An Autosegmental Approach
To Geez-Based Amharic Plural Nouns

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Introduction

This paper tries to investigate the structures of Geez-based Amharic plural nouns. Both Geez and Amharic are Semitic languages of Ethiopia. Geez had already ceased to be a spoken language by the thirteenth century (Bender, Hailu, and Cowley, 1976:99).

What is meant by 'Geez-based' Amharic plurals, here, is plural nouns which were borrowed from Geez, but became part of the Amharic lexicon through time. The morphological structures of such forms differ extremely from that of the regular plural forms. Plural formation in such items is characterized by change in the consonantal roots and vowel patterns of nouns, a feature considered as typifying Semitic languages in general (Hetzron and Bender, 1976:23)

Consider the two types of pluralization by comparing the nouns in (1) and (2) below:

(1)	Singular	Plural	Gloss
	mäs'ïhaf	mäs'ahïft	'books'
	'anbäsa	'anabïst	'lions'
	mäl'ak	mäla'ïkt	'angels'
	mäsfïn	mäsafïnt	'princes'
	k'onjo	konäjajït	'beautifuls'

Geez-based plural nouns such as mäs'ah'ïft (books), mäla'ïkt
etc. have structures completely different from those of the
Amharic plural nouns which are formed by suffixing /-occ/ or /-
wocc/ as in the following:

(2) Singular   Plural   Gloss

     säw   säwocc   'people'
     lïj   lïj-occ   'children'
     bet   bet-occ   'houses'
     alga   alga-wocc   'beds'

As it is shown in the above examples the plurals in (1) have structures
completely different from those in (2) which are formed by applying a
simple affixational process that attaches -occ/-wocc to the singular base
nouns. As has been shown in this paper, unlike that which is observed in
the formation of regular Amharic nouns, the formation of Geez-based
plurals involves five processes. These are:

1. Change in the CV skeleton
2. Change in the root consonants
3. Change in the vocalic melody
4. Affixation
5. Reduplication

The two groups of plurals cannot be captured by a single morphological
rule. A concatenative affixation rule such as N_{sg} +Aff $\longrightarrow$ N_{pl} can
capture plurals such as those shown in example (2). The same rule
cannot conform to plurals shown in example (1), as the process involved
is a phonological alternation, not a mere affixation. In other words, a

concatenative approach does not work for such morphological processes affecting the phonological makeup of roots in nouns in example (1). Spencer (1990:135) states this failure of concatenative morphology as follows:

> The Semitic languages offer a particular strong challenge to so called linear models of word formation . . . the classical generative approach is still . . . based on linear representation, in that URs are still assumed to take the form of linearly concatenated strings of morphemes.

The best approach to such processes is McCarthy's (1982a) Morphemic Tier Hypothesis which employs the theory of autosegmental phonology to account for facts of nonconcatenative morphology in Semitic.

This approach can provide an effective analysis to Semitic morphology, in which items are arranged in a multidimensional space which is not linear. The theory applies the notion of a prosodic template or CV tier (CV skeleton) to represent a morpheme in terms of the string of consonants and vowels which make it up. In addition to the CV template, which is the basic tier of the representation of a word, there are other tiers consisting of sequences of root consonants and vowels. An cc-- :< any, is also put on a separate tier.

ng to this approach, every morpheme making up a word is ted in a separate tier. Thus a word with an affix consists of four e prosodic template (CV skeleton), the root consonants, the and the affix(es). By representing each element on a separate tier roach can show clearly what exactly is taking place in the n of such plurals as indicated in example (1) above. For , the plural form mäs'ahïft has the representation shown below:

3)   a   a   vocalic tier

     c -v c v c c - c   skeleton

     m   s'   h f - t   consonantal tier

The next step is to associate the segments to the C and V slots of the CV template. This is where the principles of Autosegmental Phonology are applied. The association is done by means of such principles.

The principles are the following as presented in their simplified forms by Spencer (1990:137):

a)   Every CV skeletal slot must be associated with one melody element and every melody element must be associated with one appropriate C or V slot.

b)   Association lines must not cross

(By appropriation is meant that a consonant melody elen____ to a C slot and a Vowel element links to a V slot.)

The application of these principles to the represention in yields the following:
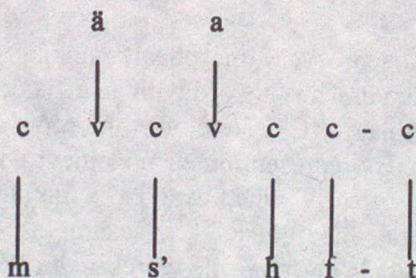
The association between the CV slots and the segmental elements begins by associating the suffix -t with its slot. Then, the rest of the segmental elements and their CV slots are associated left-to-right. This follows the 'condition of directionality of linking' imposed by Marantz (1982) as presented in Spencer (1990:153). In light of this approach, the structures of Geez-based Amharic plurals are investigated and classified as follows.

1.   Class one Nouns

This class contains quadriliteral singular nouns which form their plurals with:

a.   the vocalic melody ä - a;
b.   the prosodic template c v c v c c;
c.   the suffix [-t];

as demostrated in the following examples:

Singular	Plural	Gloss
mäzgäb	mäzagïbt	'archives'
mäsfïn	mäsafïn-t	'princes'
kokäb	käwakïb-t	'stars'
mänbär	mänabïr-t	'seats'
mäl'ak	mäla'ïk-t	'angels'
mäs'haf	mäs'ahïf-t	'books'

As can be seen from the examples, the singular forms are characterized by word medial consonant clusters like zg, sf, nb, l', s'h, etc., which are

broken by the vowel a of the vocalic melody in their plural counterparts. The epenthetic vowel ï is inserted between the first and the second member of the word-final clusters in order to avoid sequences of three consonants which is not allowed in the language.

The insertion of the epenthetic vowel results in having only a cluster of two consonants, which is allowed word-finally in amharic. As ï is only an epenthetic vowel used to break impermissible clusters of consonants, it cannot be represented as part the underlying forms of the items mentioned.

The plurals in this class can be represented in morphemic tiers of the types shown below:

1.   mäzagïbt   2.   mänabïrt

3.

```
              u
             / \
          ä       a
          |       |
   c   v  c   v   c   c - c
   |      |       |   |
   m      s'      h   f - t
    \     |          /     |
     \    u         /      u
      mäs'ahïft
```

4.
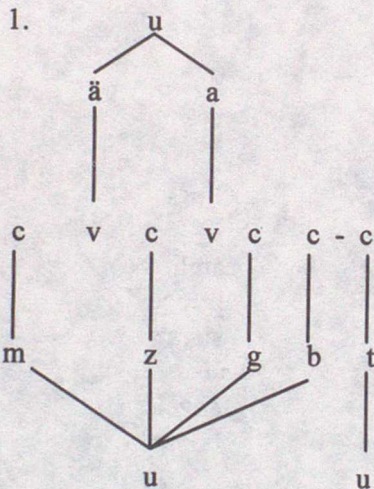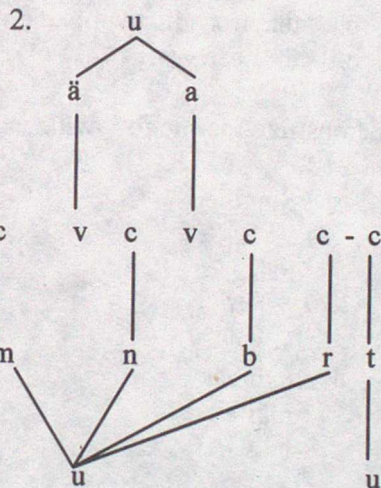
```
              u
             / \
          ä       a
          |       |
   c   v  c   v   c    c - c
   |      |          /  |    |
   m      l         '   k    t
    \     |        /
     \    u       /
      mäla'ïkt
```

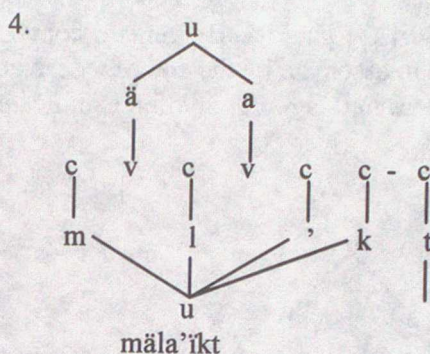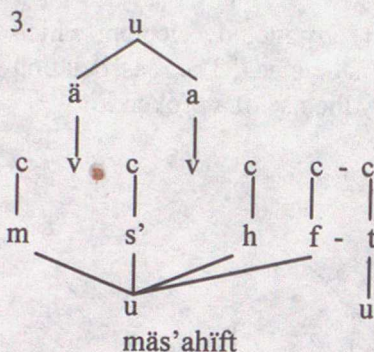The plural noun <u>käwakïbt</u> ('stars') has a different structural representation from all the other forms in this class. This is because, ulike the other nouns of that class which have quadriliteral bases, it has a triliteral base; that is, <u>k -k - b</u>. However, in the process of pluralization, a new consonantal element, <u>w</u> gets inserted, resulting in a quadriliteral root of the plural form. The insertion of the <u>w</u> takes place between the first and the second consonants of the base.

As the insertion is applied after the root consonants have been associatd to the CV template, it causes subsequent delinking and reassociation processes, as represented in the following structures.[please see next page - ed.]

The first representation indicates the structure of the plural noun <u>käwakïbt</u> ('stars') before the insertion of /w/. Since the consonantal segments of the base contain only three members, with one less element than their C slots, the last consonant /b/ is reassociated with the fourth C slot in addition to its association with the third C slot. This is because, if it is left unassociated, it will be deleted from the structure. As Spencer

(1990:143) puts it, "By general convention, any melody element which fails to associate by the end of a derivation is deleted." The reassociation process in this representation is indicated by the use of a broken line.

1.

```
        u                        u
       / \                      / \
      ă   a                    ă   a
      |   |                     |   |
  c v c v c c - c  ⇒       c v c v c c - c  ⇒
  |   |   :       |         |    :  |       |
  k   k   b       t         k   w k  b       t
   \  |          |           \  |          |
    \ |          |            \ |          |
      u          u              u          u
```

3.

```
        u                              u
       /|\                            / \
      ă  a                          ă    a
      |  |                          |    |
  c v c v c  c - c  ⇒     c · v c v c  c - c  ⇒
  |   ⫫   ⫫    |          |     |   :  |  |   |
  k  w k  b    t          k     w    k  b   t
   \  |        |           \    |   /      |
    \ |        |            \   |  /       |
      u        u              u            u
```

5.

[käwakïbt]
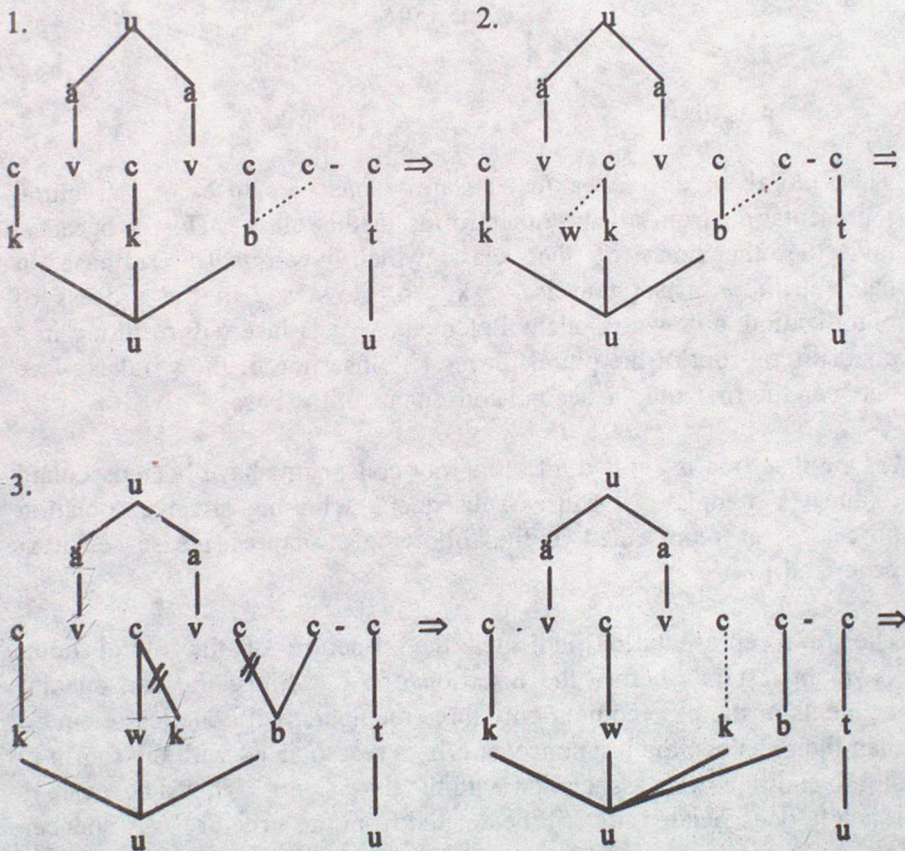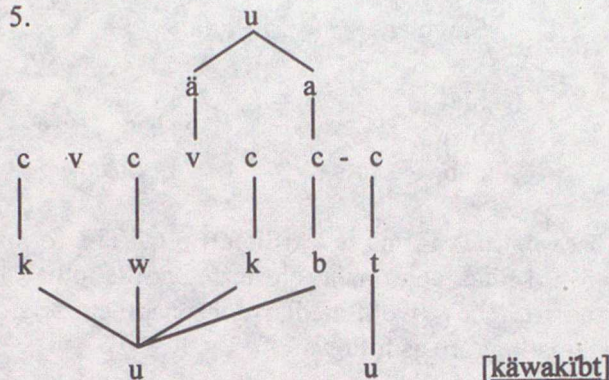
The second representation indicates the insertion of /w/ by means of which it is reassociated with the second C slot. The second C slot, however, has already been associated with the second root consonant, /k/. As it is impossible for a single slot to be associated with two melody elements, the process causes automatic delinking of the previous association between the second C slot and /k/. Again this causes another delinking between the third consonant, /b/, and the third C slot to get a free slot that can be reassociated with /k/. The delinkiing processes are indicated by using two small crossing lines over the association lines. Finally, reassociation between /k/ and the third C slot takes place and the structure of the plural form, käwakïbt ('stars') is exhibited in the fourth and fifth representations, respectively, as demonstrated above.

2. Class Two Nouns

Class two nouns are identified by their having a CCVC template, a vocalic melody -a- and a prefix 'a as in the following examples:

Singular	Plural	Gloss
kïnf	'a - knaf	'wings'
lïbs	'a - lbas	'clothes'
däbr	'a - dbar	'churches'

The base of such forms is a triliteral root. The forms are identified by their word-final consonant cluster. On the other hand, their plural counterparts show word-medial consonant clusters. Their morphemic representations are as follows:
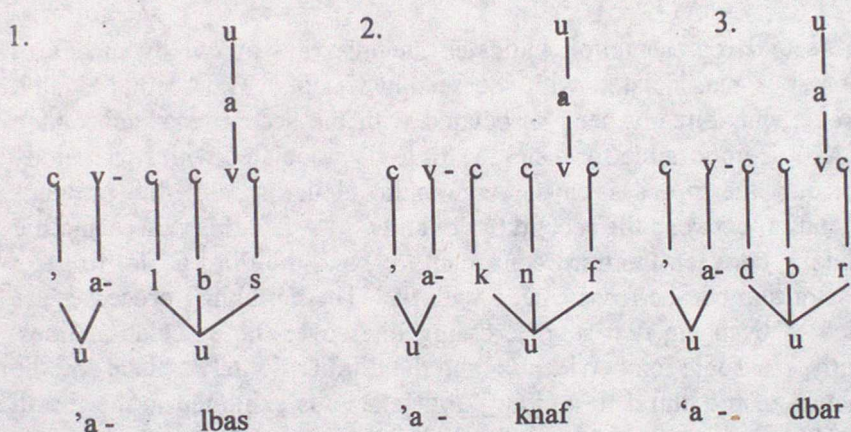
In all such representations, affixes are on separate tiers, different from the consonantal roots and the vocalic melodies. However, both the consonantal and vocalic segments of the affix are represented on a single tier since they constitute a single morpheme. In other words, the consonants and the vowels of an affix are represented together in a single tier.

To designate the meaning 'variety of', the suffix /-at/ is attached to the plural nouns, as in the following:

      'a-knaf-at   'a variety of wings'
      'a-lbas-at   'a variety of clothes'
      'a-dbar-at   'a variety of churches'

The same suffix also occurs with other Amharic nouns to express plurality and variety as in:

      k'imäm-at   'spices'
      wor-at   'different months'
      k'än-at   'different days'
      ïnsïsa-at   'different animals'

The following is an example of the representation of such plurals:

1.
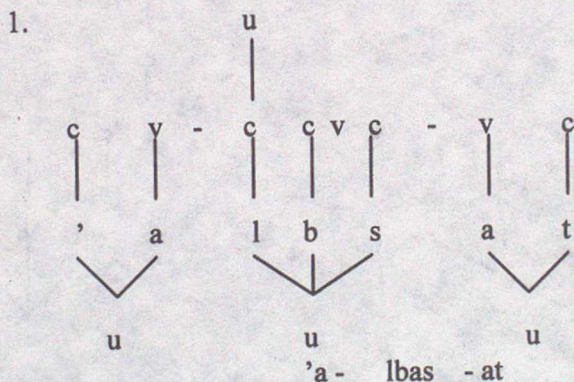
3. Class three Nouns

The third class is characterized by a <u>CVCVCVC</u> template, a vocalic melody <u>-a-</u> and a suffix <u>-t</u>, as shown below:

Singular	Plural	Gloss
'anbäsa	'anabïs-t	'lions'
'amlak	'amalïk-t	'gods'

The base nouns in this class allow word-medial consonant clusters, while the plurals contain sequences of three consonants broken by the epenthetic element ï.

The following morphemic tiers show the representation of such nouns:

'anabïst   'amalïkt
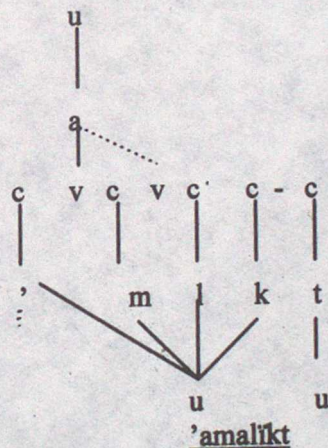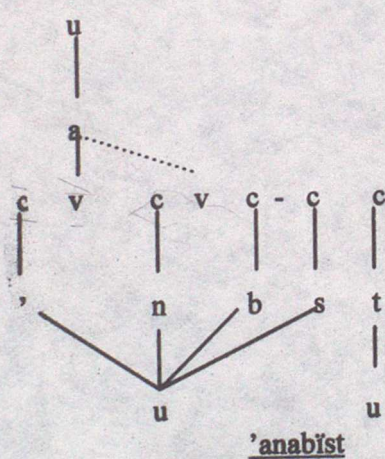
The vocalic melody of plurals in this class contains only a single -a-. However, it could be associated to the next V slot by applying the principle of automatic spreading (Spencer, 1990:138).

4.   Class four Nouns

The class here includes plurals with the prefix 'a-, the template CVCVC, the vocalic melody -a- and suffix -t. Examples are the following:

Singular	Plural	Gloss
ganen	'a-ganïn-t	'devils'
täkïl - ä	'a-takïl-t	'plants'

Their representations are as follows:

'a-ganïnt   'a-takïlt
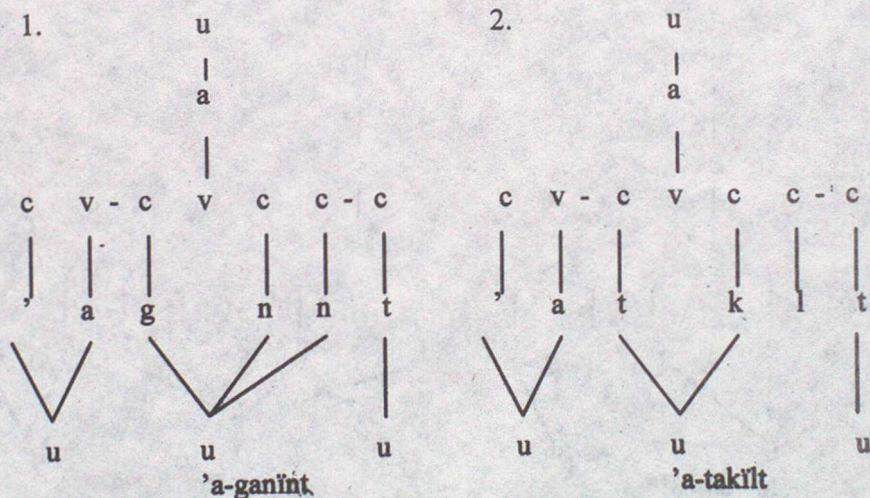
5.   Class five Nouns

The other group of plurals are formed only by suffixation. The suffix is /-(a)t/. Here, there is no change in the vocalic melody and in the CV skeleton.

Singular	Plural	Gloss
hïwas	hïwas-at	'orgáns'
gize	gizey-at	'times'
kahïn	kahïn-at	'clergy'
mängïst	mängïst-at	'governments'
'ïnsïsa	'ïnsïsa-t	'animals'

The following shows the representation of such plurals.

1.

hïwas - at   mängïst - at

3.

```
        u
        |
        a
        |
c   v   c   c   -   v   c
|   |   |   |       |   |
k       h   n       a   t
    \   /  /         \  /
     \ / /            \/
      u                u   •
   kahïn - at
```
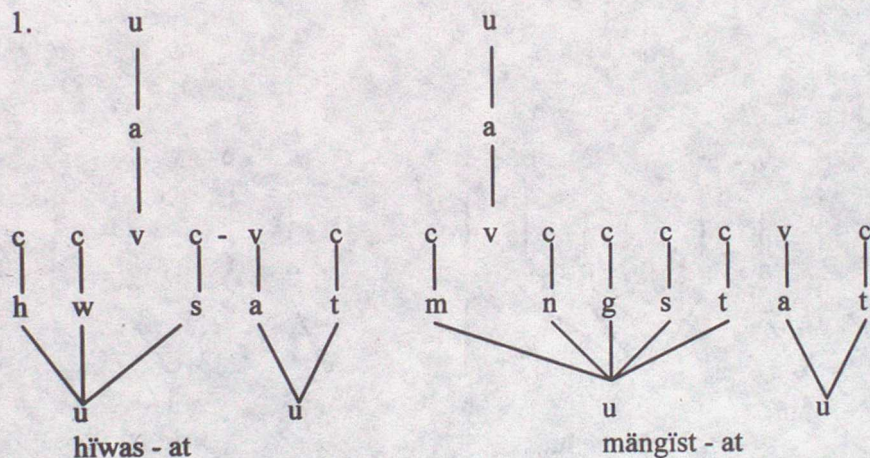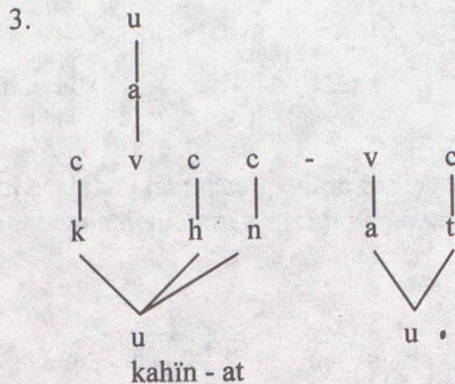
6.   Class Six Nouns

Plurals treated in this class are the result of four different processes applied to singular nouns. The processes are: reduplication, deletion, insertion, and affixation. In other words, the forms in this section are different from those others shown so far, as they involve several processes.

According to the Morphemic Tier Hypothesis, reduplication is a form of affixation. A reduplicated element can be considered as a prefix, suffix or infix based on its position in relation to the base. A reduplicated affix is hence represented on a separate tier. On the other hand, the theory handles the deletion and insertion processes by applying delinking and preassociation mechanism, respectively. The following are examples of such nouns:

Singular	Plural	Gloss
šum	šum-a-m-ïnt	'appointees'
k'onjo	k'on-ă-j-a-j-ït	'beautifules'
wăyzăro	wăyz-a-zïr-t	'ladies'

Below are representations of thē process taking place in the formation of the above reduplicated plural forms from their singular counterparts.

1. šumamïnt   'appointees'

$$
\begin{array}{ccc}
š & u & m \\
| & | & | \\
c & v & c
\end{array}
[šum]
\Rightarrow
\begin{array}{ccc}
š & u & m \\
| & | & | \\
c & v & c
\end{array}
+
\begin{array}{ccc}
š & u & m \\
| & | & | \\
c & v & c \\
 & \vdots & \\
 & a &
\end{array}
+
\begin{array}{cc}
n & t \\
| & | \\
c & c
\end{array}
\Rightarrow
$$

$$
\begin{array}{ccc}
š & u & m \\
| & | & | \\
c & v & c
\end{array}
+
\begin{array}{ccc}
š & u & m \\
\neq & \neq & | \\
c & v & c \\
 & | & \\
 & a &
\end{array}
+
\begin{array}{cc}
n & t \\
| & | \\
c & c
\end{array}
\Rightarrow
$$

$$
\begin{array}{ccc}
š & u & m \\
| & | & | \\
c & v & c
\end{array}
+
\begin{array}{ccc}
š & u & m \\
 & & | \\
c & v & c \\
 & | & \\
 & a &
\end{array}
+
\begin{array}{cc}
n & t \\
| & | \\
c & c
\end{array}
\Rightarrow
\begin{array}{ccccc}
š & u & m & m & n & t \\
| & | & | & | & | & | \\
c & v & c & v & c & c & c \\
 & & & | & & \\
 & & & a & &
\end{array}
$$
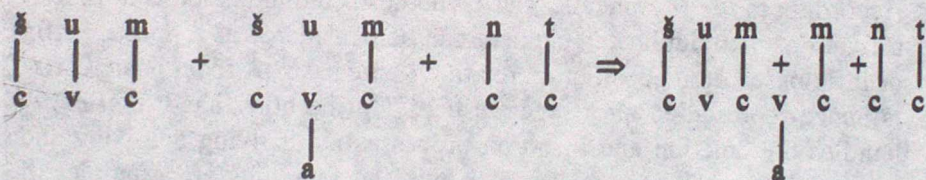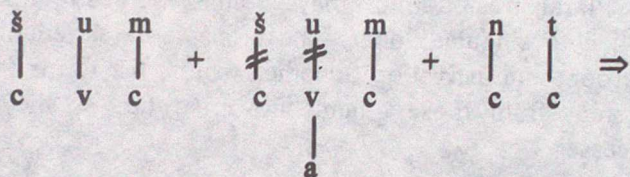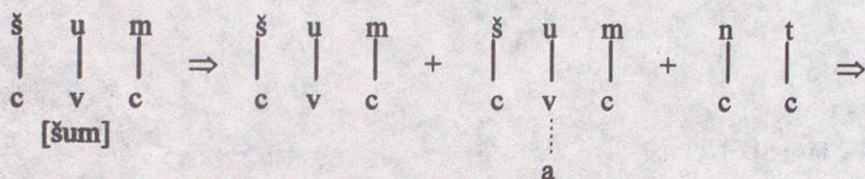
[šumamïnt]

2. k'onäjajït   'beautifuls'

```
k'   o   n   j   o              k'  o n j o      k o n j o t
|    |   |   |   |     ⇒         |  | | | | +    | | | | | +      ⇒
c    v   c   c   v              c  v c v c v    c v c c v   c
     [k'onjo]                          ⋮   ⋮
                                       ä   a
```

```
k'   o   n   j   o              k'  o   n   j   o          t
|    |   |   |   ⫽     +        ⫽   ⫽   ⫽   |   ⫽     +    |      ⇒
c    v   c v  c  v              c   v   c   c   v          c
          |      |
          ä      a
```

```
k'   o   n   j   o              k'  o   n   j   o          t
|    |   |   |   |     +                        |     +    |
c    v   c   v   c   v                          c          c
              |       |
              ä       a
```
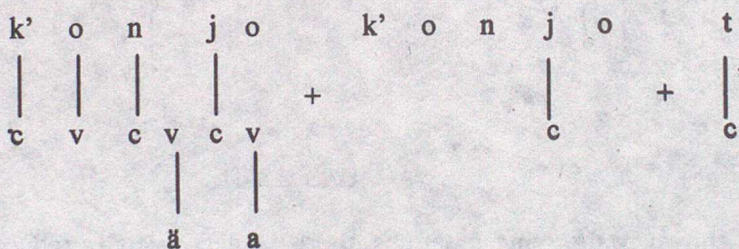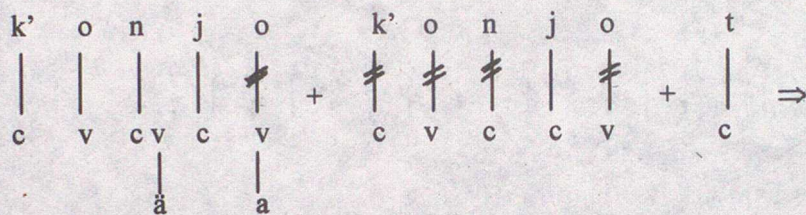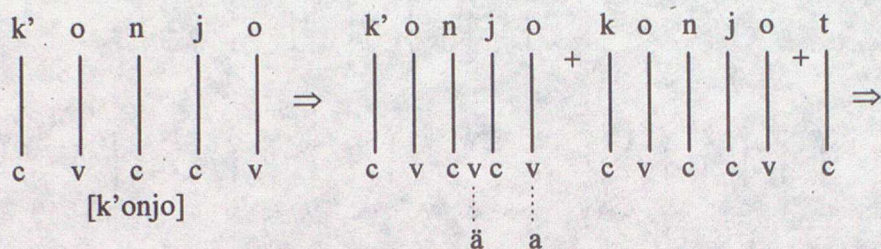
                                [k'onäjajït]

3. wäyzazïrt   'ladies'

$$
\begin{array}{ccccccc}
w & ä & y & z & ä & r & o \\
| & | & | & | & | & | & | \\
c & v & c & c & v & c & v
\end{array} \Rightarrow
$$

$$
\begin{array}{ccccccc}
w & ä & y & z & ä & r & o \\
| & | & | & | & | & | & | \\
c & v & c & c & v & c & v \\
 & & & \vdots & & & \\
 & & & a & & &
\end{array}
+
\begin{array}{ccccccc}
w & ä & y & z & ä & r & o \\
| & | & | & | & | & | & | \\
c & v & c & c & v & c & v
\end{array}
+
\begin{array}{c}
t \\
| \\
c
\end{array} \Rightarrow
$$

$$
\begin{array}{ccccccc}
w & ä & y & z & ä & r & o \\
| & | & | & | & \ne & \ne & \ne \\
c & v & c & c & v & c & v \\
 & & & | & & & \\
 & & & a & & &
\end{array}
+
\begin{array}{ccccccc}
w & ä & y & z & ä & r & o \\
\ne & \ne & \ne & | & \ne & | & \ne \\
c & v & c & c & v & c & v
\end{array}
+
\begin{array}{c}
t \\
| \\
c
\end{array} \Rightarrow
$$

$$
\begin{array}{ccccccc}
w & ä & y & z & ä & r & o \\
| & | & | & | & & & \\
c & v & c & c & v & c & v \\
 & & & | & & & \\
 & & & a & & &
\end{array}
+
\begin{array}{ccccccc}
w & ä & y & z & ä & r & o \\
 & & & | & & | & \\
 & & & c & & c &
\end{array}
+
\begin{array}{c}
t \\
| \\
c
\end{array}
$$

[wäyzazïrt]
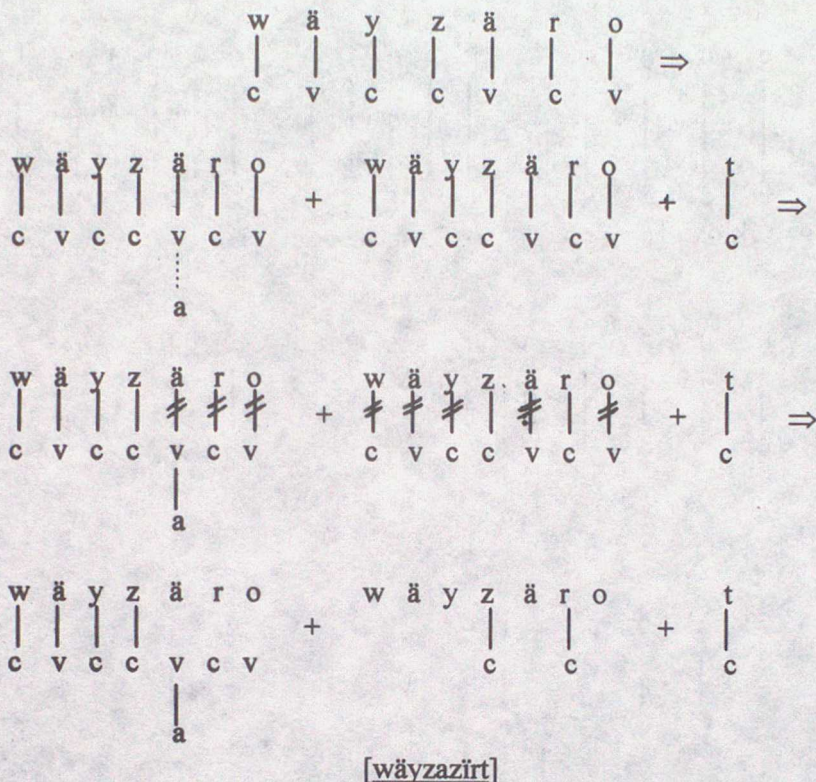
As shown in the representations, the base gets partially reduplicated in
the plural forms. The reduplicated element is thus treated as a suffix
occurring next to the base. Since it is a separate morpheme, it has its
own tier. The ordinary affix that occured next to the reduplicated
element is also asssigned to a separate tier. This goes in line with the
Morphemic Tier Hypothesis which says 'Every morpheme making up a

word is assigned to a separate tier' (McCarthy, 1982a, as cited in Anderson, 1990:137). Both the CV skeleton and the phonemic content of the reduplicative affix are obtained by copying those of the root. Then, linking of the CV template to the root melody takes place observing the principles of association.

Moreover, all the unrepeated segements are delinked. In accordance with autosegmental phonology, any element left unassociated (delinked) is deleted by convention. As represented in (1) the [š] and [u] in the reduplicative affix in šumamïnt are deleted from the structure, hence their CV slots are left delinked. In the representation•of k'onäjajït, [k'], [o], [n] and the final [o] are deleted and their CV slots are left unassociated. The same holds true for [a], [r], [o] of the base as well as the [w], [a], [y], [o] and the penultimate vowel [a] and the ultimate vowel [o] of the reduplicative affix in example (3).

On the other hand, the newly inserted segments are indicated by prelinking or prosecuting them to the CV slots. The [a] in šumamïnt, the [ä] and [a] in k'onäjajït, and the [a] in wäyzazïrt are prelinked before the operation of the usual association takes place. (The pre-linking is indicated by using doted lines.) As these are prelinked to CV slots, and as the principles of association between the CV slots and segments require only one-to-one relation, the older elements of the base are unable to associate to the CV slots. Hence, they delete from the surface forms of the plurals.

Thus nouns in class six are formed by using the following subsequent processes: getting the reduplicative affix by copying the CV tier and segmental tier of the base; affixing it to the base; attaching the affixal tier; prelinking the newly arriving segments that get inserted to the base;

associating the CV tier with the respective segmental elemnts; and delinking the unrepeated segments from their respective CV slots.

Such representations can also be used to show other (non-Geez-based) Amharic reduplicative forms like the following:

1. f   r   e
    | | | ⇒
    c   c   v

[fire]

f   r   e   f   r   e
| | | + | | | ⇒
c   c   v   c   c   v
         a

f   r   e   f   r   e
| | ≠ + | | | ⇒
c   c   v   c   c   v
         a

f   r   e   f   r   e
| | + | | |
c   c   v   c   c   v
       a

[firafire] 'variety of fruit'

2.

```
  n  ä  č'           n  ä  č'       n  ä  č'          ñ  ä  č'       n  ä  č'
  |  |  |     ⇒      |  |  |    +   |  |  |    ⇒      |  |  |    +   ⫽  ⫽  |   ⇒
  c  v  c            c  v  c        c  v  c           c  v  c          c  v  c
  [näč'] 'white'                       |                                  |
                                       a                                  a
```

```
        n  ä  č'           n  ä  č'
        |  |  |      +     |
        c  v  c            c  v  c
                                |
                                a     [näč'ač'] 'whites'
```

3.

```
  t' k' u  r        t' k' u  r       t' k' u  r
  |  |  |  |   ⇒    |  |  |  |   +   |  |  |  |  ⇒
  c  c  v  c        c  c  v  c       c  c  v  c
  [t'ĭk'ur] 'black'       |
                          a
```

```
  t' k' u  r        t' k' u  r          t' k' u  r        t' k' u  r
  |  |  |  ⫽    +   ⫽  |  |  |      ⇒    |  |  |  |    +   |  |  |  |
  c  c  v  c        c  c  v  c          c  c  v  c        c  c  v  c
        |                                    |
        a                                    a
```

[t'ĭk'uak'ur] 'blacks'

Summary

The plural forms of Geez-based Amharic nouns behave differently from other regular plurals. They are formed by changing the CV skeleton, the root consonants and the vocalic melody of the base. In addition, affixations and reduplications may take place. The best approach to represent such complex processes is McCarthy's Morphemic Tier Hypothesis which makes use of the principles of the theory of Autosegmental Phonology. In this paper an attempt has been made to show how Geez-based plurals can effectively be represented by using the Hypothesis. The following CV templates and vocalic melodies show the processes involved:

    (1) Cvcvcc-c .... a (ä) - a
    (2) Cv-ccvc .... a - a

However, as the regular plural marker in Amharic is [-occ], it is not uncommon to hear speakers using words like k'onäjajïtocc, 'amalïktocc, mäs'ahïftocc, etc., in which there is a redundant marker with the already pluralized nouns.

Abbreviations and Symbols Used

Aff.	-	Affix
N_{pl}	-	Plural noun
N_{sg}	-	Singular noun
C	-	Consonant
V	-	Vowel
-	-	Morpheme boundary or affixation
|	-	Association line that connects a CV slot to a segment
ǂ	-	Delinking line that indicates deletion of a segment from a word structure
ä	-	mid-central vowel
'	-	Glottal stop
ï	-	High central vowel

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