BODY-PART TERMS AND NUMBER MARKING IN EMAI

Ronald P. Schaefer and Francis Egbokhare

SIU-Edwardsville and University of Ibadan

In this paper we examine the morphological structure of body-part terminology in Emai, a Kwa language of southern Nigeria. Our interest in this domain centers on the structural configuration of number and number agreement within compounds. We establish first that number marking in primary compounds, those involving two or more nominals, is controlled by the right nominal, the Head. We then turn to the manifestation of number in synthetic compounds, those involving a verb stem. For convenience we begin with simple body-part terms.

Morphologically simple body-part terms are in the majority. Covering all areas of body space, they are grouped in the following table. Their noncomplex nature is consistent with nomenclature patterns found to exist cross-linguistically by Andersen (1978) for "basic" body parts.

TABLE I. Morphologically simple body part terms.

égbe	'body'	ényẹn	'breast area'
egelẹ	'pubic region'	átuí	'anus region'
evie	'scrotum'	ukhọn	'navel region'
ídáma	'chest'	uokho	'back'
ítíhian	'buttock'	ẹ́kẹ́in	'belly'
ẹo	'face'	íhue	'nose, nostril'
éhọn	'ear'	únu	'mouth'
óẹmi	'tongue'	akọn	'tooth'
iyoo	'gum'	éto	'hair'
úhumi	'head'	ẹhai	'forehead'
iro	'cheek'	agban	'jaw, chin'
éain	'neck'	erere	'soft spot on head'
akhọi	'occipital area'	éhiẹ́n	'finger-/toenail'
íghíghe	'armpit'	ibegun	'shin'

A system of morphologically compound words encode a range of nonbasic body parts in Emai. At the core of this system are minimally complex forms in which an affix designating number is attached to a nominal stem, e.g. óbọ, ábọ 'hand, arm' and oẹ, awẹ 'foot, leg.' Plurality is conveyed in both by the affix *a-*, while *o-*

and a zero affix convey singularity. No other body part
terms exhibit this affix plus stem pattern.

The principal hypothesis we need to confirm at the
outset is that in body-part compounds consisting of two
or more nominals the rightmost constituent controls
number marking and, hence, functions as Head of the
compound. This hypothesis is complemented by a semantic
definition of Head in terms of a 'part of' rather than
'kind of' relation, although the latter is more usual,
e.g. *mailman* as a kind of *man* (Bauer 1983). The Head in
most of the primary compounds below specifies the body
area relative to which some part, identified by the
non-Head constituent, is singled out for denotation, as
in the English example of *forearm* as part of *arm*.

At this juncture one might ask how the Head of a
compound is positioned in compounds outside the body-
part domain. Tables II and III attempt to answer this
question by showing that the Head occurs in both left
and right position, e.g. *éámogo* [éami 'animal' - ogo
'bush'] is a type of animal and *ínyéwe* [inyo 'mother'-
éwe 'goat'] is a type of goat. We cannot, therefore,
assume that the Head of a compound in the body-part
domain is either the left or right nominal constituent.

TABLE II. Compounds with left nominal Head.

éámogo [éami 'animal'- ogo 'bush] 'wild/bush animal'
ísiogo [isi 'pig'- ogo 'bush'] 'bushpig'
ákhame [ákhe 'pot'-ame 'water'] 'water pot'
ásagbedé [ase 'hut'-agbedé 'blacksmith']'blacksmith shop'
ényúdi [ényon 'wine' -údi 'palm'] 'palmwine'
ósudén [ósa 'soap' -udén 'palm kernel oil'] 'blacksoap'
ósokoto [ósa'soap'- okoto 'mushy substance'] 'soda soap'
ékíókho [éken 'egg' -óókho 'chicken'] 'chicken egg'

TABLE III. Compounds with right nominal Head.

ínyéwe   [inyo 'mother'-éwe 'goat'] 'she-goat'
ínyóókho [inyo 'mother'-óókho 'chicken'] 'hen'
úlékéwe, ílékéwe [uleke 'pubescent one'-éwe 'goat']
                                        'virgin goat'
ínyúdo [inyo 'mother'-údo 'stone'] 'mortar'

Before proceeding to our analysis, we briefly
outline relevant aspects of the theoretical framework
we will use to explore number marking and headedness in
Emai compounds. In this regard we rely principally on

Lieber (1980, 1983) and her specification of feature percolation, i.e. the notion that morpheme features become interpreted as features of an entire word. Not all features percolate, however, leading to conventions which specify precedence relations among constituents. Below, we state these conventions, all of which, except 4, are postulated as universal.

1. All features of a stem morpheme percolate to the first non-branching node dominating that morpheme.

2. All features of an affix morpheme percolate to the first branching node dominating that morpheme.

3. If a branching node fails to obtain features by Convention II, features from the next lowest labelled node percolate to the unlabelled branching node.

4. If two stems form a compound, features from the right stem percolate to the branching node dominating the stems.

In sum, Lieber maintains that all features percolate but not all features percolate to the compound, affixal features in particular taking precedence over stem features. Although convention 4 is stipulated as language specific, we will find that it is consistent with body-part terms exhibiting the partitive relation. In addition to these four, two additional conventions are stipulated to account for the behavior of verbs in compounds.

5. An element of a compound must be able to link all its obligatory internal arguments.

6. A compounded stem not linked by an argument-taking stem compounded with it must be interpretable as a restrictive modifier of that stem, i.e. as a Locative, Manner, Instrumental or Benefactive.

In essence, if features of a verb stem percolate to the compound as a whole, the verb must be able to link its internal arguments outside the compound, e.g. *They handweaved the cloth* with *hand* representing a noninternal, Instrumental, argument; if its features do not percolate to the compound, then its internal argument features must be satisfied within the compound, e.g. *drawbridge*, with *bridge* as the internal argument representing the Theme of *draw*.

Number marking in primary compounds referring to
body parts consists of four major types, each
characterized in terms of two dimensions. One dimension
emphasizes number marking across constituents: double
marking in which number is indicated on both
constituents; or single marking in which number is
expressed on only one. The other emphasizes number
marking within each constituent; double or single
marking may be symmetrical, both singular and plural
being expressed, or it may be asymmetrical, either
singular or plural but not both being expressed. Of
these types, the asymmetrical forms present the
strongest evidence that number marking is controlled by
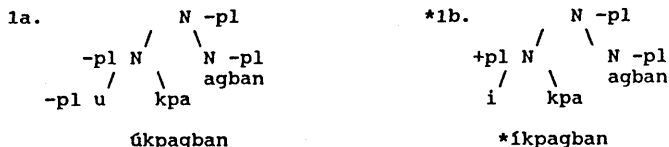the rightmost constituent.

A variety of compounds exhibit asymmetrical single
marking with respect to number. All are of the formal
shape [N - N], with the first noun consisting of an
affix plus stem and the second an unanalyzable word, as
shown in Table IV. Semantically, the affix-stem
functions as a partitive marker, isolating some area as
Figure within a larger Ground area specified by the
unanalyzable word. The meaning of the affix-stem unit
reveals metaphorical extension, as in the example
úkpa/íkpa which means literally either 'beak/beaks' or
'seed/seeds,' but metaphorically 'part of'.

Table IV. Asymmetrically single marked compounds.

úkpagban [úkpa 'beak'-agban 'chin'] 'cleft of the chin'
úkpe̱hai [úkpa 'beak'-e̱hai 'forehead'] 'mid forehead'
úkpo̱ko̱ló̱ [úkpa 'beak' - o̱ko̱ló̱ 'throat'] 'larynx'
úkpe̱ge̱le̱ [úkpa 'beak' - e̱ge̱le̱ 'penis'] 'tip of penis'
úkpukho̱n [úkpa 'beak' - ukho̱n 'navel'] 'belly button'
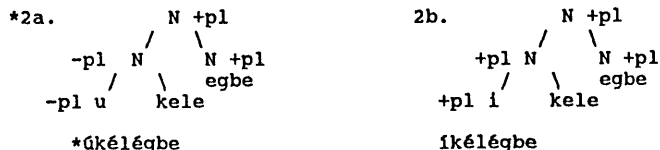úkpátuí [úkpa 'beak' - átuí 'anus'] 'end of anus'

The affix-stem analysis of the first constituent
is significant for number marking and its control. The
non-occurrence of corresponding forms with íkpa, such
as *ikpagban, argues that it is the right not the left
constituent which controls number marking. Charting our
analysis in terms of Lieber's conventions and the tree
representations in 1a and 1b, we note that relevant
features are specified on each affix, stem or word.
Consistent with Convention 2, affixal features
percolate to the first branching node for the left
nominal in each tree. At this first N-level there is no
problem. At the next N-level, however, there is a
problem, for we must decide which features percolate to
it and, therefore, to the mother node of the compound
where number is controlled. Since neither the left nor

right constituent is an affix at the second N-level,
the features of one or the other must percolate.

```
1a.            N -pl            *1b.            N -pl
            /    \                            /    \
        -pl N     N -pl                   +pl N     N -pl
        /    \    agban                   /    \    agban
    -pl u    kpa                         i     kpa

        úkpagban                            *íkpagban
```

If we assume that features of the left constituent
percolate to the second N-level, the -plural feature of
úkpa, as well as the +plural feature of íkpa could
arrive at the mother node and thus control number
marking. As a consequence, both úkpagban and íkpagban
should be grammatical. That only the former exists
argues that the right constituent agban determines
whether úkpa or íkpa will occur and that, therefore,
its feature specification as Head must be -plural.
Assuming that agreement in these cases is specified as
a coincidence relation between a mother node and its
left daughter, we note with respect to 1b that if the -
plural feature of agban percolates to the compound,
i.e. to the mother node, then íkpagban will be rejected
since íkpa's +plural feature will conflict with the
-plural feature of agban, the Head.

Another body-part term shows how a Head must be
specified for the feature +plural. The compound
íkélégbe is composed of the elements ikele 'chunks,'
which contrasts with the singular form ukele 'chunk,'
and égbe 'body,' which has no corresponding plural. If
the ikele constituent controlled agreement, then
*ukelegbe should also occur. Since it does not, it must
be egbe which determines the shape of the left
constitutent, requiring ikele rather than ukele.
Specifying egbe with the feature +plural, and assuming
that this feature percolates to the mother node, as in
2b, will produce the desired results. This also rules
out *ukelegbe since the -plural specification of ukele
and the +plural specification of egbe would be in
conflict.

```
*2a.           N +pl            2b.            N +pl
            /    \                            /    \
        -pl N     N +pl                   +pl N     N +pl
        /    \    egbe                    /    \    egbe
    -pl u    kele                       +pl i    kele

        *úkélégbe                           íkélégbe
```

A third variation on the asymmetric single marking
scheme is _óm̲e̲o_ [_óm̲o̲_ 'child' - _e̲o_ 'face'] 'eyeball.' It
contrasts with others in this set since its first
element exhibits suppletion rather than affixal
alternation, i.e. _ívbia_ 'children.' However, the form
*_ivbie̲o_ does not occur, suggesting again that it is the
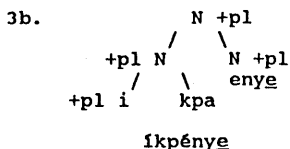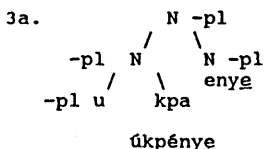right constituent which controls the shape of the
constituent on the left.

Symmetrical single marking with respect to number
is also found in Emai body-part compounds. Forms of
this type, shown in Table V are all of the formal shape
[N-N], where the initial nominal consists of an affix
adjoined to a stem and the second an unanalyzable form.
The initial nominal most frequent in these compounds
occurred in Tables III and IV, at least in the
singular, and still has a partitive meaning. The other
initial nominal participating in these compounds is
ígugúmi meaning 'lump.'

Table V. Symmetrically single marked compounds.

úkpény̲e̲, íkpény̲e̲	[úkpa 'beak' - ény̲e̲ 'breast'] 'nipple of the breast'
úkpevie, íkpevie	[úkpa 'beak' - evie 'scrotum'] 'testicle'
úkpéhi̲é̲n, íkpéhi̲é̲n	[úkpa 'beak' - éhi̲é̲n 'nail'] 'tip of fingernail or toenail'
úkpeh̲o̲n, íkpeh̲o̲n	[úkpa 'beak' - eh̲o̲n 'ear'] 'earlobe'
úkp̲e̲o, íkp̲e̲o	[úkpa 'beak' - e̲o 'face'] 'eyesocket'
úkpíhue, íkpíhue	[úkpa 'beak' - íhue 'nose'] 'point of the nose'
úkpó̲e̲mi, íkpó̲e̲mi	[úkpa 'beak' - ó̲e̲mi 'tongue'] 'tip of tongue'
úkpak̲o̲n, íkpak̲o̲n	[úkpa 'seed' - ak̲o̲n 'tooth'] 'tooth, teeth'
úkpéto, íkpéto	[úkpa 'seed' - éto 'hair'] 'lock or tuft of hair'
úgugúm̲e̲o, ígugúm̲e̲o	[úgugúmi 'lump' - e̲o 'face'] 'eye brow'

With regard to these forms, if we assume that the
right nominal is Head and is specified for both +plural
and -plural, features will percolate in the desired
fashion and agreement can be maintained as a
relationship between a mother and left daughter node.
Applying Lieber's conventions to the forms in 3a and 3b
for 'nipple' and 'nipples,' e.g. _úkpény̲e̲n_ [úkpa 'beak'

- énye̱ 'breast'] and *ìkpénye̱n* [ìkpa 'beaks'- énye̱
'breast'], we first specify relevant features for each
affix, stem or root. Convention 2 allows affixal
features to percolate to the first branching node, thus
affecting the left constituent but not the right, where
there is no evidence of an affix. By Convention 4,
features of the right constituent percolate, placing
either the +plural or -plural feature of *egbe* at the
mother node. From there, agreement is transacted
between this node and its left daughter.

3a.   N -pl   3b.   N +pl
              /   \   /   \
        -pl N   N -pl   +pl N   N +pl
           /   \   enye̱   /   \   enye̱
     -pl u   kpa   +pl i   kpa

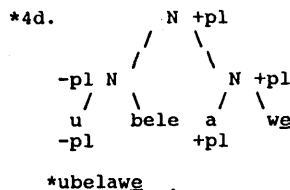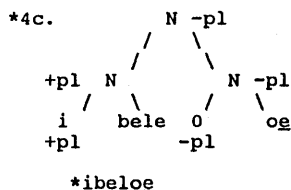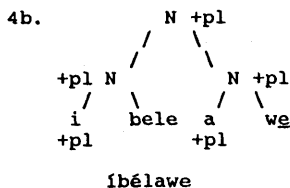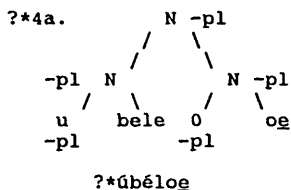   úkpénye̱   ìkpénye̱

    Asymmetrical double marking among body-part
compounds is not as common as single marking. It does
occur in forms like *ìbélawe̱* 'calf of the leg,' which is
composed of two nominal constituents having the
morphological structure affix plus stem. As with
previous examples, the meaning of the first
constituent, in addition to its partitive quality,
reveals metaphorical extension, with *ibele* meaning
'calabashes/gourds' relative to the singular of *ubele*.

    Number marking in this instance is consistent with
the right Head hypothesis, as shown in 4b. Lieber's
Conventions 2 and 4 allow the +plural feature to
percolate to the first and second N-levels for the
right constituent and to the first N-level for the left
constituent. With this feature configuration, agreement
is transacted between the mother node and its left
daughter. Consequently, forms like **ubelawe̱* and **ibeloe̱*
will be rejected, since agreement does not obtain.
Relative to a form like **ubeloe̱* in 4a a factor other
than agreement must operate. We would like to argue
that such a form, indeed, existed at some earlier
diachronic state but has become lost through a process
of historical change, which at this juncture, can only
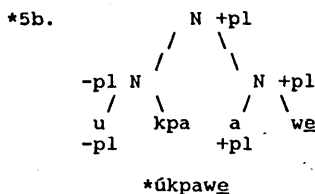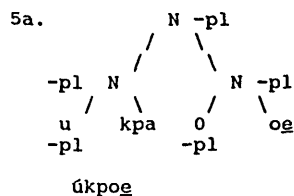be the object of speculation.

    Other forms which manifest asymmetrical double
marking include the forms for 'wrist' *úkpe̱móbo̱* [úkpe̱mi
'section between nodes' - óbo̱ 'hand']; 'ankle' *úkpe̱moe̱*
[úkpe̱mi 'section between nodes' - oe̱ 'leg']; and the
'entire leg,' *óroe̱* [óran 'tree/wood'-oe̱ 'leg'].
Although both constituents individually can manifest

number marking, i.e. *úkpémi/íkpémi*; *óbo/ábo*; *oe/awe*;
óran/éran, only the singular form appears in compounds.

```
?*4a.            N -pl              4b.            N +pl
               /   \                             /   \
              /     \                           /     \
      -pl  N          N -pl          +pl  N          N +pl
         /   \      /   \                /   \      /   \
        u   bele  o    oe              i   bele  a    we
      -pl         -pl                 +pl         +pl

           ?*úbéloe                          íbélawe


*4c.             N -pl              *4d.           N +pl
               /   \                             /   \
              /     \                           /     \
      +pl  N          N -pl          -pl  N          N +pl
         /   \      /   \                /   \      /   \
        i   bele  o    oe              u   bele  a    we
      +pl         -pl                 -pl         +pl

          *ibeloe                           *ubelawe   .
```

A still more complex combination of number marking
is found in body-part terms exhibiting symmetrical
double marking. These [N-N] shapes contain two
constituents consisting of an affix and a stem.
Semantically, the partitive meaning is present as is
metaphorical extension of the initial constituent.

The manifestation of number marking in these
compounds follows from the hypotheses developed above.
Using the forms for 'toe' *úkpoe* [úkpa 'beak'-oe 'foot']
and 'toes' *íkpawe* [íkpa 'beak' – awe 'feet'],
respectively, to illustrate, we allow Conventions 2 and
4 to locate number features at the appropriate N-levels
in trees 5a and 5b. Agreement is then transacted
between the mother node of the compound and its left
daughter. Where these features do not coincide, as in
5b, the ungrammaticality results.

```
5a.              N -pl              *5b.           N +pl
               /   \                             /   \
              /     \                           /     \
      -pl  N          N -pl          -pl  N          N +pl
         /   \      /   \                /   \      /   \
        u   kpa  o    oe              u   kpa  a    we
      -pl         -pl                 -pl         +pl

           úkpoe                             *úkpawe
```

Other forms exhibiting symmetrical double marking
are shown in Table VI. The partitive relation is
evident in each, with the left nominal specifying a
subpart of the whole denoted by the right nominal.
Structurally, configurations similar to 5a apply, with
the conventions postulated by Lieber marking forms such
as *orabo̠ and *erobo̠ as ungrammatical.

Table VI. Symmetrically double marked compounds.

óróbo̠, érábo̠   [óran 'tree' – óbo̠ 'arm'] 'forearm/s'
úso̠kóe, íso̠káwe   [usoko ? – oe 'leg'] 'thigh muscle/s'
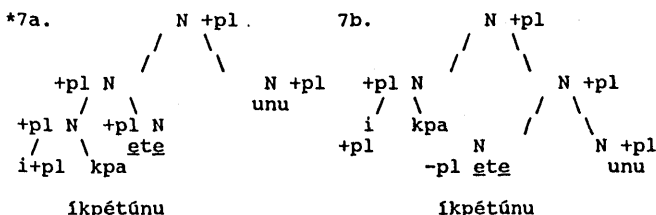úkélóbo̠, íkélábo̠ [ukele 'chunk'–óbo̠ 'arm']'armlength'

An interesting test for the assumptions of our
analysis rests with body-part compounds composed of
three nominals. Examples of such forms are úkpóhíóbo̠
[úkpa 'beak'– óhia 'animal hoof'– óbo̠ 'hand'] 'finger'
and íkpéhíábo̠ [íkpa 'beak'– éhia 'animal hooves'– ábo̠
'hands'] 'fingers,' where each constituent nominal is
composed of an affix and a stem.

The structural issue which these forms present is
spelled out in the structural configurations 6a and 6b.
If we choose 6b as the representation for these forms,
the ohia/ehia nominal would form a constituent with
óbo̠/ábo̠, implying that the resulting compound could be
a possible word. Formally no such form exists.
Semantically, it is difficult to determine what it
would mean, since the meaning of hoof and hand would
have to be combined. Since no partitive relation is
evident, there is no semantic justification for
positing the right constituent as Head at the second N-
level, where a Head must be operating to reject the
mixed features of ehiobo̠ and ohiabo̠.

6a.   *6b.

            úkpóhíóbo̠   *úkpéhíóbo̠
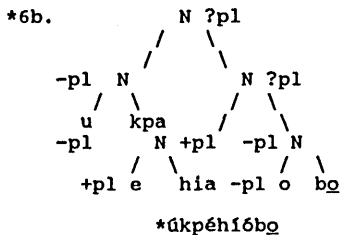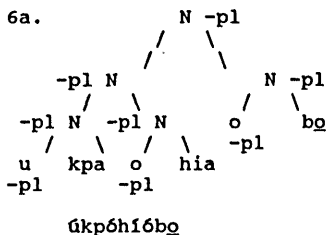
On the other hand, if we assume the correctness of
6a, the rightmost constituent *óbǫ* would function as
Head of the entire compound and *ohia* as Head of an
internal compound consisting of *ukpa* and *ohia*.
Conventions 2 and 4 could then apply, allowing -plural
to percolate to the first N-level for all constituents
and then to the second N-level for *ohia* and *óbǫ*. At
this point, agreement would take place, matching the
mother node at the second N-level with its left
daughter and then matching the mother node at the third
N-level with its left daughter. This would allow us to
reject as ungrammatatical forms like **ukpehiobǫ* and
*ikpohiabǫ. Interestingly, this analysis suggests that
the nonexistent forms *ukpohia* and *ikpehia* could occur
with the meanings 'part/s of the hoof.'

Fewer number features are evident in the pair
úkpétúnu [úkpa 'beak' – *ete* 'wound' – únu 'mouth']
'lip' and *íkpétúnu* [ukpa 'beak' – *ete* 'wound' – unu
'mouth'] 'lips'. Although number marking is
symmetrical, it involves only a single nominal, the
leftmost. Although one might want to advance the same
structural configuration seen in 6a for these forms, it
would imply that the middle nominal *ete* is specified
for +plural and -plural. Since only the form *úkpete*
meaning 'surface area of a wound' occurs, we can only
assume that *ete* is specified for the feature -plural.
For this reason it seems appropriate to postulate 7b
for these compounds. One consequence of this analysis
is that *ete* and *unu* form an internal compound, which,
though non-existent, might have occurred, since
metaphorical extension of the left constituent would be
manifest in an overall partitive relation.

```
*7a.            N +pl .        7b.          N +pl
          /  \                         /  \
         /    \                       /    \
   +pl N        N +pl           +pl N        N +pl
    /  \        unu             /  \         /  \
+pl N  +pl N                   i   kpa      /    \
 /  \    ete                    +pl     N      N +pl
i+pl  kpa                              -pl ete   unu

    íkpétúnu                        íkpétúnu
```

The preceding has surveyed all the nominal
compound types which occur in Emai. One type which does
not occur is symmetrical single marking in which number
is indicated only on the Head or right nominal
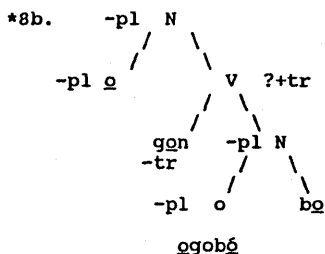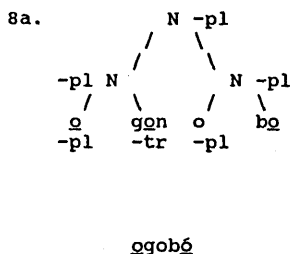constituent and not the non-Head. The absence of such

forms seems logical, for why activate an agreement
parameter and then not allow it to operate.

Now that we have established how headedness and
number agreement are intertwined, let us quickly review
two exceptions. Both compounds in question are Left-
headed; one involves asymmetric double marking, i.e.
óbǫ́díǫn [óbǫ 'hand'-ǫ́díǫn 'senior'] 'righthand' and the
other zero marking, i.e. ákívín [akǫn 'tooth'-ivin
'palm kernel'] 'molar tooth.' That they are exceptions
is not surprising since neither manifests the partitive
relation, a right hand is not part of the hand, it is a
kind of hand. Similarly the molar is a kind of tooth,
not a part of a tooth. The nonpartitive semantic nature
of these compounds is thus consistent with absence of a
Head in right position. Nonetheless, number agreement,
at least as required for óbǫ́díǫn by the contrasting
forms óbǫ/ábǫ 'hand/hands' and ǫ́díǫn/édíǫn 'senior/
seniors,' would operate as in earlier examples except
that agreement would be specified in terms of mother
and right rather than left daughter. For these
compounds, Lieber's Convention 4 will require
respecification to allow the left nominal to percolate
to the mother node.

A synthetic compound in the body-part domain
contains a verb as one of its constituents. Compared to
primary compounds, their range of number marking types
is fewer. The asymmetrical double and symmetrical
single types do not occur. It does not appear that
double marking occurs with these forms either, at least
in their present diachronic state. The notion Head and
the mechanism of agreement specified above prove useful
when choosing among configurations for these compounds.

Asymmetrical single marking appears to predominate
among synthetic body-part compounds. They have the
shape [affix+verb stem - affix+noun stem].
Semantically, the initial constituent characterizes
rather than partitions the nominal in the second
constituent and does so in an inconsistent manner with
respect to metaphorization, e.g. ǫgobǫ́ [ǫ 'nominalizing
prefix' - gǫn 'be crooked' - óbǫ 'hand'] means 'left
hand,' not the literal 'crooked hand;' while étábǫ [e
'nominalizing prefix' - tan 'to spread open' - ábǫ
'hands'] and étáwẹ [e 'nominalizing prefix'-tan 'to
spread open' - awẹ 'feet'] mean 'palm of the hand' and
'sole of the foot,' respectively, in line with the
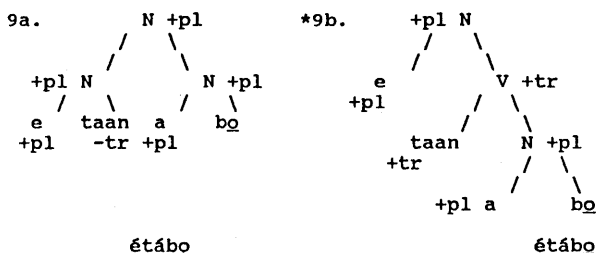meaning of tan 'to spread open.'

As for o̱gobo̱, a structure such as 8a rather than
8b can be justified. Two points are relevant. In 8b a
direct object relation is claimed to hold between the
verbal and nominal elements; the form go̱n, however,
only occurs as an intransitive verb. In 8a, on the
other hand, an intransitive relation is specified, with
the prefix o̱ deriving a nominal from a verbal element.
Nominal derivation from a verbal base is consistent
with the behavior of o̱- in forms like o̱be̱n 'weed with
leaves that cut' from be̱n 'to cut'; o̱gúa 'sitting room'
from gua 'to accomodate'; and o̱laa 'bitterness' from
laa to be bitter. It also follows from 8a that the
preverbal affix would be specified as -plural for
purposes of agreement. This, too, is consistent with
its behavior in other compounds, especially those
denoting occupations, e.g. o̱nwuime/inwuime 'farmer/s'
and o̱teta/iteta 'speaker/s' where o̱- in the singular
alternates with i- in the plural.

8a.

```
              N -pl              *8b.      -pl  N
            /     \                        /     \
           /       \                      /       \
      -pl N          N -pl          -pl  o̱          V  ?+tr
      /  \          /  \                            /  \
     o̱   go̱n    o̱    bo̱                           /    \
    -pl  -tr   -pl                             go̱n    -pl  N
                                               -tr    /  \
                                                     /    \
                                                 -pl   o̱    bo̱

         o̱gobó                                      o̱gobó
```

The next examples of asymmetric single marking,
étábo̱ and étáwe̱, are somewhat more difficult to
analyze, especially with regard to the structural
relationship between its verbal and nominal
constituents. Given their meanings one could view this
relationship as transitive or intransitive, the nominal
functioning as a Thematic direct object in the former
case, e.g. 9b. On what grounds can one choose between
the alternatives in 9b and 9a?

One argument against 9b is the expression of the
corresponding relation at the syntactic level. The verb
taan requires the presence of the Change of State
marker á when it is transitive, i.e. taan abo̱ a. We
would thus expect its presence in these compounds, just
as we find it in others where a Thematic direct object
relation can be inferred, i.e. o̱nyunuá [o̱ nyan 'force'
- únu 'mouth' - á 'CS'] 'surprise.' Since there is no
constraint blocking occurrence of á in compounds and

since it is required in transitive structures with
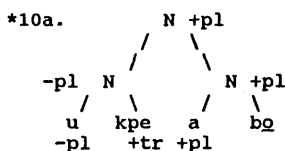*taan*, 9b appears inadequate as a representation.

9a.   N +pl   *9b.   +pl N
           /   \   /   \
          /   \   /   \
    +pl N   N +pl   e   V +tr
    /   \   /   \   +pl   /   \
   e   taan   a   bo   /   \
  +pl   -tr   +pl   taan   N +pl
                                      +tr   /   \
                                               /   \
                                          +pl a   bo

         étábo   étábo

        Another argument against 9b centers on agreement.
If 9b represents *étábo*, the +plural feature of *abo*
would not percolate to the mother node of the tree
since the node dominating it would be characterized as
V +tr consistent with the presence of *taan*. It follows
that the e- prefix would be unassociated with number.
We suspect that this is not the case, however, for *e-*
is regularly aligned with plurality in the formation of
Emai nouns. Table VII is a list of forms indicating the
plural character of the *e-* affix; it never occurs in
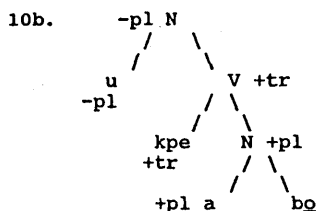the singular.

TABLE VII. Noun pairs contrasting in e- affix.

áwa	'dog'	éwa	'dogs'
éwe	'goat'	éwe	'goats'
ófe	'rat'	éfe	'rats'
óbo	'doctor'	ébo	'doctors'

        When discussing 9b we assumed that features of
nominals like *ábo* in Thematic direct object relations
would not percolate. Is there data in Emai to support
this postion? Consider the example *ukpabo* [u
'nominalizing prefix' kpe 'to wash' ábo 'hands']
'washbasin,' where a verb and its linked nominal marked
for plurality are adjoined to an affix associated with
singularity. There is no corresponding *ukpobo* form. As
10a below indicates, if *kpe* and *ábo* are not linked by a
dominating V node, then *ukpabo* would be flagged as
ungrammatical because it violates agreement under the
terms we have specified throughout this paper. It is
only a structure such as 10b which allows incompatible
number marking to occur.

```
*10a.        N +pl        10b.      -pl N
           /    \                  /    \
          /      \                /      \
    -pl  N        N +pl        u          V +tr
     /  \        /  \         -pl        /  \
    u   kpe    a   bọ                   /    \
   -pl  +tr  +pl                      kpe    N +pl
                                      +tr    /  \
                                            /    \
                                         +pl a    bọ

      ukpabọ                          ukpabọ
```

     Regarding the representations for étábọ and étáwẹ
in 9a and 9b, it is only 9a that allows the +plural
feature of ábọ to percolate to the mother node and thus
to be available for agreement. Another consequence of
9a is that we should expect the prefix e- to adjoin to
verbal elements in other examples of word formation.
Indeed, as Table VIII suggests, adjoining this prefix
to a verbal element leads to a nominal form which
refers to an entity resulting from the action
identified by the verb. Such a resultative meaning is
consistent with the representation in 9a where etaan
would refer to something which results from a spreading
action performed relative to the hand or foot, as is
the case with 'palm of the hand' and 'sole of the
foot.' Finally, we might speculate that forms such as
étábọ and étáwẹ were historically plural forms whose
corresponding singulars have become lost.

Table VIII. Nouns derived from verbs by e- affix.

éfioo 'wind'   fioo 'to blow'
ékpa 'vomit'   .   kpa 'to vomit'
éta 'utterance, word'   ta 'to utter/speak'

     Lastly, we look at the form úgúóbọ [u'nominalizing
prefix'-guẹn 'to bend' - óbọ 'hand'] and úgúoẹ [u
'nominalizing prefix'-guẹn 'to bend' - oẹ 'leg']
meaning 'elbow' and 'knee,' respectively. These forms
appear to manifest structural configurations like 9b
and 10b, since guẹn in intransitive syntactic
structures of the type required by 9a and 10a demands
the presence of the Goal particle re, e.g. ólí óbọ guẹn
ré 'the arm bent,' whereas in transitive structures it
does not, e.g. ó ọ guẹn óbọ 'he is bending the arm.'
This fact, combined with u's function as a nominalizing
prefix, e.g. udoo 'play' from doo 'to play;' and uroo
'quarrel' from roo 'to quarrel,' suggests that a

transitive relation with *óbọ* functioning as Thematic
direct object is most appropriate.

In the preceding we have attempted to outline
principles of agreement which govern number marking in
body-part compounds. Clearly, these principles operate
within the lexicon at a presyntactic level. Although we
have not in this study examined agreement principles in
syntax, this paper sets the stage for a more thorough
analysis of their operation. With such a study we may
be able to determine the extent to which the properties
of agreement principles are the same or different
across morphological and syntactic modules. It thus
remains to be seen how general principles of
grammatical agreement might constrain the functioning
of these different modules.

REFERENCES

Andersen, Elaine. 1978. Universals of body part terms.
        J.H. Greenberg, C.A Ferguson and E.A. Moravcsik,
        eds, Universals of Human Language, Vol. 3 Lexicon.
        Palo Alto: Stanford University Press.

Bauer, Laurie. 1983. English Word Formation. New York:
        Cambridge University Press.

Lieber, Rochelle. 1980. On the Organization of the
        Lexicon. Indiana University Linguistics Club.
        Bloomington, Indiana.

Leiber, Rochelle, 1983. Argument linking and compounds
        in English. Linguistic Inquiry 14. 251-285.