

3	<i>täwt'ärätt'ärä</i>	'be inflated, distended'	<i>wt'r</i>	'be puffed up, distended'	
3	<i>täwtäbättäbä</i>	'be interlaced, badly tied'	<i>wtb</i>	'interweave, tie together'	
3	<i>täwtäfättäfä</i>	'crudely constructed, jerry rigged'	<i>≠wtf</i>	'place under one's arm, plug a hole'	
3	<i>täwtärättärä</i>	'stagger, totter'	<i>≠wtr</i>	'make taut, tighten'	
3	<i>wətəsəts</i>	'very decrepit'	<i>≠wts</i>		
3	<i>täwzäfäzzäfä</i> <i>wäzäzfäffä</i>	'trail on the ground (garment)' 'unfinished task (N), idle, lazy' (Adj)'	<i>wzf</i>	'leave s/t undone, incomplete'	
3	<i>täwzägäzzägä</i>	'be thrown end over end, walk with long strides'	<i>≠wzg</i>	'spin thread'	
3	<i>täwžäläžžälä</i>	'be pulled, dragged along'	<i>wžl</i>	'pull, drag'	
3	<i>täwžämäžžämä</i> <i>täwžämžämi</i>	'totter, wobble' 'long garment which trails on ground'	<i>wžm</i>	'drag, or pull'	
3	<i>wəc'əlc'əlla</i>	'the young of animals'	<i>wc'l</i>	<i>wəcc'ala</i> 'baby baboon'	noun from noun
3	<i>täzbädäbbädä</i>	'be afraid, tremble'	<i>zbd</i>		
4	<i>zəbrəqrəq: alä</i>	'be messy'	<i>zbrq</i>	'create disorder'	

4	<i>zəbtərtər</i>	'scattered, strewn about'	<i>zbtr</i>	'alternate (colors interwoven)'	
3	<i>təzb^wəqəbb^wəqä</i>	'gurgle, rumble'	<i>*zb^wq</i>		
3	<i>təzb^wət'əbb^wət'ä</i>	'gurgle, rumble'	<i>*zb^wt'</i>		
3	<i>zəgətəgət: alä</i>	'be completely closed up'	<i>zgH</i>	'close'	
4	<i>zəgəlgəl</i>	'impurity in broth'	<i>*zgl</i>		
3	<i>təzgämäggämä</i>	'hum, rumble'	<i>≠zgm</i>		
3	<i>azgärəggärä</i>	'roll the eyes'	<i>≠zgr</i>	'knock someone down'	
3	<i>təzgät'əggät'ä</i>	'sink to the bottom'	<i>zgt'</i>	'sink to the bottom'	
3	<i>təzg^wäməgg^wämä</i>	'grumble, mutter'	<i>*zg^wm</i>		
3	<i>təzg^wärəgg^wärä</i>	'be spotted, striped'	<i>zg^wr</i>	'spotted'	
3	<i>təznäkännäkä</i>	'be strewn about'	<i>*znk</i>		
3	<i>təzläfalläfa</i>	'go limp, be exhausted'	<i>zlf</i>	'droop'	
3	<i>təzlägällägä</i>	'flow, be sticky, lazy' 'grow tall, long'	<i>zlg</i>	'be tall and slender'	
3	<i>təzläkälläkä</i>	'be strewn about'	<i>*zlk</i>		
3	<i>təzläsälläsä</i>	'bow, hang the head'	<i>zls</i>	'bend, bow the head'	
4	<i>zəmb^wəd^wad</i>	'buttermilk'	<i>zb^wd</i>	Kane cites this as root, but without defining it	
3	<i>təzmänämmänä</i>	'be coddled, be dressed in a flashy manner'	<i>zmn</i>	'become rich, powerful, be pampered'	

3	<i>zänäfnäf: alä</i>	'be uneven, disproportionate'	<i>znf</i>	'be in excess'	
4	<i>zənfəlfəl: alä</i>	'bend over, droop'	<i>znfl</i>	'sway back and forth'	
4	<i>zəng^wərg^wər</i>	'spotted, speckled'	<i>zng^wr</i>	'be spotted, speckled'	
3	<i>täznanna</i>	'feel at ease, relax'	<i>znH</i>	'rest, be calm, at ease'	
4	<i>zənk^wərək^wər: alä</i>	'be in disorder, ruined'	<i>znk^wr</i>	'spoil, muddle'	
4	<i>zənt'əlt'əl</i>	'be full of holes'	<i>znt'l</i>	'rip, tear, puncture'	
3	<i>täzqät'äqqät'ä</i>	'sink, settle, seep down'	<i>zqt'</i>	'sink to the bottom'	
3	<i>täzrəbärräbä</i>	'drip, be strewn, scattered'	<i>zrb</i>		
3	<i>täzräfärräfä</i>	'dribble bits of food, be scattered'	<i>zrf</i>	'pillage, rape'	
3	<i>azärägärrägä</i>	'turn over several times (v.t.), squint, cross eyes'	<i>*zrg</i>		
4	<i>zərgətgət: alä</i>	'extend completely'	<i>zrgH</i>	'extend, raise up'	-
4	<i>zərgəfgəf: alä</i>	'big bellied, loose, & sound of goat droppings'	<i>zrgf</i>	'pour out contents of a sack, esp. grain'	
3	<i>täzräkärräkä</i>	'be littered, dribble, stretch full length'	<i>*zrk</i>		

		(v.i.), be sloppily dressed'			
4	<i>zərəkətəkət</i>	'something which is torn here and there'	<i>zrkt</i>	'tear open'	
3	<i>täzrät'ärrät'ä</i>	'continuously fart'	<i>zrt'</i>	'be let (fart)'	
3	<i>täzrät'ärrät'ä</i>	'to lag behind'	<i>zrt'</i>	'walk slowly'	
3	<i>zäwärrarra</i>	'twisting, crooked'	<i>zwr</i>	'turn'	
3	<i>täžgäräggärä</i>	'be spotted, speckled'	<i>žgr</i>	'guinea fowl, (speckled bird)'	from noun
3	<i>täžg^wädägg^wädä</i>	'stream in large numbers (people), flood'	<i>*žg^wd</i>		
3	<i>täžg^wälägg^wälä</i>	'glide'	<i>≠žg^wl</i>	'surround, enclose'	
3	<i>täžg^wämägg^wämä</i>	'glide (kite)'	<i>*žg^wm</i>		

APPENDIX B

QUESTIONNAIRE USED TO EVALUATE NATIVE SPEAKERS'
INTUITIONS REGARDING THE ANALYSIS OF SOME
DERIVATIONALLY AMBIGUOUS FORMS

In the actual questionnaire used with Amharic speakers, the Amharic words cited here were written in Ethiopic script. To make it more accessible to a broader audience, this appendix gives the questionnaire spelled almost entirely in Latin letters.

Ten Amharic speakers were interviewed with this questionnaire. Many of the people interviewed did not give an answer to every question, for a variety of reasons. The numbers cited for each question reflect the number of people who gave that answer. For some questions, answers to a question are summarized in boxes following the question.

For the single word *bäläqälläqä*, additional people (beyond the 10) were asked if the word was an acceptable Amharic word.

Age when you left Ethiopia?

Did you spend time in some other country before coming to the USA?

If so, where? How long?

How long have you lived in the USA?

What do you consider to be your mother tongue?

How well do you speak it?

What language do you speak best?

How well do you speak Amharic?

How many years of education did you have in Ethiopia?

Part 1

I am trying to understand some words that have the sound **ሽ** (sh) near the beginning. Some words always have the **ሽ** (sh) sound, so we know that the **ሽ** (sh) is not added to the word, it is part of the basic word.

Here are some words that always have the **ሽ** (sh) sound at the beginning, so we know the sound is part of the basic word.

'decorated'	<i>šällämä</i>	<i>šələmləm</i>
'covered'	<i>šäffänä</i>	<i>šəfənfən</i>
'terrified'	<i>šäbbärä</i>	<i>ä-šbäräbbärä</i>

For some other words, the **ሽ** (sh) sound is added to the beginning of the basic word. For these words, we know that the **ሽ** (sh) sound is an addition (a prefix), it is not part of the basic word. Here are some words that have the **ሽ** (sh) sound added to the beginning of the basic word.

<i>tä-š-q'äläqq'älä</i>	'went down steep hill'	<i>tä-q'äläqq'älä</i>	'went down a slope'
<i>tä-š-bäläbbälä</i>	'flutter in the wind'	<i>bäläbbälä</i>	'sway in the wind'
<i>tä-š-qädaddämä</i>	'race'	<i>qädaddämä</i>	'preceded'

For other words, it is not clear if the **ሽ** (sh) sound is part of the basic word, or if it is added to the front of the word. Different people have different ideas and opinions about the **ሽ** (sh) sound in these words. Nobody knows definitely whether the **ሽ** (sh) sound in these words is part of the basic word or is added to beginning of the word. Please look at each of these words and mark whether you think the **ሽ** (sh) sound in each of these words is part of the basic word, or is added to beginning of the word, or if you are not sure. Mark your opinion in the boxes on the right side of the word.

Amharic words	English definitions	Do you think the ሽ (sh) sound is added to the beginning of the word, as in <i>täšq^wäläqq^wälä?</i>	Or not sure?	or do you think the ሽ (sh) sound is part of the basic word, as in <i>ašbäräbbärä?</i>
<i>tä-šk^wärämmämä</i>	'be shy, bow'	1		0
<i>tä-šk^wänättärä ~ tä-šk^wänäddärä</i>	'be dressed up, refined'	1		3
<i>tä-š-g^wädägg^wädä</i>	'be driven in large numbers' (of animals)	4		6
<i>tä-šq^wät'äqq^wätä</i>	'was afraid'			9
<i>täšlämällämä</i>	'put on many decorations'	1		8
<i>täšq^wämäqq^wämä</i>	'refused due to propriety'		1	1
<i>täšlämällämä</i>	'curl up'			7
<i>täšmädamädä</i>	'limped on edge of feet'			10
<i>täšräkärärä</i>	'broke up'	2		7
<i>täšm^wät'ämm^wät'ä</i>	'be timid, not bothering host'	4		5
<i>tä-škäräkkärä</i>	'turn, drive car'	1	1	8
<i>a-š-gällälä</i>	'lag behind'	1		4
<i>šəngəlgəl: alä</i>	'be cracked all over'			6
<i>aškäbbäbä</i>	'mock'	3		1
<i>ašg^wämmät'ä</i>	'mock, deride'	3		2
<i>ašg^watt'ät'ä</i>	'degrade with words'	2		
<i>ašm^watt'ät'ä</i>	'speak sarcastically'			3
<i>täšm^wänämm^wänä</i>	'be dressed in one's best'			8

Part 2

When we repeat the last two consonants of the word *šabbärä*, we get *ašbäräbbärä*.

When we repeat the last two consonants of the word *šarräfä*, we get...? (*täšräfärräfä*)

When we repeat the last two consonants of the word *s^wälläkä*, what do we get ?

How do you spell that? _____

Results:

<i>täš^lw äkälläkä</i>	3
<i>täš^lw älläkä</i>	3
<i>täš^lw älläkä</i>	1
<i>täš^w läkälläkä</i>	0

When we repeat the last two consonants of the word *s^wälläqä*, what do we get ?

How do you spell that? _____

Results:

<i>täš^lw älläq^w ä</i>	1
<i>täš^lw älläqä</i>	1
<i>täš^w läqälläqä</i>	1
<i>täš^lw äqälläqä</i>	1

When we repeat the last two consonants of the word *s^wäbbäqä**, what do we get ?

How do you spell that? _____

Results:

<i>täš^w b^w äqäbbäqä</i>	1
<i>täš^w äqäbbäqä</i>	1

Part 3, n

I am trying to understand some words that have the sound *n* near the beginning. Some words always have the *n* sound, so we know that the *n* is not added to the word, it is part of the basic word. For other words, the *n*- sound is added sometimes, so we know it is not part of the basic word.

Here are some words that always have the *n* sound, so we know it is part of the basic word.

<i>näbbärä</i>	'was, had been'
<i>näwwät'ä</i>	'shake, upset'
<i>anäs'äss'ärä</i>	'compare, contrast'
<i>asnäqqälä</i>	'cause to uproot'
<i>tänägaggärä</i>	'converse'

For some other words, the *n* sound is added to the beginning of the basic word. For these words, we know that the *n* sound is an addition (a prefix), it is not part of the basic word. Here are some words that have the *n* sound added to the beginning of the basic word.

<i>tändäballälä</i>	<i>däballälä</i>
<i>tänzärägga</i>	<i>zärägga</i>
<i>tänqäbajjärä</i>	<i>qäbajjärä</i>
<i>tänzäräffäfä</i>	<i>zärffäffa</i>

For the following words, the word in the left column is closely related to one of the words in the other two columns. Which word is each left word most closely related to? If you cannot decide, say that. (Results shown to the right.)

<i>tänqäšäqqäšä</i>	<i>näqqäšä</i> 2	<i>qäšäqqäšä</i> 3
<i>tänqäsaqqäsä</i>	<i>näqqäsä</i> 2	<i>qäsaqqäsä</i> 5
<i>tänbäläbbalä</i>	<i>näbbalä</i>	<i>bäläbbalä</i> 6
<i>tänc'ac'a</i>	<i>näcc'ä</i>	<i>c'ac'a</i> 5
<i>täng^wädäg^wädä</i>	<i>nägg^wädä</i> 2	<i>g^wädägg^wädä</i> 3
<i>tänt'äbätt'äbä</i>	<i>nätt'äbä</i> 4	<i>t'äbätt'äbä</i> 5

For some words, it is not so clear if the **n-** sound is part of the basic word or if it is added. The first one is marked to show you how to mark the form.

	I am sure n- is definitely part of the basic word, not added	I think n- is maybe part of the basic word, not added	I am not sure if n- is the basic word or added	I think n- is probably not part of the basic word, but is added	I am sure n- is definitely not part of the basic word, but is added
<i>nəgəgər</i>	3				
<i>nəwət'wət'</i>	2			1	
<i>tənqäsäqqäsä</i>	2				7
<i>näbälbal</i>	8				1
<i>tänaffät'ä</i>	5				1
<i>täng^wädäg^wädä</i>	3				3
<i>nät'äbta'b</i>	5				3
<i>tənqäšäqqäšä</i>	1		1		1
<i>nət'əlt'əl: alä</i>	6				
<i>ənnəhid</i>					7
<i>nəfətfət: adärrägä</i>	3				2
<i>näg^wädg^wad</i>	5				
<i>tänt'äbatt'äbä</i>	3		2		1
<i>tänägaggäru</i>	4				1

Look at the words in the left column. You may not have heard some of these words before, but that does not matter. All of these words have been found in books, but some of these may have been mistakes. Do you feel that they sound like they could be Amharic words or mistakes? Please mark your opinion in the columns to the right.

	I am sure this is a good Amharic word	I think this is probably a good Amharic word	I am not sure if this is a good Amharic word	I think this is probably not a good Amharic word	I am sure this is not a good Amharic word
<i>tānc'äräffäjä</i>	1	1	3		1
<i>awwäfafär</i>	6				
<i>bäläqälläqä</i>				1	13
<i>täqšämädämmädä</i>	3				3
<i>täwlägädäggädä</i>	3			1	3
<i>tägrädämäddämä</i>			2		5
* <i>täqbjäräjjärä</i>	1				4
* <i>täsnät'äqätt'äqä</i>					7
** <i>tämrämä</i>			3		4
** <i>azäsärrälä</i>					5

* forms that were not found reduplicated in the dictionary

**forms that are based on roots that do not exist and violate morpheme structure conditions

Part 4, s

In many words, the *ñ* (*s*) sound is part of the basic word, as in *täsnäfännäjä* 'keep on being lazy' or *asnätt'äsäw* 'sneeze'. In many other words, the *ñ* (*s*) sound is added to the beginning of the word, as in *asqärätt'äjä* 'cause someone to chop something'. In the following words do you think the *ñ* (*s*) sound is added to the beginning of the word, or is part of the basic word, or are you not sure? Please mark your answer in the spaces below:

	English definitions	Do you think the <i>ñ</i> (<i>s</i>) sound is added to the beginning of the word?	or not sure?	or do you think the <i>ñ</i> (<i>s</i>) sound is part of the basic word?
<i>asrägärrägä</i>	'sink into something soft, swallow something'	3		2
<i>asq'äräqq'ärä</i>	'pierce, make a whole'	5		
<i>asbätattänä</i>	'cause to scatter, disperse'	5		

Thank-you for helping me by giving me your opinions on these words. I appreciate your kind assistance.

APPENDIX C

FREQUENCY OF OCCURRENCE OF VARIOUS CONSONANTS

AS DOUBLED CONSONANTS, BASED ON THE VERB

ROOTS IN BENDER AND FULASS (1978)

From the list of 1268 verb roots, 122 were doubled. The following chart shows the number and percentage of times each consonant was found doubled among these 122 examples.

Table C1. List of number and percentage of times each consonant was found doubled, based on data from Bender and Fulass (1978)

		Frequency	Valid Percent
	<i>l</i>	20	16.3
	<i>q</i>	13	10.2
	<i>s</i>	10	8.1
	<i>t'</i>	10	8.1
	<i>t</i>	9	7.3
	<i>z</i>	9	7.3
	<i>n</i>	8	6.5
	<i>d</i>	8	6.5
	<i>r</i>	8	6.5
	<i>b</i>	7	5.7
	<i>m</i>	5	4.1
	<i>f</i>	5	4.1
	<i>g</i>	4	3.3
	<i>k</i>	3	1.6
	<i>š</i>	2	1.6
	<i>j</i>	1	.8
	<i>q^w</i>	1	.8
	<i>c'</i>	1	.8
	Total	122	100.0
Total		1268	

APPENDIX D

SEMANTIC CATEGORIES AND PHONOLOGICAL PATTERNS

In the discussion that follows, the word “sibilants” will include *s, š, z, ž, c, c', j*. The term “labial” will include labialised consonants, e.g. *k^w*, as well as those articulated with at least one lip, i.e., *m, b, f*. Note that all “velars” are stops.

Table D1. List of semantic categories with roots

field	Phonological observations on similairites	roots
1. gait impairment	26	<i>brj, dbž, dk^wl, fgm, fil, gbs, gdr, grdm, gtr, kbs, lmt', lws, mnk, mšk, qmd, qmz, qšmd, šmd, šml, wgm, wjb, wlgd, wlk, wrg, wrk, žbr</i>
2. restless, aimless	of 18, 15 have velars, 12 have initial velars	<i>flk, glb, klb, knf, knz, crt, ktf, lkf, qbt', qbz, qlb, qmt', qnz, q^wnt', t'lf, wds, wdš, wrg</i>
3. swarm, turmoil	of 14, all have a labial consonant, only four initially, 9 medially	<i>bkn, dbk, dbl, dbs, dms, fc'H, flk, klf, rms, šg^wd, tmg, tms, t'ms, wnk</i>
4. dress up	of 14, 12 have labial consonants, 9 have š, 5 have initial sibilant followed by <i>m</i> , 4 have sequence <i>m^(w)n</i> , 3 have sibilant followed by <i>m^(w)n</i>	<i>gbr, kbs, k^wns, mnš, qšr, šlm, šmn, šmr, šg^wt', šm^wn, šm^wr, šqr, wrg, zmn</i>
5. vision impairment	of 13, 5 have intial <i>c'</i> , 8 have initial sibilants	<i>c'bs, c'fn, c'lm, c'mq, c'q^wn, dbr, dfn, dmn, g^wrt', qrH, slm, zgr, žbr</i>
6. curved, round (state or motion)	of 13, 11 have labials, 9 have sibilants	<i>c'md, dbl, frg, g^wbt', hrg, jml, mzg, qmz, qzm, šg^wm, škr, šml, wzg</i>
7. fear, nervous	of 13, 12 have labial consonants	<i>brk, dmn, frk, lfs, rbd, rbt, rgd, sbd, šbr, šg^wt', šq^wt', t'rb, zbd</i>
8. writhe, wriggle	of 12, all have labials, 9 have medial labials	<i>c'md, dbl, fc'r, fgr, frm, lws, qmd, rms, sbq, šml, t'md, t'ml</i>
9. hang down, drag along	of 10, 10 have fricatives, 8 have sibilants, 7 have liquids, 5 have voiced sibilants, 4 have final <i>s</i> , 3 have final <i>f</i>	<i>fil, gbs, kbs, rfq, t'ls, wzf, wžl, zlf, zls, zrf</i>
10. light/sparkle	of 10, all 10 have non-	<i>blc', brq, c'br, c'lq, flq, q^wlc', t'br,</i>

	initial liquids, 8 have labials, 9 of 10 have ejectives	<i>t'dl, wrq, žbr</i>
11. break, strike, crack	of 10, 8 with labials, 8 with fricatives	<i>bsk, frk, frq, gtm, qrf, sbr, slq, šrk, t'ms, wlq</i>
12. scattered, in disarray	of 10, 7 have velars, 7 have sibilants, 7 have medial liquid, 4 with initial <i>z</i> and a medial liquid	<i>gbs, g^wrf, lks, q^wt'r, rms, t'rk, zlk, zrb, zrf, zrk</i>
13. dribble, leak, ooze, expel	of 10, all 10 have initial fricative element, 7 with medial <i>r</i> , 6 with velars,	<i>c'rq, fc'H, frq, frt', srg, zgt', zqt', zrb, zrf, zrk</i>
14. lazy, idle, delay	of 10, 8 have fricatives, 9 have stops,	<i>krt', snf, tbs, t'lz, t'mz, wdl, wds, wdš, zlg, zrt'</i>
15. lines of people moving	of 9, 6 with <i>l</i> , 5 with final <i>l</i> , 7 with labials	<i>gl, jml, kbs, qt'l, sml, šbl, wtr, wzg, žml</i>
16. smoke	of 8, all 8 have a labial, 3 have initial <i>c'</i> with following labial,	<i>b^wlg, c'bs, c'mq, c'q^wn, gft', tg^wl, t^wg, tmk</i>
17. dirty, fouled	of 8, 3 have initial <i>t'</i> and an <i>r</i> , 7 have a liquid,	<i>g^wdf, k^wlf, lkf, lks, rmt', t'mr, t'rH, t'rq</i>
18. gush out, boil, overflow	of 8, 7 have velars,	<i>flq, gfl, g^wft', trf, t'lq, wgn, zb^wq, žg^wd</i>
19. make a noise	of 8, all 8 have at least one stop, 7 have a sibilant,	<i>drq, qc'l, sgm, t'ms, zb^wq, zb^wt', zgm, zg^wm</i>
20. inaccuracy, deception	of 8, 7 have a labial, 6 have a velar,	<i>c'br, c'g^wn, kbs, gdr, mdm, q^wrm, škm, šq^wm</i>
21. enlarged, grow	of 8, all 8 have non-initial liquids, 6 have <i>l</i> , all 8 have voiced initials, 5 have voiced velars, only 2 voiceless in whole lot	<i>dbl, dgl, dg^wl, gfl, g^wrf, jbl, wt'r, zlg</i>
22. tired, weak	of 7, 7 have alveo-dental sibilant fricatives,	<i>dgs, dqs, slm, smn, snf, t'ls, zlf</i>
23. shiver/shake (body)	of 7, all 7 have a stop, 6 have a voiced stop,	<i>brg, brj, dmn, frk, rgd, sbd, zbd</i>

24. fail, do poorly	of 7, 6 have labials, 5 initial labials, 3 have <i>f</i> ,	<i>btk, ftl, lgz, stf, wšl, wtb, wtf</i>
25. talk (negative: unkind, silly, much, etc),	of 7, 5 have velars, all pairs of repeating consonants have different manner of articulation (others share this)	<i>blt', c'g^wn, gfl, klf, lgz, qc'm, t'rH</i>
26. complain, grumble, criticize, murmur	of 7, 6 have initial <i>g</i> (^w), 5 have <i>g</i> ^w followed by a nasal, 5 have non-initial <i>m</i> , 6 have	<i>drm, gžl, g^wmH, g^wmt, g^wnf, g^wtm, lg^wm</i>
27. tear, shred	of 6, 3 have initial <i>b</i> followed by ejective anterior, 4 have sibilants	<i>bc'q, bt's, bt'l, qrš, q^wmt', slb</i>
28. try hard, strive	of 6, all 6 have non-initial <i>r</i> , 3 have initial <i>f</i> , 4 have non-final velar	<i>fc'r, fgr, frm, gtr, šk^wr, tk^wr</i>
29. sick, nauseated	of 6, 4 have sibilant fricatives	<i>dqs, lmz, qlš, smn, tlg, t'wl</i>
30. lengthen, long line, stretch	of 6, all 6 have final <i>l</i> , 3 have medial <i>m</i>	<i>gtl, gžl, jml, q^ws'l, sml, žm^wl</i>
31. posture impairment	of 6, 2 have initial velar followed by labial and then <i>t'</i> , 2 have <i>zl</i> -followed by voiceless fricative	<i>brk, g^wbt', qls, qmt', zlf, zls</i>
32. coil, wrap	of 5, all have non-initial nasal, all have initial coronal followed by medial labial, 4 have initial coronal ejective, 3 medial <i>m</i>	<i>c'md, jbn, t'ml, t'mz, t'wn</i>
33. shake, vibrate, flutter	of 5, all 5 have labial, 3 non-initial nasals	<i>kuf, rgb, tms, wlb, wšn</i>
34. dazed, drunk, confused	of 5, 3 have initial <i>tm</i> -, 4 have a velar	<i>glj, srk, tmg, tmk, tms</i>
35. angry	of 5, all have a labial, 4 have <i>b</i>	<i>bgn, bsl, glb, gmn, qbt'</i>
36. court, be pampered	5, 4 have fricatives, 4 have labials	<i>bsk, g^wdf, g^wlm, škf, zmn</i>
37. spotted, colored	of 4, 3 have <i>g</i> with final	<i>gbr, t'dl, zg^wr, žgr</i>

	<i>r</i>	
38. hurry, speed, quickly	of 4, all have non-final velar	<i>klb, ktf, qlb, tk^wr</i>
39. mixture, collection	of 4, all 4 have alveo-dental stops and labials, 3 have medial <i>b</i>	<i>dbk, dbs, gft', zb^wt'</i>
40. soft	of 4, all 4 have medial labials, all four have initial coronals, 3 have final velars	<i>lfs, tl^wk, tmk, zb^wq</i>
41. be wet, damp	of 4, 3 have non-initial velar	<i>bkt, rkf, rt'b, wlq</i>
42. slippery, slimy	of 4, all have medial <i>l</i> followed by [-cont]	<i>mlg, m^wlc', qlt', zlg</i>
43. relax, happy, carefree	of 4, all have a nasal and a sibilant, no voiced or ejective stops	<i>mnš, swn, škm, znH</i>
44. do evil, mischief	of 4, none have final stops or nasals	<i>c'br, klf, šqH, g^wdf</i>
45. politeness (excessive)	of 4, all have an ejective, 3 begin with <i>š</i> and have labialized medial,	<i>šm^wt', šq^wm, šq^wt', t'rb</i>
46. mouth acts (chew, bite)	of 3, 3 initial <i>l</i> , 2 have <i>m</i> , 2 have final <i>t'</i>	<i>lg^wm, lgt', lmt'</i>
47. dark	of 3, all have initial coronal stops	<i>dgz, dmn, t'lg</i>
48. burn, fire	of 3, all have a velar stop and a labial	<i>gft', glb, tmk</i>
49. crumple, wrinkle	of 3, all three have [-cont] initially and finally, and a non-initial labial	<i>c'bd, c'md, g^wrb</i>
50. texture & surface, (negative)	of 3, all have medial <i>r</i> , no nasals	<i>g^wrb, krt', šrf</i>
51. turbid	of 3, all have <i>k</i> ,	<i>dbk, skr, srk</i>
52. be in disorder		<i>lks, t'lf, wsb</i>
53. voice quality	of 3, all 3 have non-initial velars	<i>srq, rgb, škf</i>
54. escape, wriggle through	of 3, all have medial liquids, and all have <i>k</i> ,	<i>flk, krt', š^wlk</i>
55. decorated, attractive	3	<i>šm^wr, šqH, tl^wk</i>

56. descending motion (fast)	of 3, all have initial voiced sibilant, <i>g</i> , and a sonorant	<i>ʒg^wl, ʒg^wm, zlg</i>
57. be thrown end over end	of 3, all have initial labial, medial coronal, final <i>g</i>	<i>wzg, frg, mzg</i>
58. mystery, secret, obscure	2, both with two nasals and non-final <i>d</i>	<i>dmn, mdm</i>

REFERENCES

Abdurahman Garad and Ewald Wagner, see Garad, Abdurahman and Ewald Wagner.

Abdurahman Mahammed Qoram. 1991. C'uqti kətab (Dictionary: Harari - Amharic).

Addis Ababa.

Abu-Rabia, Salim. 2001. The role of vowels in reading Semitic scripts: data from

Arabic and Hebrew. *Reading and Writing: an Interdisciplinary Journal* 14:39-59.

Ahmed Zekaria. 1992. Dictionary: Amharic-English, English-Amharic. New Delhi:

Languages-of-the-World.

Aistleitner, Joseph. 1963. Wörterbuch der Ugaritischen sprache. Berlin: Akademie-

Verlag.

Aklilu, Amsalu, see Amsalu Aklilu.

Al-Hassan, Bello. 1995. CVC reduplication and the phonology and semantics of

intensives in Hausa with implications for Chadic. *Studia Chadica et*

Hamitosemitica, Akten des Internationalen Symposions zur

Tchadsprachenforschung, Johan Wolfgang Goethe-Universität, ed. by Dymitr

Ibrizimow and Rudolf Leger, 337-345. Cologne: Rüdiger Köppe.

Al-Hassan, Bello. 1998. Reduplication in Chadic languages: A Study of Form and

Function. (European University Studies, series 21, vol. 191.) Frankfurt: Peter

Lang.

Amanuel Sahle, see Sahle, Amanuel.

- Amberber, Mengistu. 1996. The transitivity of verbs of saying revisited. The Proceedings of the Fourteenth West Coast Conference on Formal Linguistics 1-15. Stanford: Stanford University.
- Ambros, Arne. 1991. A computer-assisted statistical survey of Ethiopic verb patterns based on Wolf Leslau's Concise Dictionary of Ge'ez. Semitic Studies: in Honor of Wolf Leslau, ed. by Alan S. Kaye, vol. 1, 56-71. Wiesbaden: Harrassowitz.
- Amsalu Aklilu. 1987. Amarañña-ənglizəñña mägäbä qalat Amharic-English Dictionary. Addis Ababa: Kuraz.
- Anttila, Arto. 1994. Consonant gradation is epenthesis. Stanford University. Jan. 2002.
<http://www-linguistics.stanford.edu/Archives/Sesquipedalian/1993-94/msg00017.html>.
- Appleyard, David. 1972. The /a-/ and /as-/ verb forms in Amharic. Bulletin of the School of Oriental and African Studies 35:18-26.
- Appleyard, David. 1996. Ethiopian Semitic and South Arabian: towards a re-examination of a relationship. Israel Oriental Studies 16:203-228.
- Arén, Gustav. 1978. Evangelical pioneers in Ethiopia. Stockholm: EFS Förlaget.
- Assyrian Dictionary. 1961. Z, vol 21. Chicago: Oriental Institute.
- Banker, Elizabeth. 1964. Bahnar reduplication. Mon-Khmer Studies 1:119-34.
- Banksira, Degif Petros. 2000a. Consonant mutations: the morphophonology of Chaha. Amsterdam and Philadelphia: John Benjamins.
- Banksira, Degif Petros. 2000b. Words without a lexical category. Lingua Posnaniensis 42:7-18.

- Barfield, Owen. 1965. *Saving appearances: a study in idolatry*. New York: Harcourt, Brace, Jovanovich.
- Barth, Jacob. 1967. *Die nominalbildung in den semitischen sprachen*. Hildesheim: Georg Olms.
- Bassano, Francesco da. 1918. *Vocabolario Tigray-Italiano*. Rome: Casa Editrice Italiana.
- Bat-El, Outi. 1989. *Phonology and word structure in Modern Hebrew*. Los Angeles: UCLA dissertation.
- Bat-El, Outi. 1994. Stem modification and cluster transfer in Modern Hebrew. *Natural Language and Linguistic Theory* 12.4:571-598.
- Bauer, Hans and Pontus Leander. 1922. *Historische grammatik der Hebräisch sprache des Alten Testamentes*. Hildesheim: Georg Olm Verlagsbuchhandlung. (Reprinted 1962.)
- Bender, M. Lionel. 1974. Phoneme frequencies in Amharic. *Journal of Ethiopian Studies* 12.1:19-24.
- Bender, M. Lionel and Hailu Fulass. 1978. *Amharic verb morphology*. (Committee on Ethiopian Studies, monograph 7.) East Lansing: African Studies Center, Michigan State University.
- Benmammoun, Elabbas. 1999. Arabic morphology: the central role of the imperfective. *Lingua* 108:175-201.
- Bennet, Patrick. 1998. *Comparative Semitic linguistics*. Winona Lake, IN: Eisenbrauns.

- Bentin, Schlomo and Ram Frost. 1995. Morphological factors in visual word recognition. *Morphological aspects of language processing*, ed. by Laurie Beth Feldman, 271-292. Hillsdale, NJ: Lawrence Erlbaum.
- Berent, Iris and Joseph Shimron. 1997. The representation of Hebrew words: evidence from the obligatory contour principle. *Cognition* 64:39-72.
- Berhane, Girmay. 1991. Issues in the phonology and morphology of Tigrinya. Montreal: Université du Québec à Montréal dissertation.
- Berhanu Chamora, see Chamora, Berhanu.
- Beyene, Taddese, see Taddese Beyene.
- Bolozky, Shmuel. 1994. On the formation of diminutives in Modern Hebrew morphology. *Modern Hebrew Studies* 35:47-63.
- Brockelmann, Carl. 1908a. *Grundriss der vergleichenden grammatik der Semitischen sprachen*, 2 vols. (Reprinted 1961, Hildesheim: Georg Olms.)
- Brockelmann, Carl. 1908b. *Kurzgefasste vergleichende grammatik der Semitischen sprachen*. Berlin: Reuther and Reichard.
- Broselow, Ellen. 1984. Default consonants in Amharic morphology. *MIT Working Papers in Linguistics* 7:15-32.
- Buckley, Eugene. 1990. Edge-in association and the OCP 'violations' in Tigrinya. *Proceedings of the West Coast Conference on Formal Linguistics*, 9, 75-90. Stanford: Published for the Stanford Linguistics Association by the Center for the Study of Language and Information.

- Buckley, Eugene. 1996. University of Pennsylvania. Jan. 2002.
ftp://babel.ling.upenn.edu/papers/faculty/gene_buckley/Tigrinya/tna_root_list.txt.
- Buckley, Eugene. 1997. Tigrinya root consonants and the OCP. *Penn Working Papers in Linguistics* 4.3, 19-51.
- Buckley, Eugene. forthcoming. Alignment and weight in the Tigrinya verb stem. *Proceedings of the annual Conference on African Linguistics*, 28. Africa World Press.
- Burquest, Donald and Lee Steven. 1994. Prosodic Structure and Reduplication: Data from Some Languages of Maluku. *Papers from the Second Annual Meeting of the Southeast Asian Linguistics Society (1992)*, ed. by . Karen L. Adams and Thomas John Hudak, 85-95. Tempe: Program for Southeast Asian Studies, Arizona State University.
- Buxtorf, Johannes. 1639. *Lexicon chaldaicum, talmudicum et rabbinicum*. (Reprinted 1977, Hildesheim: Georg Olms Verlag.)
- Chaine, Marius. 1907. *Grammaire Éthiopienne*. Beyrouth: Imprimerie Catholique.
- Chamora, Berhanu. 1996. Consonant distribution in Inor. *Essays on Gurage language and culture*, ed. by Grover Hudson, 53-68. Wiesbaden: Harrassowitz.
- Chamora, Berhanu. 1997. The phonology of Inor verbs. Montreal: Université du Québec à Montréal MA thesis.
- Chomsky, Noam. 1972. *Language and mind*, enlarged edition. New York: Harcourt, Brace, and Jovanovich.

- Cohen, Marcel. 1970. *Traité de langue Amharique (Abyssinie)*, 2nd ed. Travaux et Mémoires de L'Institut D'Ethnologie XXIV. Paris: Institute D'Ethnologie, Université de Paris.
- Conti Rossini, Carlo. 1941. *Grammatica elementare della lingua Etiopica*. Rome: Istituto per L'Oriente.
- Covington, Michael. 1991. <http://linguistlist.org/issues/2/2-846html#3>.
- Cowell, Mark. 1964. *A reference grammar of Syrian Arabic*. (Arabic Series, 7.) Washington, D.C.: Georgetown University.
- Cruse, D. A. 1986. *Lexical semantics*. Cambridge: Cambridge University Press.
- Dawkins, D. H. 1969. *The fundamentals of Amharic*, revised ed. Addis Ababa: SIM.
- Demisse, Teshome and M. Lionel Bender. 1983. An argot of Addis Ababa unattached girls. *Language in Society* 12:339-347.
- Dästa Täklä-Wäld. 1970. *Addis ymarəñña mäzgäbä qalat* (New Amharic dictionary). Addis Ababa: Artistic Printers.
- Devens, Monica. 1983. The Amharic first order vowel. *Ethiopian studies: dedicated to Wolf Leslau*, ed. by Stanislav Segert and András Bodrogligeti, 115-122. Wiesbaden: Harrassowitz.
- Diakonoff, I. M. 1975. On root structure in Proto-Semitic: Genetic classification and Ethiopian Semitic. *Hamito-Semitic*, ed. by James and Theodora Bynon, 133-151. The Hague: Mouton.
- Diffloth, Gerard. 1976a. Expressives in Semai. *Austroasiatic studies*, ed. by Philip Jenner, Laurence Thompson, and Stanley Starosta, vol. 1, 249-264.

- Diffloth, Gerard. 1976b. Minor syllable vocalism in Senoic languages. *Austroasiatic studies*, ed. by Philip Jenner, Laurence Thompson, and Stanley Starosta, vol. 1, 229-248.
- Dillmann, August. 1865. *Lexicon Linguae Aethiopica*. (Reprinted 1970 by Biblio Verlag, Osnabrück.)
- Dillmann, August. 1907. *Ethiopic grammar*, 2nd edition, enlarged and improved by Carl Bezold. (Translated by James Crichton). London: Williams and Northgate.
- Dobrin, Lise. 1994. On the prosodic integrity of underlying forms. *Southwest Journal of Linguistics* 13,1-2:1-20.
- Drazin, Israel. 1994. *Targum Onkelos to Leviticus*. Denver: Center for Judaic Studies, University of Denver.
- Ehret, Christopher. 1995. *Reconstructing Proto-Afroasiatic (Proto-Afrasian): vowels, tone, consonants, and vocabulary*. (University of California Publications in Linguistics 126.) Los Angeles and Berkeley: University of California Press.
- Ephratt, Michal. 1997. The psycholinguistic status of the root in Modern Hebrew. *Folia Linguistica* 31,1-2:77-103.
- Farley, Anne. 1987. The 'doubled' verb of Standard Arabic. *Chicago Linguistic Society* 23: Parasession on Autosegmental and Metrical Phonology, 106-115.
- Fellman, Jack. 1996. Lines on the classification of Ethiopian-Semitic. *Studies in African Linguistics* 25.2:205,206.

- Ferguson, Charles. 1976. The Ethiopian Language Area. *Language in Ethiopia*, ed. by M. Lionel Bender, J. Donald Bowen, Robert Cooper, Charles Ferguson, 63-76. London: Oxford University Press.
- Ferguson, Charles. 1983. Reduplication in Child Phonology. *Journal of Child Language* 10:239-243.
- Fleisch, Henri. 1944. *Les verbes à allongement vocalique interne en sémitique*. Paris: Institut D'Ethnologie.
- Ford, Carolyn. 1991. Notes on the phonology and grammar of Chaha-Gurage. *Journal of Afroasiatic Languages* 3:231-296.
- Fox, Andrew. 1982. Sound-symbolism in Semitic. *Cahiers de L'Institut de Linguistique de Louvain* 8:55-61.
- Frajzingier, Zygmunt. 1979. Notes on the R₁R₂R₂ stems in Semitic. *Journal of Semitic Studies* 24.1:1-12.
- Friberg, Joe A. 1996. *Aramaic prosodic-morphological verb patterns*. Arlington: UTA MA thesis.
- Frisch, Stefan and Bushra Adnan Zawaydeh. 2001. The psychological reality of OCP-place in Arabic. *Language* 77:91-100.
- French, Koleen Matsuda. 1988. *Insights into Tagalog: Reduplication, Infixation, and Stress from Nonlinear Phonology*. Dallas: UTA and SIL.
- Fulass, Hailu. 1966. *Derived nominal patterns*. Los Angeles: UCLA dissertation.
- Gafos, Diamandis. 1998. Eliminating Long-Distance Consonantal Spreading. *Natural Language and Linguistic Theory* 16:223-278.

- Gafos, Diamandis. 1998. A-Templatic reduplication. *Linguistic Inquiry* 29:515-527.
- Garad, Abdurahman and Ewald Wagner. 1998. *Harari Studien: texte mit ubersetzung, grammatischen skizzen und glossar. (Semitica Viva, 18.)* Wiesbaden: Harrasowitz.
- Gardiner, Alan. 1957. *Egyptian Grammar, 3rd ed.* Oxford: Griffith Institute, Ashmolean Museum.
- Gebre-Igziabher, Yohannis see Yohannis Gebre-Igziabher.
- Gensler, Orin. 1997. Reconstruction of quadriliteral verb inflection: Ethiopic, Akkadian, Proto-Semitic. *Journal of Semitic Studies* 42:229-257.
- Gesenius, Wilhelm. 1910. *Gesenius' Hebrew grammar, 2nd English ed.* Ed. and enlarged by E. Kautzsch, revised by A. E. Cowley. Oxford: Oxford University Press.
- Glinert, Lewis. 1989. *The grammar of Modern Hebrew.* Cambridge: Cambridge University Press.
- Goldenberg, Gideon. 1968. *Kəstañña: studies in a northern Gurage language of Christians.* *Orientalia Suecana* 17:61-102.
- Gordon, Cyrus. 1955. *Ugaritic Manual. (Analecta Orientalia 35.)* Rome: Pontificium Institutum Biblicum.
- Gordon, Cyrus. 1965. *Ugaritic Textbook. Vol. 1, Grammar. (Analecta Orientalia 38.)* Rome: Pontificium Institutum Biblicum.
- Gray, Louis. 1934. *Introduction to Semitic Comparative Linguistics. (Reprinted 1971, Amsterdam: Philo Press.)*

- Grébaud, Sylvain. 1952. Supplément au Lexicon Linguae Æthiopicæ de August Dillmann. Paris. Imprimerie Nationale.
- Greenberg, Joseph. 1950. The Patterning of Root Morphemes in Semitic. *Word* 6:162-181.
- Greenberg, Joseph. 1970. Some generalizations concerning glottalic consonants, especially implosives. *International Journal of American Linguistics* 36:123-145.
- Groupe Dictionnaire Tigrigna - Genève. 1990. Dictionnaire: Tigrigna-Français Français-Tigrigna. Paris: L'Harmattan.
- Guidi, Ignazio. 1895. Sulla reduplicazione delle consonanti Amariche. *Supplementi periodici all'Archivo Glottologico Italiano* 2:1-13.
- Guidi, Ignazio. 1901. *Vocabolario amarico-italiano*. Rome: Casa editrice italiana.
- Gutt, Eeva and Hussein Mohammed. 1997a. *Silt'e-Amharic-English dictionary*. Addis Ababa: SIL.
- Gutt, Eeva H. M. and Hussein Mohammed. 1997b. *Silt'e-Amharic-English dictionary with concise grammar by Ernst-August Gutt*. Addis Ababa: Addis Ababa University Press.
- Gutt, Ernst-August. 1985. A multi-tiered approach to Silt'i verb morphology. *Studies in African Linguistics* 16.2:183-222.
- Habte-Mariam Marcos. 1994. Towards the Identification of the Morphemic Components of the Conjugational Forms of Amharic. *Proceedings of the Eleventh International Conference of Ethiopian Studies*, ed. by Bahru Zewde,

Richard Pankhurst, and Taddese Beyene, vol. 1, 465-479. Addis Ababa: Institute of Ethiopian Studies University.

Haiman, John. 1980. The iconicity of grammar. *Language* 56:515-540.

Haiman, John. 1983. Iconic and economic motivation. *Language* 59:781-819.

Haiman, John. 1985. *Natural Syntax*. Cambridge: Cambridge University Press.

Hammond, Michael. 1988. Templatic transfer in Arabic broken plurals. *Natural Language and Linguistic Theory* 6:247-270.

Hartmann, Josef. 1980. *Amharische grammatik*. Wiesbaden: Franz Steiner Verlag.

Hayward, R. J. 1986. The high central vowel in Amharic: new approaches to and old problem. *The Fergusonian Impact*, ed. by Joshua Fishman, et al., vol. 1, 301-325. Berlin: Mouton de Gruyter.

Hayward, R. J. 1988. In defence of the skeletal tier. *Studies in African Linguistics* 19.2:131-172.

Hendricks, Sean. 1999. *Reduplication without template constraints: a study in bare consonant reduplication*. Tucson: University of Arizona dissertation.

Hetzron, Robert. 1964. La voyelle du sixieme order en Amarique. *Journal of African Languages* 3:179-190.

Hetzron, Robert. 1972. *Ethiopian Semitic: studies in classification*. (Journal of Semitic Studies, monograph 2.) Manchester: Manchester University Press.

Hetzron, Robert. 1975. Genetic classification and Ethiopian Semitic. *Hamito-Semitic*, ed. by James and Theodora Bynon, 103-121. The Hague: Mouton.

- Hetzron, Robert. 1977. Gunnän-Gurage languages. *Ricerche* 12. Naples: Istituto Orientali.
- Hetzron, Robert. 1992. Semitic languages. *International Encyclopedia of Linguistics*, ed. by William Bright, 3:412-417. Oxford: Oxford University Press.
- Hetzron, Robert and M. Lionel Bender. 1976. The Ethiopian Semitic languages. *Language in Ethiopia*, ed. by M. Lionel Bender, J. Donald Bowen, Robert Cooper, Charles Ferguson, 23-33. London: Oxford University Press.
- Hetzron, Robert and Habte Mariam Marcos. 1966. Des traits pertinents superposes en Ennemor. *Journal of Ethiopian Studies* 4.1:17-30.
- Hinton, Leanne, Johanna Nichols, John Ohalla. 1994. Introduction: sound-symbolic processes. *Sound symbolism*, ed. by Leanne Hinton, Johanna Nichols, John Ohalla, 1-14. Cambridge: Cambridge University Press.
- Hoberman, Robert. 1988. Local and long-distance spreading in Semitic morphology. *Natural Language and Linguistic Theory* 6:541-550.
- Höfner, Maria. 1951. Probleme der verbalstammbildung in Tigré. *Zeitschrift der Deutschen Morgenlandischen Gesellschaft* 101:89-106.
- Horowitz, Edward. 1960. *How the Hebrew Language Grew*. KTAV Publishing House.
- Hudson, Grover. 1978a. Lexical form of the Amharic reflexive-passive. *Papers from the parasession on the lexicon*, ed. by Donka Farkas, Wesley Jacobsen, Karol Todrys, 210-219. Chicago: Chicago Linguistic Society.
- Hudson, Grover. 1978b. Review of *Language in Ethiopia*, *Language* 54:196-201.

- Hudson, Grover. 1982. Review of Amharic Verb Morphology, *Afroasiatic Linguistics* 8.4:3-9.
- Hudson, Grover. 1985a. The Arabic doubled verb conspiracy and morpheme invariance. *Studies in African Linguistics, Supplement 9*, 141-145.
- Hudson, Grover. 1985b. The principled grammar of Amharic verb stems. *Journal of African Languages and Linguistics* 7:39-58.
- Hudson, Grover. 1995. Consonant release and the syllable. *Linguistics* 33:655-672.
- Hudson, Grover. in press. Amharic epenthesis. New data and new methods in *Afroasiatic linguistics: dedicated to the memory of Robert Hetzron*, ed. by Andrzej Zaborski. Wiesbaden: Harrassowitz.
- Hume, Elizabeth. 1996. Coronal consonant, front vowel parallels in Maltese. *Natural Languages and Linguistic Theory* 14:163-203.
- Isaac Tseghai. 1997. *Mahder English-Tigrinya dictionary*. Asmera.
- Jastrow, Marcus. 1903. *A dictionary of the Targumim, the Talmud Babli Yerushalmi, and the Midrashic literature*, 2 vols. (Reprinted 1967, Brooklyn: P. Shalom Publishing.)
- Johnstone, Thomas. 1977. *Harsusi Lexicon*. London: Oxford University Press.
- Johnstone, Thomas. 1987. *Mehri Lexicon*. London: SOAS.
- Joüon, Paul. 1993. *A Grammar of Biblical Hebrew*, vol 1. (Translated and revised by T. Muraoka, corrected first edition.) Rome: Editrice Pontificio Istituto Biblico
- Jurafsky, Daniel. 1996. Universal tendencies in the semantics of the diminutive. *Language* 72:533-578.

- Kane, Thomas L. 1990. *Amharic-English Dictionary*, 2 vols. Wiesbaden: Harrassowitz.
- Kenstowicz, Michael. 1982. Gemination and spirantization in Tigrinya. *Studies in the Linguistic Sciences* 12:103-122.
- Kenstowicz, Michael and Degif Petros Banksira. 1999. Reduplicative identity in Chaha. *Linguistic Inquiry* 30.4:573-585.
- Key, Harold. 1965. Some semantic functions of reduplication in various languages. *Anthropological Linguistics* 7.3:88-102.
- Klein, Ernest. 1987. *A comprehensive etymological dictionary of the Hebrew language for readers of English*. New York: MacMillan.
- Klingenheben, A. 1964. Zum problem der verbalstämme des Amharischen. *Journal of Semitic Studies* 9.1:42-46.
- Koontz, John. 1991. *Linguistlist.org*. 2.852.2.
- Kroeger, Paul. 1989. Discontinuous reduplication in vernacular Malay. *Proceedings of the fifteenth annual meeting of the Berkeley Linguistic Society*, ed. by Kira Hall, Michael Meacham, Richard Shapiro, 193-202. Berkeley: Berkeley Linguistic Society.
- Lakoff, George and Mark Johnson. 1980. *Metaphors We Live By*. Chicago: University of Chicago Press.
- Lambdin, Thomas. 1978. *Introduction to Classical Ethiopic*. (Harvard Semitic Studies, 24.) Missoula, MT: Scholars Press.
- Landberg, C. 1942. *Glossaire Datinois*, vol. 3. Leiden: Brill.

- LaSor, William. 1979. *Handbook of Biblical Hebrew*, 3 vols. Grand Rapids: Eerdmans.
- Lederman, Shlomo. 1982. Problems in a prosodic analysis of Hebrew morphology. *Studies in the Linguistic Sciences* 12.1:141-163.
- Leslau, Wolf. 1939. La Thème Verbal Fréquentatif dans les Langues Éthiopiennes. *Revue Des Études Sémitiques* 11-31.
- Leslau, Wolf. 1941. *Documents Tigrigna (Éthiopien septentrional): grammaire et texts*. Paris: Klincksieck.
- Leslau, Wolf. 1944. Vocabulary common to Akkadian and South-East Semitic (Ethiopic and South-Arabic). *Journal of the American Oriental Society* 64:53-57.
- Leslau, Wolf. 1945a. *Gafat Documents: Record of a South-Ethiopic Language*. (American Oriental Series, 28.) New Haven: American Oriental Society.
- Leslau, Wolf. 1945b. *Short grammar of Tigre*. (Publications of the American Oriental Society, offprint series, 18.) New Haven: American Oriental Society.
- Leslau, Wolf. 1950. *Ethiopic documents: Gurage*. New York: The Viking Fund.
- Leslau, Wolf. 1953. The imperfect in South-East Semitic. *Journal of the American Oriental Society* 73:164-166.
- Leslau, Wolf. 1956. *Etude descriptive et comparative du Gafat*. Collection linguistique publiée par la Société de linguistique de Paris, 57. Paris: Librairie C. Klincksieck.

- Lelsau, Wolf. 1958. *The Verb in Harari*. (University of California Publications in Semitic Philology, 21.) Berkeley and Los Angeles: University of California Press.
- Leslau, Wolf. 1959. A preliminary description of Argobba. *Annales d'Ethiopie* 3:251-273.
- Leslau, Wolf. 1960. Echo words in Amharic. *Annales d'Ethiopie* 4:205-238.
- Leslau, Wolf. 1962. Ethiopic denominatives with nominal morphemes. *Museon* 75:1-2:139-175.
- Leslau, Wolf. 1964. Observations on a study of the Ethiopian quadriliterals. *Rassegna di studi Etiopici* 20:120-128.
- Leslau, Wolf. 1966. Characteristics of the Ethiopic language group of Semitic languages. *Linguistic Analyses: the Non-Bantu Languages of North-Eastern Africa*, ed. by A. N. Tucker and M. A. Bryan, 593-613. London: Oxford University Press.
- Leslau, Wolf. 1969a. Is there a Proto-Gurage? *Proceedings of the International Conference on Semitic Studies*, 152-171. Jerusalem: The Israel Academy of Science and Humanities.
- Leslau, Wolf. 1969b. Toward a classification of the Gurage dialects. *Journal of Semitic Studies* 14:96-109.
- Leslau, Wolf. 1976. *Concise Amharic dictionary*. Berkeley and Los Angeles: University of California Press and Wiesbaden: Harrassowitz.

- Leslau, Wolf. 1979. Etymological dictionary of Gurage, 3 vols. Wiesbaden: Harrassowitz.
- Leslau, Wolf. 1991. Comparative dictionary of Ge'ez. Wiesbaden: Harrassowitz.
- Leslau, Wolf. 1995. Reference grammar of Amharic. Wiesbaden: Harrassowitz.
- Leslau, Wolf. 1997a. Amharic phonology. Phonologies of Asia and Africa, ed. by Alan S. Kaye, vol. 1, 399-430. Winona Lake, Indiana: Eisenbraun's.
- Leslau, Wolf. 1997b. Ethiopic documents: Argobba, grammar and dictionary. (Aethiopistische Forschungen 47). Wiesbaden: Harrassowitz.
- Levy, Jacob. 1924. Wörterbuch über die Talmudim und Midraschim. Berlin and Vienna: Benjamin Harz Verlag.
- Lipiński, Edward. 1997. Semitic languages: outline of a comparative grammar. (Orientalia Lovaniensia Analecta 80.) Leuven: Uitgeverij Peeters en Department Oosterse Studies.
- Littmann, Enno and Maria Höfner. 1962. Wörterbuch der Tigré-sprache. (Akademie der Wissenschaften und der Literatur Veröffentlichungen der Orientalischen Kommission, 11.) Wiesbaden: Steiner Verlag.
- Lombardi, Linda. 1998. Coronal epenthesis and markedness. Rutgers Optimality Archive. Dec. 2001.
<<http://ruccs.rutgers.edu/pub/OT/TEXTS/archive/245-0298/245-02983.pdf>>.
- Lowenstamm, Jean. 1996. Five puzzling Chaha verbs: an exercise in practical morphophonemics. Essays on Gurage language and culture, ed. by Grover Hudson, 1123-132. Wiesbaden: Harrassowitz.

- Lowenstamm, Jean and S. A. El M'hammedi. 1996. On the correctness of the biliteral analysis of mediae geminatae verbs. *Langues orientales anciennes: philologie et linguistique* 5:127-132.
- Macuch, Rudolf. 1982. *Grammatik des Samaritanischen Arämisches*. Berlin and New York: Walter de Gruyter.
- Maddieson, Ian. 1984. *Patterns of sounds*. London: Cambridge University Press.
- Mantel-Niecko, Joanna. 1963. Notes sur le verbes biliteres avec premiere consonne prepalatale en amarique. *Comptes rendus du groupe linguistique d'études cahmito-sémitiques* 10:1-5.
- Mantel-Niecko, Joanna. 1964. Quantitative research on the phonetic structure and derivative stems of the Amharic verb. *Journal of Semitic Studies* 9.1:27-41.
- Marantz, Alec. 1982. Re reduplication. *Linguistic Inquiry* 13:435-482.
- Marcos, Habte-Mariam. see Habte-Mariam.
- Mason, John. 1996. *Tigrinya Grammar*. Lawrenceville, NJ: Red Sea Press.
- Massey, Keith and Kevin Massey-Gillespie. 1995. Semitic quadriliteral animal terms: an explanation. *Journal of Northwest Semitic Languages* 21.1:83-90.
- Masson, Michel. 1974. Remarques sur les Diminutifs en Hébreu Israélien. *Actes du Premier Congres International de Linguistique Sémitique et Chamito-Sémitique*, ed. by André Caquot and David Cohen, 256-279. (*Janua Linguarum, Series Practica*, 159.) The Hague: Mouton.
- McCarthy, John. 1981. A prosodic theory of non-concatenative morphology. *Linguistic Inquiry* 12:373-418.

- McCarthy, John. 1982. Formal problems in semitic phonology and morphology.
Indiana University Linguistics Club.
- McCarthy, John. 1984. Speech disguise and phonological representations in Amharic.
Advances in nonlinear phonology, ed. by Harry van der Hulst and Norval Smith,
305-312. Dordrecht: Foris.
- McCarthy, John. 1986a. Lexical phonology and nonconcatenative morphology in the
history of Chaha. *Le Revue Quebecoise de Linguistique* 16:209-228.
- McCarthy, John. 1986b. OCP effects: gemination and antigemination. *Linguistic
Inquiry* 17:207-264.
- McCarthy, John and Alan Prince. 1990a. Food and word in prosodic morphology: the
Arabic broken plural. *Natural Language and Linguistic Theory* 8:209-283.
- McCarthy, John and Alan Prince. 1990b. Prosodic morphology and templatic
morphology. *Perspectives on Arabic Linguistic* 2, ed. by Mushira Eid and John
McCarthy, 1-54. Amsterdam: John Benjamins.
- McCarthy, John and Alan Prince. 1994. The emergence of the unmarked: optimality in
prosodic morphology. *Proceedings of the North East Linguistic Society*
24:333-379.
- McCarthy, John and Alan Prince. 1995. Faithfulness and reduplicative identity.
University of Massachusetts Occasional Papers in Linguistics 18:249-384.
- McCarthy, John and Alan Prince. 1998. Prosodic morphology. *The handbook of
morphology*, ed. by Andrew Spencer and Arnold Zwicky, 283-305. Malden,
MA and Oxford: Blackwell.

- Menn, Lise and Brian MacWhinney. 1984. The repeated morph constraint. *Language* 60:519-541.
- Mittwoch, Eugen. 1907. Proben Amharischen volksmunde. *Mittheilungen des Seminars für Orientalische Sprachen* 10:185-241.
- Moore, John. 1990. Doubled verbs in Modern Standard Arabic. *Perspectives on Arabic Linguistic* 2, ed. by Mushira Eid and John McCarthy, 55-93. Amsterdam: John Benjamins.
- Moravcsik, Edith. 1978. Reduplicative constructions. *Universals of Human Language*, ed. by Joseph H. Greenberg, vol. 3, 297-334. Stanford: Stanford University Press.
- Moscatti, Sabatino, Anton Spitaler, Edward Ulendorff, and Wolfram Van Soden. 1964. *An Introduction to the Comparative Grammar of the Semitic Languages. (Porta Linguarum Orientalium.)* Weisbaden: Harrassowitz.
- Munro, Pamela. 1998. Chickasaw expressive 'say' constructions. *Studies in American Indian Languages*, ed. by Leanne Hinton and Pamela Munro, 180-186. (University of California Publications in Linguistics, 131). Berkeley and Los Angeles: University of California Press.
- Nakano, Aki'o and Yoichi Tsuge. 1982. A Vocabulary of the Beni Amer dialect of Tigre. (*African Languages and Ethnography*, 16.) Tokyo: Institute for the Study of Languages and Cultures of Asia and Africa.

- Nevins, Andrew. 2002. In (partial) defense of the Modern Hebrew root. Paper presented at the 30th North American Conference on Afroasiatic Linguistics, Houston, TX.
- Nöldeke, Theodor. 1904. *Compendious Syriac Grammar*. (Translated by James Crichton.) London: Williams and Northgate.
- O'Leary, De Lacy. 1923. *Comparative grammar of the Semitic languages*. London: Paul, Trench, Trubner.
- Oxford English-Hebrew Dictionary. 1996. Oxford and New York: Oxford University Press.
- Palmer, F.R. 1960. The 'derived forms' of the Tigrinya verb. *African Language Studies* 1:109-116.
- Palmer, F.R. 1974. Some remarks on the grammar and phonology of the "compound verbs" in Cushitic and Ethiopian Semitic. *IV Congresso Internazionale di Studi Etiopici*, tomo 2. 71-77. Rome: Accademia Nazionale dei Lincei.
- Paradis, Carole and Jean-François Prunet. 1991. Introduction: asymmetry and visibility in consonant articulators, *The Privileged Status of Coronals*, ed. by Carole Paradis and Jean-François Prunet, 1-28. (Phonetics and Phonology, 2.) New York: Academic Press.
- Payne Smith, J. 1903. *A Compendious Syriac English Dictionary*. Oxford: Oxford University Press.
- Payne, David. 1981. *Axininca Campa*. Dallas: Summer Institute of Linguistics and The University of Texas at Arlington.

- Petros, Degif. 1993. *La dérivation verbale en chaha*. Montreal: Université du Québec à Montréal MA thesis.
- Petros, Degif. 1994. On prefix-necessitating roots. *New Trends in Ethiopian Studies: Papers of the 12th International Conference of Ethiopian Studies*, ed. by Harold Marcus, vol. 1:1220-1236. Lawrenceville, NJ: Red Sea Press.
- Petros, Degif. 1996. Sonorant alternations in Chaha. *Essays on Gurage language and culture*, ed. by Grover Hudson, 153-173. Wiesbaden: Harrassowitz.
- Plato. Cratylus. *The Dialogues of Plato*, trans. Benjamin Jowett, 173-233. (1892). New York: Random House.
- Podolsky, Baruch. 1971. The schwa vowel in Amharic. *Semitic Studies: in honor of Wolf Leslau*, ed. by Alan. S. Kaye, vol. 2, 1220-1225. Wiesbaden: Harrassowitz.
- Praetorius, Franz. 1886. (reprinted 1955) *Aethiopische Grammatik*. New York: Frederick Ungar.
- Procházka, Stephan. 1993. Some remarks on the semantic function of the reduplicated quadriliteral verb (structure *fa^ofa^ca*). *Proceedings of the Colloquium on Arabic Lexicology and Lexicography, part one*, ed. by K. Dévényi, T. Ivanyi, A. Shivtiel, 97-103. (Budapest Studies in Arabic 6,7.) Budapest: Csoma de Kőrös Society.
- Prunet, Jean-Francois, Renée Béland, Ali Idrissi. 2000. The Mental Representation of Semitic Words. *Linguistic Inquiry* 31:609-648.
- Prunet, Jean-Francois and Degif Petros. 1996. L'interaction entre schèmes et racines en Chaha. *Studies in Afroasiatic Grammar*, ed. by Jacqueline Lecarme, Jean

Lowenstamm, and Ur Schlonsky, 302-336. The Hague: Holland Academic Graphics.

Qoram, Abdurahman Mahammed, see Abdurahman Mahammed Qoram.

Ratcliffe, Robert. 1998. Defining morphological isoglosses: the "broken" plural and Semitic subclassification. *Journal of Near Eastern Studies* 57.2:81-123.

Ravid, Dorit. in press. A developmental perspective on root perception in Hebrew and Palestinian Arabic. *The processing and acquisition of root-based morphology*, ed. by Y. Shimron. Amsterdam: Benjamins.

Raz, Shlomo. 1983. Tigre grammar and texts. (Afroasiatic Dialects, 4.) Malibu, CA: Undena Publications.

Rhodes, Richard. 1994. Aural images. *Sound symbolism*, ed. by Leanne Hinton, Johanna Nichols, John Ohalla, 276-292. Cambridge: Cambridge University Press.

Rhodes, Richard and John Lawler. 1981. Athematic metaphors. *Chicago Linguistic Society* 1981:318-342.

Ricks, Stephen. 1982. A lexicon of epigraphic Qatabanian. Berkeley: Graduate Theological Union dissertation.

Ricks, Stephen. 1989. A Lexicon of Inscriptional Qatabanian. (Studia Pohl, 14.) Rome: Editrice Pontificio Istituto Biblico.

Rodgers, Jonathan. 1971. The subgrouping of the South Semitic languages. *Semitic Studies: in honor of Wolf Leslau*, ed. by Alan S. Kaye, vol. 2, 1323-1336. Wiesbaden: Harrassowitz.

- Rodgers, Jonathan. 1991. The subgrouping of the South Semitic languages. *Semitic Studies: in honor of Wolf Leslau*, ed. by Alan S. Kaye, vol. 2, 1323-1336. Wiesbaden: Harrassowitz.
- Rose, Sharon. 1997. Multiple correspondences in reduplication. *Proceedings of the Berkeley Linguistic Society*, 23:315-326.
- Rose, Sharon. 2000a. Doubled verbs and syncope resistance in Iraqi Arabic: not antigemination. Paper presented at the 14th Arabic Linguistics Symposium, UC Berkeley.
- Rose, Sharon. 2000b. Epenthesis positioning and syllable contact in Chaha. *Phonology* 17:397-425.
- Rose, Sharon. 2000c. Rethinking geminates, long-distance geminates and the OCP. *Linguistic Inquiry* 31:85-122.
- Rose, Sharon. 2000d. Roots, radicals and Semitic reduplication. Paper presented at the 31st Conference on African Linguistics, Boston, March 2000.
- Rose, Sharon. in press. Triple take: Tigre and the case of internal reduplication. *Studies in AfroAsiatic Grammar*, ed. by R. Hayward, J. Ouhalla, D. Perrett. Amsterdam: John Benjamins.
- Rose, Sharon. forthcoming. The formation of Ethio-Semitic internal reduplication.
- Sabar, Yona. 1982. The quadriradical verb in eastern Neo-Aramaic dialects. *Journal of Semitic studies* 27:149-176.
- Sahle, Amanuel. 1998. *Sewasiw Tigrinyaa bisefihu (A comprehensive Tigrinya grammar)*. Lawrenceville, NJ and Asmera: Red Sea Press.

- Samarin, William. 1970. Field procedures in ideophone research. *Journal of African Languages* 9.1:27-30.
- Samarin, William. 1971. A survey of Bantu ideophones. *African Languages Studies* 12:130-168.
- Sapir, Edmund. 1921. *Language*. New York: Harcourt, Brace, and World.
- Segert, Stanislav. 1975. *Altaramäische Grammatik*. Leipzig: Verlag Enzyklopädie.
- Segert, Stanislav. 1984. *A Basic Grammar of the Ugaritic Language*. Berkeley, Los Angeles, and London: University of California Press.
- Silva, David James. 1991. Phonological variation in Korean: the case of the "disappearing w". *Language Variation and Change* 3:153-170.
- Simeone-Senelle, Marie Claude. 1998. La derivation verbale dans les langues Sudarabiques Modernes. *Journal of Semitic Studies* 43:71-88.
- Sivan, Reuven and Edward Levenston. 1975. *The New Bantam-Megiddo Hebrew & English Dictionary*. New York: Bantam.
- Sokoloff, Michael. 1990. *A Dictionary of Jewish Palestinian Aramaic of the Byzantine Period*. Ramat-Gan: Bar-Ilan University Press.
- Speiser, Ephraim A. 1961. The verb SHR in Genesis and early Hebrew movements. *Bulletin of the American School of Oriental Research* 164:23-28.
- Steindorff, Georg. 1951. *Lehrbuch Der Koptischen Grammatik*. Chicago: University of Chicago.
- Taddese Beyene. 1966. Amharic and English segmental phonemes. *Language Learning* 16:93-120.

- Taddese Beyene. 1972. *Aspects of the verb in Amharic*. Washington, D.C.: Georgetown dissertation.
- Taddese Beyene. 1980. A note on two process verbs in Amharic. *Journal of Ethiopian Studies* 14:123-129.
- Taddese, Takkle, see Takkele Taddese.
- Takkele Taddese. 1992. Are *s'* and *t'* variants of an Amharic variable? A sociolinguistic analysis. *Journal of Ethiopian Languages and Literature* 2:104-21.
- Tal, Abraham. 2000. *A dictionary of Samaritan Aramaic*. Leiden: Brill.
- Titov, E.G. 1976. *The modern Amharic language*. Translated by E. H. Tsipan. (Languages of Asia and Africa.) Moscow: Nauka.
- Tosco, Mauro. 2000. Is there an "Ethiopian Language Area"? *Anthropological Linguistics* 42:329-365.
- Tseghai, Issac, see Isaac Tseghai.
- Ullendorf, Edward. 1955. *The Semitic languages of Ethiopia: a comparative phonology*. London: Taylors Foreign Press.
- Ugnad, Arthur. 1932. *Syrische Grammatik*. Munich: C. H. Beck'sche.
- Ussishkin, Adam. 2000a. The Inadequacy of the Consonantal Root: Modern Hebrew Denominal Verbs and Output-output Correspondence. *Phonology* 16:401-442.
- Ussishkin, Adam. 2000b. Root-and-Pattern morphology without roots or patterns. Paper presented at the 1999 Northeast Linguistic Society meeting. Jan. 2000. <ling.ucsc.edu/~ussiski/UssishkinNELS30Paper.pdf>.

- Voigt, Rainer. 1987. The classification of Central Semitic. *Journal of Semitic Studies* 32.1:1-22.
- Voigt, Rainer. 1988. Labialization and the so-called sibilant anomaly in Tigrinya. *Bulletin of the School of Oriental and African Studies* 60:525-536.
- Wajnberg, Isaak. 1932. Die typen der nominalbildung im Tigrīña. *Zeitschrift für Semitistik und Verwandte Gebeite* 8:73-96.
- Wajnberg, Isaak. 1935. Etude sur les quadriliteres Tigrīña. *Rocznik Orientalistyczny* 11:52-78.
- Wajnberg, Isaak. 1936. Die typen der nominalbildung im Tigrīña. *Zeitschrift der Deutschen Morgenlandischen Gesellschaft* 90:637-679.
- Watson, Janet. 1999. The directionality of emphasis spread in Arabic. *Linguistic Inquiry* 30:289-300.
- Weaver, Mark. 2000. The systematization of six verb derivations in Amharic: an autosegmental account. Artlington, TX: UTA thesis.
- Wetter, Andreas. 2000. Ideophones in Amharic. Paper presented at the 3rd World Congress of African Linguistics, Lome, Togo, August, 2000.
- Yip, Moira. 1988. Template morphology and the direction of association. *Natural Language and Linguistic Theory* 6:551-577.
- Yip, Moira. 1995. Repetition and its avoidance: the case of Javanese. *Proceedings of the 1995 Southwestern Workshop in Optimality Theory*, ed. by Keiichiro Suzuki and Dirk Elzinga. *Arizona Phonology Conference Proceedings* 5:238-262.

Yohannis Gebre-Igziabher. 1955. Māzgābā Qalat Təgrəñña-Amareñña. Ethiopian

Dictionary: Tigrigna – Amharic. Asmera.

Zekaria, Ahmed. see Ahmed Zekaria.

BIOGRAPHICAL INFORMATION

The author received his doctorate in Linguistics from The University of Texas at Arlington in May 2002.

The author graduated from Moody Bible Institute in 1977, received his BA in Missiology from St. Paul Bible College (now Crown College) in 1978, and his MA in Linguistics from the University of North Dakota in 1981.

He was sent by SIL to work in Ethiopia from 1982-1995, most of the time at Addis Ababa University, affiliated with both the Institute of Ethiopian Studies and the Institute of Language Studies. While there, he was privileged to work with great linguists, both Ethiopian and expatriate, some who were faculty and some still students. It has been a matter of profound satisfaction to see a number of his Ethiopian colleagues making contributions to the field of linguistics, especially his former students, at least two of whom have already completed doctorates in linguistics ahead of him.

While in Ethiopia, his linguistic concentration was on Nilo-Saharan languages, especially, Majang. The years living among and working with the Majang were special, involving basic linguistic analysis, literacy (including preparing materials and training teachers), doing Bible translation, all while drinking endless cups of hot *kaari*. *Mintan ja!* It is painfully ironic that this dissertation deals with Amharic, the language that was often used by those who oppressed the Majang people.

After graduation, he began teaching at the Graduate Institute of Applied Linguistics in Dallas, Texas.