Vowel Harmony in Mbili Verbs

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Abstract

This paper investigates Vowel Harmony (VH) in the verbs of Mbili, a Grassfield Bantu Language spoken in the North West province of Cameroon. I show that the vowel harmony in both the root and derived verbs can be analyzed in a simple and straightforward way by using concepts of prosodic phonology. I argue that there are only three vowels in the underlying representation, which are the central low vowel, the central high vowel and the schwa. There is a separate tier where all the vowel features cumulate at the beginning of the root. Vowel features spread within metrical foot from left to right. When the central low vowel and the schwa are within the metrical foot, they get the vowel features, otherwise they surface as the central low vowel or the schwa. In contrast, the central high vowel resists vowel harmony.

Vowel Harmony in Mbili Verbs

Zenghong Jia*

1 Introduction

This paper investigates vowel harmony in verbs of Mbili, a Grassfield Bantu language spoken in the North West province of Cameroon. I show that the vowel harmony process can be analyzed in a simple and straightforward way by using concepts of prosodic phonology.

Vowel Harmony in Mbili verbs refers to the complete assimilation of vowel features in both the roots and derived forms. I argue that there are only three vowels in the underlying representation, which are /a, ɨ, ə/. There is a separate tier where all the vowel features cumulate at the beginning of the root. Vowel features spread within a metrical foot from left to right. When /a/ and /ə/ are within the metrical foot, they get the vowel features; otherwise, they surface as /a/ and /ə/. The central high vowel resists vowel harmony and always surfaces as /ɨ/.

This paper is organized as follows. Section 2 provides a brief overview of the morphology of Mbili verbs. I will show that there are only a small number of bound affixes, such as the diminutive /-dɨ/, agentive(causative) /-sɨ/. Free morphemes are used in most cases with verb roots to mark tense, aspect, etc. Section 3 introduces vowel harmony in Mbili verb roots. I will show what seems at first glance to be random can be analyzed in a simple and straightforward way by using concepts of prosodic phonology. Section 4 provides analyses of the different cases of vowel harmony. Section 5 is a conclusion.

2 Morphology of Mbili Verbs

In order to understand vowel harmony in Mbili verbs, it is necessary to first have a brief overview of the verbal morphology in Mbili. I will introduce the roots and derived forms based on the book *A Reference Grammar of Mbili* (Ayuninjam, 1998). I will show that Mbili verbs are not rich in morphology. There are just a small number of bound morphemes, such as nominalizers, diminutives, present progressive marker, etc. There is no inflection for person, number or gender. I will first talk about the derivational and inflectional morphemes. The derivational morphemes consist of two types: nominalizers which are prefixes deriving nouns from verbs; and suffixes deriving verbs from verbs, such as diminutive, agentive/causative and reciprocity/reflexivity. Then I will present the roots which are the majority of verb forms found in Mbili sentences. Free morphemes are used to mark tense, aspect, etc.

2.1 Derivational morphemes

There two groups of derivational morphemes. The first group consists of nominalizers deriving nouns from verbs; the second group consists of the diminutives, agentive/causative and reflexivity/reciprocity suffixes deriving verbs from verbs. The following are some examples of nominalizers.[1]

(1) Neutral nominalizers: /ɳ-/nɨ-/mɨ-/a-/ ɨ-/

a. /šuː/ 'wash' → [ɳšuː] 'washer'
b. /ǰwí/ 'give birth to' → [nɨǰwí] 'birth'
c. /ɤaʔ/ 'play' → [mɨɤaʔ] 'play'
d. /giiʔ/ 'publicize' → [agiʔ] 'publicity'
e. /žɨgɨ/ 'steal' → [ɨzɨgɨ] 'thief'

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[1] All the examples in this paper are cited from Ayuninjam (1998).

(2) Negative nominalizer: /dɨ-/

a. /giɤ/ 'speak' → [dɨgiɤ] 'muteness'

Nominalizers in Mbili are all prefixes which change verbs into nouns. The neutral nominalizers have five variants, the choice of which is semantically, instead of phonologically, determined. For example, the syllabic nasal prefix /n̩-/ is always used to derive nouns of function and occupation, such as 'teacher', 'builder' and 'washer'. The prefix /nɨ-/ is generally used to derive abstract nouns, like 'birth'. There is one negative nominalizer / dɨ-/ which changes the verbs into nouns of the opposite meaning.

The second type of derivational morphemes, which changes only the meaning of the root but not the category, consists of the suffixes for diminutive, agentive/causative and reciprocity/reflexivity. Some of the examples are shown in (3-5).

(3) Diminutive: /-dɨ/

a. /wɛ/ 'laugh' → [wɛdɨ] 'smile'

(4) Agentive/Causative: /-šɨ/

a. /nɔŋ/ 'lie' → [nɔŋšɨ] 'lay'
b. /kwén/ 'come in' → [kwénšɨ] 'bring in'

(5) Reciprocity/Reflexivity: /-nɨ/

a. /túgú/ 'fight' → [túgúnɨ] 'fight one another'
b. /šá/ 'chide' → [šánɨ] 'quarrel'

2.2 Inflectional morphemes

The inflectional morphemes are even fewer in number, including the suffixes for the present progressive, the iterative aspect and the infinitives. They are summarized in (6-8).

(6) Present progressive: -V

a. /bɔːnɨ/ 'hang'→ [bɔːnə] 'is hanging'
b. /búʔ/ beats → [búʔú] 'is/are beating'

(7) Iterative aspect: /-dɨ/-gɨ/-nɨ/-lɨ/

a. /mbvɛ/ 'build' → [mbvɛ-gɨ] 'build-ITER'

(8) Infinitive: /fə/ /-nɨ/

a. /taŋ-nɨ/ 'deny' → [fə taŋ-nɨ] 'to deny'

The present progressive morpheme is a vowel suffix which surfaces either as a schwa as in the example of /bɔːnɨ/ 'hang'→ [bɔːnə] 'is hanging', or it might surface as the same vowel in the root, as shown in the example of /búʔ/ 'beats' → [búʔú] 'is/are beating'.

There are four variants for the suffixes of iterative aspect, namely /-dɨ/-gɨ/-nɨ/-lɨ/, which indicate the repetition of a certain action. The choice of them is semantically determined instead of phonologically.

The infinitives have two morphemes. One is a bound suffix /-nɨ/, and the other is a free morpheme /fə/. For example, to derive the non-finite forms of 'deny', the suffix /-nɨ/ is attached to the root and the free morpheme /fə/ appears in the front.

As is shown above, Mbili verbs do not have rich morphology. There is no agreement for person, number and gender. Subjects have to be overtly spelt out. For different tenses/aspects, like past, future and perfective, different markers are needed, which are free morphemes.

In the next subsection, I present the verb roots which consists of the majority of verb forms found in Mbili sentences.

2.3 Verb Roots

Mbili verb roots can be divided into three types based on their syllable types: monosyllabic, disyllabic and trisyllabic. The syllable types of monosyllabic verb roots are CV, CCV, CVC and CV: , as shown in (9).

(9) Monosyllabic verb roots

a. CV	e.g. gə	'go'
b. C:V	e.g kkú	'shave'
c. CV:	e.g. bɔː	'fear'
d. CVV	e.g. kuó	'catch'
e. C_1C_2V	e.g. kri	'shuck'
f. CVC	e.g. kúŋ	'float'

The syllable types of disyllabic verb roots are CVCV, CVCCV and CV:CV, as shown in (10).

(10) Disyllabic verb roots

a. CVCV	e.g. fégé	'hold tightly'
b. CVCCV	e.g. kwaʔdə	'think'
c. CV:CV	e.g. tse:nɨ	'sneeze'

There are also a small number of trisyllabic verb roots, which uniformly have the syllable structure of CVCVCV, for example [bɛgɛnə] 'attack verbally'.

In the following section, I will first present the phenomenon of Vowel Harmony in verbs of Mbili. At first glance, vowel features in Mbili verbs are random: some disyllabic verbs show harmony and some do not; partial harmony is found in trisyllabic verbs. I will then propose an analysis based on prosodic phonology and show how the superficial randomness of vowel features and the peculiarity of the surface forms of the present progressive suffix can be accounted for in a simple and straightforward way.

3 Vowel Harmony in Mbili Verbs

Vowel harmony in Mbili verbs refers to complete assimilation of vowel features in both the bare and derived verb forms. Some examples are shown in (11-12).

(11) **f**e**f**e 'hold tightly'
t**i**g**i** 'select'
lwəgə 'lap'
l**u**g**u** 'beat'

(12) b**ɛ**g**ɛ**nə 'attack'
tw**ɛ**g**ɛ**də 'mix'
l**a**b**a**lə 'connive'
bəgənə 'be crazy'

(11) shows examples of vowel harmony in disyllabic verbs. Both of the vowels in the root get the same vowel features. (12) provides examples of partial harmony of trisyllabic verbs: only the first two syllables surface with the same vowel features and the third vowel surfaces uniformly as a schwa.

There is also a group of disyllabic verbs that do not show vowel harmony, as shown in (13-14).

(13) kwaʔdə 'think'
tse:nɨ 'sneeze'
bilə 'perforate'
binə 'ask'

(14) wɛ-dɨ 'smile'
túgú-nɨ 'fight with each other'

bɔːn-ə ‘is hanging’

The disharmonious verbs can be either the root (13), or derived forms (14). The dimunitive and reflexivity suffixes /dɨ-/ and /nɨ-/ do not get the vowel features of the root, nor do the other derivational or inflectional suffixes, such as the various forms of nominalizers, the iterative suffixes and the infinitives. Quite unexpectedly, the vowel suffix for the present progressive exhibits some peculiarity: it resists vowel assimilation in cases like /bɔːnɨ + V/ → [bɔːnə] ‘is hanging’; for some other forms, complement vowel harmony does surface, as in /búʔ + V/ → [búʔú] ‘is/are beating’.

In the following section, I show that the vowel harmony crucially refers to the prosodic constituency of the root and a specific property of resisting vowel harmony of the central high vowel [ɨ]. I will also show that the peculiar behavior of the present progressive suffix can be explained under the proposal.

4 Analysis

My proposal consists of two aspects, subsumed in (15).

(15) a. Vowel features cumulate at the beginning of the roots, which gives rise to Vowel Harmony if the following syllable is grouped into the same metrical foot.
b. The domain of vowel feature spreading is limited to the metrical foot which is iambic grouping from left to right.

It is also crucial to my analysis that there are only three vowels in the underlying representation, which are the central high vowel [ɨ], the schwa [ə] and the back low vowel [a]. The vowel features cumulate at the beginning of the root on a different tier. The central high vowel [ɨ] resists vowel harmony, while the schwa and [a] get assimilated only when they are in the metrical foot. In the following sections, I will show that, under this proposal, each of the peculiar aspects of vowel features in Mbili verbs can be accounted for in a simple and straightforward way.

4.1 Disyllabics

As is shown in section 3, disyllabics fall into two groups with regard to vowel harmony. Some show complete assimilation of vowel features, such as [fege] ‘hold tightly’, [tigi] ‘select’, [lwəgə] ‘lap’ and [lugu] ‘beat’. In contrast, some do not exhibit vowel harmony at all, such as [kwaʔdə] ‘think’, [tseːnɨ] ‘sneeze’, [wɛdɨ] ‘smile’ and [bɔːnə] ‘is hanging’.

The contrast can be explained if vowel feature spreading is restricted to the metrical foot and, as a result, syllables outside the metrical foot cannot get the vowel features. There are two possible ways for a syllable to be outside of the foot: (i) it is a prefix which cannot participate in the left-right grouping started from the first syllable of the root; (ii) iambic foot grouping prevents a heavy syllable from grouping with a following light syllable into the same foot, e.g. *(HL). In the later case, a heavy syllable forms a degenerate foot on its own so that the following light syllable cannot get vowel features from spreading. I show that all the harmonious disyllabics have the Light-Light metrical foot structure, which enables the two syllables to form one metrical foot so that the second gets the vowel features from spreading. As has been mentioned before, the vowel features all cumulate at the beginning of the root. A linking rule links them to the first vowel in the root. Another rule of spreading then spreads the vowel features to the syllable in the same root. The derivation of [tigi] ‘select’ is shown in (16).

(16) Derivation of [tigi] ‘to select’

UR	/tə gə/ [+hi, -back, -mid, -long]
Linking	ti gə | [+hi, -back, -mid, -long]
Iambic Grouping	(ti gə) | [+hi, -back, -mid, -long]
Spreading	(ti gi) | [+hi, -back, -mid, -long]
SR	[tigi]

The disharmonious verbs either have a prefix that cannot get vowel feature from spreading, such as [a-giʔ] ‘publicity’ and [dɨ-giʔ] ‘muteness’. In both cases, the prefixal vowel cannot be grouped into the metrical foot because it comes to the left of the root and vowel feature spreads from left to right starting from the first syllable of the root.

Other disharmonious verb roots include a final schwa, such as in [kwaʔdə] ‘think’ and [tseːnɨ] ‘sneeze’. Verbs like these have a heavy syllable followed by a light syllable. As iambic footing does not allow (HL), the light syllable cannot be grouped into the same syllable with the heavy, so vowel feature spreading does not apply. Another reason preventing the second vowel of [tseːnɨ] from getting the vowel feature of the first syllable is that it is underlyingly [ɨ] which resists Vowel Harmony. More examples are shown in (17).

(17) a. [lɨʔdə] ‘dispute’
b. [mɛʔdə] ‘leave’
c. [hɔːšə] ‘express doubt’

As have been shown, the various derivational/inflectional suffixes do not exhibit vowel harmony either. The examples are repeated in the below.

(18) Derivational suffixes
a. Diminutive: /-dɨ/
i. /wɛ/ ‘laugh’ → [wɛ-dɨ] ‘simile’
b. Agentive/Causative: /-šɨ/
i. /nɔŋ/ ‘lie’ → [nɔŋ-šɨ] ‘lay’
ii. /kwén/ ‘come in’ → [kwén-šɨ] ‘bring in’
c. Reciprocity/Reflexivity: /-nɨ/
i. /túgú/ ‘fight’ → [túgú-nɨ] ‘fight one another’
ii. /šá/ ‘chide’ → [šá-nɨ] ‘quarrel’

(19) Inflectional suffixes
a. Iterative aspect: /-dɨ/-gɨ/-nɨ/-lɨ/
i. /mbvɛ/ ‘build’ → [mbvɛ-gɨ] ‘build-ITER’
b. Infinitive: /fə/ /-nɨ/
i. /taŋ-nɨ/ ‘deny’ → [fə taŋ-nɨ] ‘to deny’

These suffixes all have the central high vowel [ɨ] which resists vowel feature spreading. There are also some disharmonious roots, whose second syllable can be grouped into the metrical foot with the first but still surfaces as the schwa, such as [bilə] 'perforate' and [binə] 'ask'. I assume there is some intrinsic property of the last syllable that makes them degenerate.

4.2 The Present progressive

Under the current proposal, the peculiarity of the present progressive suffixes is also accounted for. Assuming that the present progressive suffix is underlyingly a schwa, when it is attached to a light root syllable, it can form a metrical constituent with it and get the vowel feature from spreading, as in /búʔ+ə/ → [búʔú] 'is/are beating'; otherwise, such as when the root vowel is a heavy, it surfaces as the underlying schwa, as shown in /bɔːnɨ+V/ → [bɔːnə] 'is hanging'. In this case, the root ends in a vowel which gets deleted because of a prohibition of vowel hiatus. The derivations of the two forms are shown in (20) and (21).

(20) Derivation of /búʔ+ə/ → [búʔú] 'is/are beating'
(21) Derivation of /bɔːnɨ +V/ → [bɔːnə] 'is hanging'

	(20)	(21)
UR	/bəʔ + ə/ [+hi, +back, -mid]	/bənɨ +ə/ [−hi, +back, +mid, +long]
V-Deletion	−	bən + ə [−hi, +back, +mid, +long]
Linking	buʔ + ə | [+hi, +back, -mid]	bɔːn + ə | [−hi, +back, +mid, +long]
Iambic Grouping	(buʔə) | [+hi, +back, -mid]	(bɔːn)(ə) | [−hi, +back, +mid, +long]
Spreading	(buʔu) ⌊⟋ [+hi, +back, -mid]	−
SR	[buʔu]	[bɔːnə]

4.3 Trisyllabics

The proposal is corroborated by the trisyllabic verbs, all of which have the syllable type CVCVCV. The first two syllables can be grouped into a single metrical foot, leaving the third syllable unparsed: (CVCV)(CV). Vowel harmony applies to the foot constituent but not to the last syllable, which correctly gives rise to the following forms.

(22) [bɛgɛnə] 'attack'
[twɛgɛdə] 'mix'
[žɨgɨlə] 'make a buzzing noise'
[šagalə] 'swagger'
[labalə] 'connive'
[bɔbɔlə] 'be whimsical'

[bəgənə] ‘be crazy’
[tuguni] ‘fight’
[k^{w}ibilə] ‘change’[2]

The disharmonious vowels are either a schwa or a central high vowel. Those at the end of the words do not get the vowel harmony features because they do not group into the same metrical foot with the first two syllables. For the last word in (22), [kwibilə] ‘change’ has a central high vowel in the second syllable because it resists vowel harmony.

5 Conclusion

I have shown that vowel harmony in Mbili is prosody-based. Vowel features cumulate at the beginning of the word, and the domain of vowel feature spreading is the first metrical foot of the root. The metrical constituency is the canonical iambic foot from left to right. There are only three possibilities of underlying vowel values, which are /a, i, ə/.[3] The central high vowel /i/ resists vowel feature spreading even if it is grouped into the same foot with the first syllable of the root. The other two underlying vowels, /a/ and /ə/, can get vowel features if grouped into the same foot with the root. Under this proposal, the asymmetry between disyllabic and trisyllabic verbs, and the peculiarity of the present progressive suffix are accounted for.

However, there are some remaining issues. For example, I have grouped the iambic metrical foot into (LL), while the canonical iambic feet are (LH). One possible reason is that Mbili does not have the syllable type CVCVC or CVCV: (a light syllable followed by a heavy). As a result, the language resorts to the second best choice, which is (LL). The second problem is the lack of data. Mbili is an underdescribed language and Grassfield Bantu is one of the least studied Bantu langauges. My data source is limited to a single book. In deciding whether the prefixal vowel /a/ in [agiʔ] ‘publicity’ patterns with [ə] or the resistant [i], I have treated it as standing out of the metrical foot which prevents its from getting the vowel feature. But it could also be that it resists vowel harmony (just as the central high vowel). Because of the lack of data, it is not known which is the case.

References

Ayuninjam, Funwi F. 1998. *A Reference Grammar of Mbili*. Lanham, New York, Oxford: University Press of America.

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[2]The word is written as [kwibilə] in my reference source. I assume the [w] following the first consonant is a secondary feature of rounding.

[3]There is only one example that involves [a]: /giiʔ/ ‘publicize’ → [agiʔ] ‘publicity’. Since this is the only example, it is impossible to determine the property of /a/. I will just assume it has the same status as /ə/, which can be assimilated if grouped into the same metrical foot.