Legbo Verb Inflection: A Semantic and Phonological Particle Analysis

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0.   Introduction

One of the exciting aspects of working on a "field language" is that virtually everything is open to investigation. Not only can and must researchers address issues that arise simultaneously in the phonology, morphology, syntax, and semantics etc., but also the complex interrelations that sometimes exist between the different "modules" of a language. What is particularly satisfying is when phonological, grammatical, and semantic properties converge to allow one coherent, overarching statement. The present paper presents one such result concerning verb inflection in Legbo, an Upper Cross minority language spoken by an estimated 60,000 people in Eastern Nigeria (Grimes 2000).[1] The goals of this paper are to present, first, a featural analysis of the inflectional system of oppositions which are explicitly marked on Legbo verbs, specifically, aspect, mood, polarity and clause type; and second, an account of how this system of oppositions is realized in morphological terms. It will be seen that the inflectionally marked categories are organized in terms of a fixed hierarchy of privative features or "particles" which compete for expression within the Legbó verb paradigm.

The paper is organized as follows. First, we present the verb inflection system of Legbo, showing how each is realized in isolation. Then we discuss how the proposed morphological features occur in combination, focusing especially on cases where their individual spell-outs conflict. We conclude with a brief discussion of the implications of our findings.

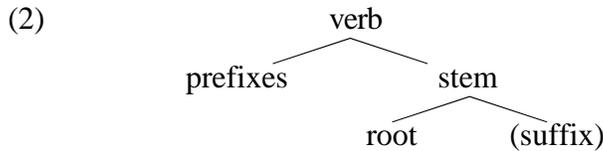## 1. Verb inflection system of Legbo: the components

A most striking first fact about Legbó is that it does not distinguish tense. Thus, the sentence in (1a) is underspecified as to present vs. past time reference:

(1) Legbó does not mark tense

    a. ba   zee icéji   'they see/saw Icheji'
        3pl see   Icheji

    b. ba   zee icéji   lɛgbàl amma   'they see Icheji now'
        3pl see   Icheji   time   this

    c. ba   zee icéji   lɛgbàl ámmɛ   'they saw Icheji then'
        3pl see   Icheji   time   that

As seen in (1b) and (1c), the time reference can be made explicit by the addition of the appropriate present or past time adverbial.

    While tense is not marked on the verb, the inflectional features which do receive an overt expression belong to the categories Aspect, Mood, Polarity and Clause Type. For the purpose of this talk, we assume the simplified verb structure in (2).

(2)
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                    verb
              _____/_____
          prefixes        stem
                        __/\__
                    root    (suffix)
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As seen, the verb (or verbal unit) consists of a verb stem preceded by one or more prefixes, including a subject agreement marker.[2] The stem in turn consists of a root and possible suffix. Recognizing the constituencies in (2), we now can indicate, as a first approximation, in the table in (3), how aspect, mood, polarity and clause type are inflected on the Legbó verb:

(3) Inflectional features ("particles") marked on verbs [first approximation]

			Segmental Marking		Tonal Marking	
			Prefix	Suffix	Prefix	Stem
Aspect	Progressive	**P**		-i	m	H-m
	Habitual	**H**	nà-		m	L-l
Mood	Irrealis	**I**			h	L-l
Polarity	Negation	**N**	aà-		l	H-m
Clause	Consecutive	**C**			l	L-l

The capital letters P-H-I-N-C stand for privative features (or particles) which are either present or absent the underlying representation of an inflected verb. As seen, these particles are spelled out either segmentally, as a prefix or suffix, or tonally. In the latter case, a tonal exponent may be assigned either to a prefix, for example the subject marker, or to the stem. In the last two columns of (3), the alternating H/L root tone is given in upper case, while prefix and suffix tones are indicated in lower

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[2] As in many Niger-Congo languages, the one verb form that does not require a prefix is the singular affirmative imperative, which also serves as the base entry of verbs in our lexicon, e.g. zee 'see!'.

case.[3]

The elements P, H, I, N, C may occur alone on a verb or may occur in combination with each other. In the latter case, when the morphological spell-outs of two or more of these elements conflict, the surface form of the verb will be determined by the feature whose spell-out is ranked highest. In addition, as we have already seen in (1), a verb may completely lack any of these features, in which case a default perfective is obtained, which may have either present or past meaning. Additional examples are given in (4).

(4) Ø-marked verb (perfective): non-habitual, non-progressive, realis, affirmative

    a. activity verbs = past

ba	mɔ́ɔ́ŋɔ	'they returned'	ba	dzi	lídzil	'they ate food'
3pl	return		3pl	eat	food	

    b. stative verbs = present/past

ba	nná	'they shine/shone'	ba	dzɛlɛ	icéji	'they know/
3pl	shine		3pl	know	Icheji	knew Icheji'

In (4a) the activity verbs *mɔ́ɔ́ŋɔ* 'return' and *dzi* 'eat' have past meaning, while in (4b) the stative verbs *nnà* 'shine' and *dzɛlɛ* 'know' can have either a present or past interpretation. Thus, the Ø-form has a perfective meaning, presenting events as a whole. In our account it is the unmarked verb form characterized by the absence of any aspect-mood-polarity features: hence it is non-progressive, non-habitual, realis, affirmative, and main clause.

Activities which are not completed, that is, which are on-going at the time of the speech event, have to be marked as "progressive." As seen in (5a), which involves the activity verb *dzi* 'eat', the progressive form is completely neutral between present and past interpretations, which can be disambiguated by adding the appropriate present or past time adverbial, as in (5b,c).

(5) Progressive (P) marked by *-i* suffix (on the activity verb *dzi* 'eat')[4]

    a.

ba	dzi-i	lídzil			'they are/were eating food'
3pl	eat-P	food			

    b.

ba	dzi-i	lídzil	lɛgbàl	amma	'they are eating food now'
3pl	eat-P	food	time	this	

    c.

ba	dzi-i	lídzil	lɛgbàl	ámmɛ	'they were eating food then'
3pl	eat-P	food	time	that	

The examples in (6) show that the progressive of stative verbs such as *kkù* 'stay' is also neutral between present and past meaning:

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[3] In cited forms, an acute accent (´) marks H(igh) tone, a grave accent (`) marks L(ow) tone, and a vowel lacking an accent carries M(id) tone. For more on Legbo tone, see Paster (2002).

[4] While all progressive verb forms involve an -i suffix, there are two potential complications. First, most verbs also undergo the fortition of one or both of their consonants, e.g. mɔ́ɔ́ŋɔ 'return' mɔ́ŋŋ-i 'be returning'. Other verbs use the /-azi/ suffix instead, which does not condition consonant fortition, e.g. kum 'pierce' kum-azi 'be piercing'. In other cases, -i (+fortition) or -azi may indicate pluractionality.

(6)   Progressive (P) marked by *-i* suffix (on the stative verb *kkù* 'stay')

    a.   ba kkú-i   ḿmɛ   'they are/were staying here'
          3pl stay-P here

    b.   ba kkú-i   ḿmɛ lɛgbàl   amma   'they are staying here now'
          3pl stay-P food   time   this

    c.   ba kkú-i   ḿmɛ lɛgbàl   ámmɛ   'they were staying here then'
          3pl stay-P food   time   that

Another aspectual feature, habitual, marked by a *na* prefix, denotes an event occurring regularly or an activity being performed habitually. As indicated in (7a), the habitual shares with the progressive the property of not carrying any implications in regard to temporal reference. As before, (7b,c) show that temporal reference can be disambiguated by means of time adverbials:

(7)   Habitual (H) marked by *nà* prefix

    a.   ba nà-dzi lídzil ŋ́-kɛ etekpan   'they eat/used to eat food outside'
          3pl H-eat   food   outside

    b.   ba nà-dzi lídzil ŋ́-kɛ etekpan lɛgbàl amma   'they now eat food
          3pl H-eat   food   outside   time   this   outside'

    c.   ba nà-dzi lídzil ŋ́-kɛ etekpan lɛgbàl ámmɛ   'they then used to
          3pl H-eat   food   outside   time   that   eat food outside'

The same aspectual distinctions are found in the negative. As seen in (8), negation not only involves the prefix *aà*, but also the use of a 3pl subject pronoun *bὲ*, different from its affirmative counterpart, *ba*:[5]

(8)   Negative (N) marked by *aà* prefix

    a.   bὲ aà-nná   'they do/did not shine'
          3pl N-shine

    b.   bὲ aà-kkú-i   ḿmɛ   'they aren't/weren't staying here'
          3pl N-stay-P here

In addition, the examples in (9) show that the object precedes a negative verb:

(9)   SOV word order in the negative

    a.   bὲ icéji   aà-dzɛlɛ   'they don't/didn't know Icheji'
          3pl Icheji N-know

    b.   bὲ lídzil   aà-dzi-i   'they aren't/weren't eating food'
          3pl food   N-eat-P

    c.   bὲ lídzil   dzὲ aà-dzi ŋ́-kɛ etekpan   'they don't eat/didn't use to eat
          3pl food   H N-eat   outside   outside'

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[5]The affirmative subject markers are *m* '1sg', *a* '2sg', ɛ '3sg', *mɛ* '1 pl.' and *ba* '2pl/3pl'. The four subject prefixes are identical in the negative, where, however, bɔ̀ '2pl' and bὲ '3pl' are distinguished, both distinct from *ba*.

The one complication in (9c) concerns the additional verbal auxiliary *dzὲ*, which derives from the homophonous verb *dzὲ*, meaning 'to finish'.

Finally, continuing our demonstration that Legbó lacks tense, note that what we call the irrealis mood in (10), marked by the high tone on the subject agreement marker *bá* (vs. mid tone *ba* in the realis), can have either a future or conditional meaning, as in (10a), or a subjunctive function, as in (10b).

(10) Irrealis (I) marked by H tone on subject agreement marker *bá*

    a. <u>bá</u>   dzi   lídzil   'they will/would eat food' (cf. <u>ba</u> dzi 'they ate')
        3pl-I eat   food

    b. m-vɔ́ɲi   bɛ   ta   <u>bá</u>   dzi lídzil   'I want them to eat food'
        1sg-want 3pl comp 3pl-I eat   food   (I want them that they eat food)

In (11), on the other hand, we see that a low tone subject prefix is used on consecutive or serialized verbs:

(11) Consecutive (C) marked by L tone on subject agreement marker *bà*

        ba   númi ɛ   <u>bà</u>   nìì   bὲɛ́   'we gave it to children' (lit. we
        they take it   they-C give children   took it & gave to children')

As we shall discuss below, tone is implicated in the realization of all of the marked inflectional features except the progressive aspect, which has a strictly segmental realization. Before moving on to tone, however, let us first summarize and elaborate on the segmental properties seen thus far.

2.   Segmental marking

For this purpose, a short introduction into the morphology of Legbo verbs stems is helpful. As schematized in (12a), most lexical verb stem entries consist of one or two syllables:

(12) Verb-stem shapes in Legbó

    a. most verb stem entries

        CV   :   dzi 'eat', nnà 'shine', zu 'exist', kkù 'stay'
        CVV   :   zee 'see', zai 'wash', vyài 'wash and squeeze', dua 'hide'
        CVCV :   fìna 'touch', zumi 'extinguish', dzɛlɛ 'know'
        CVVCV :   mɔ̀ɔ̀ŋɔ 'return', vὲὲli 'lend', taali 'draw a line'

    b. mostly derived verb stems (pluractional or reduplicated CV)

        CVCVCV   :   fìn-azi 'touch-pl', zum-azi 'extinguish-pl', fì-fìna
                   'really touch', zu-zumi 'really extinguish'
        CVVCVCV :   mɔ̀ɔ̀ŋɔzi 'return-pl'
        CVCVVCV :   mɔ̀-mɔ̀ɔ̀ŋɔ 'really return'

    c. with reduplicated CV + -azi

        CVCVCVCV :   fì-fìn-azi 'really touch-pl', zu-zum-azi 'really
                   extinguish', mɔ̀-mɔ̀ɔ̀ŋ-ɔzi 'really return-pl'

As exemplified in (12b), most longer verbs either contain the progresive/pluractional

suffix -azi or have reduplication of their first syllable (with the indicated "intensive" meaning). The maximum number of syllables possible in a verb stem is, thus, four, as in (12c).

Considering just CVCV verbs, we note the following distributions of vowel + vowel combinations in (13):

(13) V1-V2 distribution in 147 CVCV verbs (out of 356 verbs in current lexicon)

V1 / V2	i	e	ɛ	u	o	ɔ	a	Totals:
i	3	0	0	0	0	0	12	15
e	7	9	0	0	0	0	0	16
ɛ	2	0	13	0	0	0	0	15
u	7	0	0	0	0	0	13	20
o	1	0	0	0	6	0	0	7
ɔ	5	0	0	0	0	27	0	32
a	15	0	0	0	0	0	27	42
Totals:	40	9	13	0	6	27	52	147

As proposed in (13), these verbs consist of a CVC (or CVVC) root plus a suffix, either /-i/ in (14a), which can occur after all V1 vowels, or /-a/ which assimilates to a preceding mid vowel, as in (14b).[6]

(14) Analysis of CVCV verbs as /CVC-i/ and /CVC-a/ (including CVVCV)

    a.   /CVC-i/ : V1 can be any vowel

    b.   /CVC-a/ : /CiC-a/, /CuC-a/, /CaC-a/ (no change)

                    /CeC-a/   CeC-e   /CoC-a/   CoC-o

                    /CɛC-a/   CɛC-ɛ   /CɔC-a/   CɔC-ɔ

The underlying V2 /-i/ and /-a/ are thus frozen lexical suffixes found only on some verbs. As schematized in (15a), the progressive suffix /-i/ overrides the lexical suffix /-a/:

(15) Progressive /-i/ overrides lexical /-a/

    a.   fin-a + P   finn-i   'be touching'

          mɔ̀ɔ̀ŋ-ɔ + P   mɔ̀ŋŋ-i   'be returning'

    b.   bin-i + P   bin-azi   'be carrying'

          vìl-i + P   vìl-azi   'be cutting'

As also seen, consonant fortition, here written as double, frequently accompanies the progressive suffix -i. (In addition, a preceding long vowel will be shortened before a fortis consonant.) Approximately 1/4 of Legbó verbs, including those indicated in (15b), instead use the underlying suffix /-azi/ without fortition.[7] In many cases the

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[6]Given difficulties of analysis, we have omitted verbs from the table whose intervocalic consonant is a weakly articulated velar approximant "gh" or "ghost-h".

[7]The vast majority of these either end in -i or already have a fortis consonant, suggesting that -azi is used to make the progressive more markedly different from the corresponding non-progressive forms.

same verb may undergo (15a) in the progressive, but (15b) to express pluractionality, or (15a) or (15b) may be ambiguous between progressive and pluractional meaning.

By contrast with the progressive, which modifies the stem in the two ways indicated in (16), the segmental marking of the habitual is as a prefix, which fuses with the subject marker as indicated in the table in (17).

(16) Habitual marking of bila 'climb'

Person	Habitual form	cf. Ø-form
1sg	nim̀-bila	m bila
2sg	naà-bila	a bila
3sg	neè-bila	e bila
1pl	ma nè-bila	me bila
2pl	ba nà-bila	ba bila
3pl	ba nà-bila	ba bila

The negative, in its simplest form, is also marked by adding a prefix, *aà*, which fuses with a slightly different set of subject markers, as in the second column of the table in (16).

(17) Negative Ø (perfective) of bila 'climb'

Person	Negative form	Negative Habitual
1sg	mm̀-bila	… (dzɛ̀)… mm̀-bila
2sg	aà-bila	… (dzɛ̀)…aà-bila
3sg	eè-bila	… (dzɛ̀)…eè-bila
1pl	mɛ̀ eè-bila	…(dzɛ̀)… mɛ̀ eè-bila
2pl	bɔ̀ aà-bila	…(dzɛ̀)… bɔ̀ aà-bila
3pl	bɛ̀ aà-bila	…(dzɛ̀)…bɛ̀ aà-bila

The third column shows the extra marker *dzɛ̀* in the negative habitual.

3.   Tonal marking

With the segmental marking now established, we now turn to the question of tone. As seen in (18a), Legbó has three surface tones: H(igh), M(id), and L(ow), which contrast on noun roots:

(18) a.   noun roots, which usually take a prefix, exhibit a three-way contrast

        L-L : lè-kòl 'neck'   M-L : le-dùl 'bundle'
        L-M : lè-tol 'head'   M-M : li-bul 'bow, arrow'
        L-H : lì-tɔ́l 'ear'   M-H : li-kɔ́l 'mat'

    b.   verb roots show only a two-way opposition

"M-tone verbs"		**"L-tone verbs"**	
dzi	'eat'	sì	'make, do'
tɔm	'send'	nùm	'take'
mana	'catch, hold'	fîna	'touch'
beeli	'escort'	mɔ̀ɔ̀ŋɔ	'return'

As seen in (18b), there is only a two-way distinction among verbs with respect to tone. We term the two classes "M-toned verbs" and "L-toned verbs", with the tone label referring to the underlying tone of the root. Important for our study, the inflectional particles under examination here may contribute a tone that associates to the prefix, root, suffix, or a combination of these. Throughout the verbal paradigm, M-toned verbs surface with M on the root almost without exception, as illustrated in (19a). L-tone verb roots, however, alternate between L and H tone, as shown in (19b).

(19) Illustration of inflectional tone

    a.   M root tone is stable   b. L root tone alternates with H

        m̲ana   'catch!'   f̲ina   'touch!'
        ba m̲ana   'they caught'   ba f̲ína 'they touched'

Therefore, since their root tone alternates, L-toned verbs better exemplify the full effect of the grammatical tone assignments operating in different parts of the inflectional paradigm.
    The table in (20) shows the prefix and stem surface tones found in each of the inflectional categories.

(20) Tonal marking of inflectional features on subject prefix and verb stem

	Prefix tone	Stem tone
Ø/P	m	H-m
H	m-l	L-l
I	h	L-l
N	(l) - ml	H-m
C	l	L-l

We begin with the prefix tone, illustrated (21).

(21) Examples of tonal realizations

	prefix	M root / L root
Ø	ba	mana / fína
P	ba	mann-i / fínn-i
H	ba nà-	manà / finà
I	bá	manà / finà
N	(bɛ̀) aà-	mana / fína
C	bà	manà / finà

We take the M tone of the subject prefix *ba* to be unmarked in the Ø, progressive, and habitual forms. We also consider the first part of the negative marker *aà* to carry this M tone. As seen in (22a), we analyze the irrealis as assigning a H morphological tone—or particle—to the subject prefix:

(22) H and L subject prefixes

    a.   Irrealis H subject prefix   : $[H]_I$ + ba   bá

b.   Consecutive L subject prefix   :   [L]$_C$ +   ba   bà

Similarly, in (22b), the consecutive assigns a L morphological tone to the subject prefix. As seen in (23), when a clause is both irrealis and consecutive, the effect is cumulative:

(23) Consecutive (C) marked by L(ow) tone on subject agreement marker *bà*

a. consecutive realis (L assigned to subject)

Ø = [M]   L
ba   númi ɛ   <u>bà</u>   nìì   bɛ̀ɛ́   'we gave it to children'
they   take it they-C   give children

b.   consecutive irrealis (L and H assigned to subject)

H   H+L = [M]
bá   nùm   ɛ   <u>ba</u>   nìì   bɛ̀ɛ́   'we will give it to children'
they-I take   it they-I-C   give children

In the realis in (23a), repeated from (11), no tone is assigned to the first *ba*, which is therefore realized as default M, but a L particle is assigned to the second *bà*. In (24b), the first *bá* receives the irrealis H tone, while the second *ba* receives both the irrealis H and the consecutive L features. The result is a fusion, whereby H+L is realized M, as indicated. On the basis of the subject prefix tone, we arrive at the partial hierarchy in (24):[8]

(24) Hierarchy for subject tone assignment

    C, I ≫   H, P, Ø

What this means is that the consecutive L and the irrealis H will override Habitual, Progressive, and Ø, all three of which have unmarked subject tone.
    We now consider stem tones, which are summarized in (25).

(25) Stem tones by aspect-mood-polarity-clause

	MCA	SRA	CCA	NEG
Ø/P	H-m	L-m	L-l	H-m
H	L-l	L-l	L-l	H-m
I	L-l	L-l	L-l	L-l
IH	L-l	L-l	L-l	L-l
Imperative		L-m	L-l	

MCA = main clause affirmative (non-subject relative clause = same as MCA)
SRA = subject relative clause affirmative
CCA = consecutive clause affirmative
NEG = all negatives (MCA, SRA, CCA etc.)

Recall that M verbs do not change their root tone, while the tone of L verb roots alternates with H. This is what is shown in upper case in (25)—followed by one of

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[8] The negative subject prefix has peculiarities of its own and will not concern us at this point.

two suffixal tones, low or mid (in lower case). We note the following generalizations in (26).

(26) Generalizations concerning stem tone, which will be:

    a.   L-l in both the Irrealis and Consecutive, across the board, as shaded in
    b.   H-M in the Negative in the absence of I
    c.   L-l in the Habitual, in the absence of Negative
    d.   H-m in MCA in the absence of H or I
    e.   L-m in the SRA and Imperative in the absence of H or I

Restated in terms of a hierarchy of tonal assignments, we get the following in (27).

(27) Stem tone-assignment hierarchy

    C, I ≫   N   ≫   H   ≫   MCA, SRA/Imper   (= Ø, P)

The above hierarchy is crucially established by the double outlined boxes in (25). As shown in (28), the Irrealis L-l pattern overrides the Negative H-m pattern, but the Negative H-m pattern overrides the Habitual L-l pattern.

(28) Irrealis   ≫   Negative   ≫   Habitual
      L-l   H-m   L-l

As indicated in (29), the Habitual L-l pattern, in turn, overrides the H-m pattern of the main clause affirmative and the L-m pattern of the subject relative affirmativeand imperative:

(29) Habitual   ≫   MCA,   SRA/Imper
      L-l   H-m   L-m

     When we combine (28) and (29) and bring in the consecutive, we get the hierarchy in (27). Since both the irrealis and the consecutive have L-l on the stem, it is impossible to tell from the surface forms which wins out between these two, so we assume that, as with the prefix tones, irrealis and consecutive are unranked with respect to each other in the stem tone override system. The same unranked relation holds of the bottom two inflectional features: main clause affirmative and the combined subject relative affirmative/imperative. Because of the unnatural class that this latter constitutes, our intuition is that the imperative is the default. While this would take us too far afield, our suspicion is that the H variant of L verbs is from a prefixal H tone that has been assigned to it, as indicated in (30):

(30) Possible origin of H root variant of L from proto *L and *H

    a.   default realizations: *L   > L , *H > M

    b.   *- [L   >   HL   >   H

    c.   *- [H   >   H   >   M

Our hypothesis in (30a) is that proto *L tone is realized L, while proto *H is realized M. However, as shown in (30b), when a floating H prefix, circled, preceded a L root tone, a HL falling tone was first produced, which was simplified to a H

tone. On the other hand, when the root was a H tone, as in (30c), the floating H and the root H simply fused as one H, realized M. If correct, we can interpret the H/L alternation of L tone verb roots as due to the presence vs. absence of a preceding floating H tone.

4.   Further complications

To summarize thus far, we have seen how the output realization of the inflectional P, H, I, N, and C particles are determined by a ranking that reflects the scope relations that hold between these elements. Before drawing our conclusion, we need to point out that we have presented the major, but not all of the possible aspectual and clause-type distinctions that can be made in Legbó.

Let us just consider one further form, which has particular interest. We have said all along that Legbó does not mark tense. There is one exception to this, which is the presence of an anterior past form, illustrated in (31), which is distinguished from the Ø perfective only in a main clause affirmative:

(31) Main clause affirmative Anterior "tense" distinguished by tone

    a.   ba fîna   'they have/had touched'   cf. ba fína 'they touched'
            ba fîn-azi   'they have/had touched-pl' (L-m)

    b.   ba màná   'they have/had caught'   cf. ba mana 'they caught'
            ba màn-ázi   'they have/had caught-pl' (L-hm)

In both negatives and non-main clauses, the perfect has the same realization as the perfective. As seen in (32a), if the proximate time reference is the time of speaking, the meaning will be present perfect. However, if the time reference is already in the past, the result will be an anterior past, as in (32b).[9]

(32)   Anterior past (to present or past time reference)

    a.   ba <u>bbǒ</u> `da   'they have already died'
            they die-A already

    b.   ba <u>bbǒ</u> `da   bèle m̀-bɔ̀lɔ̀ m̀-wèl   'they had already died before
            they die-A already before I-just   I-arrive   I arrived'

While this might represent a small corner where tense has an expression in Legbó, it is perhaps significant that it is relative anteriority that is being marked, not exact time reference. In other words, just as in the case P, H, I, N, C, the Anterior form does not explicitly indicate when the action took place with respect to the time of speaking. In any case, this restricted form is clearly low in the hierarchy, since it can only occur in the main clause affirmative.

A second, and last complication, we will consider concerns the perfective itself. Thus far we have implied that it is unmarked. In fact, as shown in (33a), many verbs, including all CVC roots, take an -i suffix in the perfective:

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[9]The tone pattern is also unique: the verb bbo& 'die' is a M verb. When we add the /-azi/ pluractional suffix, we obtain bbò-ózi 'die-pl', i.e. L-h-m. Compare this with the L verb, fîn-azi 'touch-pl', i.e. L-m-m. We know that the initial L is from a floating L- prefix, but we cannot at present explain the H.

(33) -i suffix in perfective

    a.   CVC   :   nùm 'take'   ba núm-i 'they took'
                          tòl 'pull'   ba tɔ́l-i 'they pulled'
    b.   CVCV :   bila   ba bila   'they climbed' (cf. P ba bidd-i)
                          mɔ̀ɔ̀ŋɔ   ba mɔ́ɔ́ŋɔ   'they returned' (cf. P ba mɔ́ŋŋ-i)
    c.   CV   :   dza   ba dza-i   'they are/were good'
                          nnà   ba nná   'they shine/shone'

When the verb already has a second vowel, as in (33b), the perfective does not have an -i suffix. Finally, when the verb has the shape CV, as in (33c), some take an -i suffix, while others don't. The data in (33b) suggest that in such verbs, the lexical second vowel, an -*a* suffix, overrides the spell-out of the Ø feature that we have called perfective. This contrasts with the progressive suffix -i, which, as shown in parentheses, replaces the second vowel of CVCV verbs. We note that the gerundive suffix -ɛ̀ has the same distributional property as perfective -i, but we leave this to further study.

4.   Conclusion

In the preceding sections we have presented an analysis of the underlying features of the aspect-mood-polarity system of Legbó as well as their morphological and phonological realizations. We have seen that the posited inflectional particles are ranked in one of two hiearchies in (34):

(34)   Hierarchies determining verb inflection marking

    a.   Tonal properties

        C, I >>   N >>   H   >>   P, Ø

    b.   Segmental properties

        P >> Ø

The hierarchy in (34a) determines morphological tone assignment, while the hierarchy in (34b) is responsible for the one segmental overwriting that we saw in the progressive. The significance of these findings is as follows: Much of the work concerning complex inflectional morphology has addressed issues that arise in concatenation. Whether citing Bybee's (1985) semantic notion of "relevance" or Baker's (1985) syntactic "mirror principle", it is easy to cite examples where the linear ordering of concatenated affixes reproduces inherent scope relations. Basically, outer affixes have scope over inner affixes.

On the other hand, but still dealing with concatenative morphology, Anderson (1986) has been concerned with cases where more than one affix vies for the same "slot." In this case it has to be determined which affix wins out. Anderson's proposal is to establish "disjunctive rule blocks", but the same kind of hierarchy that we have proposed in (34a) will essentially do the same trick.

What Legbó and many other African tone languages show is that in addition to segmental affix ordering and segmental affix disjunction, non-concatenative spell-outs, especially via prosodic features such as tone, also show the same hierarchical, scope effects. While many authors show verb tone patterns in tabular displays, only some have attempted to order or rank morphological spell-outs in a systematic

manner (see, for example, Hyman & Byarushengo 1984 for Haya; Hyman & Olawsky, in press, for Dagbani). This is a rich area for future comparative work on the use of tone in morphology and for typological research on the semantics and morphology of inflectional morphology in general.

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