Two Bantu augment morphemes or one: Evidence from Bulu

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8th World Congress of African Linguistics
21 August 2015
We would like to thank Larry Hyman, Peter Jenks, and Sharon Inkelas for helpful discussion and feedback. We also appreciate the financial support of the UC Berkeley Department of Linguistics, the OSU Department of Linguistics, and the OSU College of Arts and Sciences. The greatest debt of gratitude is owed to our Bulu consultant whose knowledge, patience, and willingness make this project possible. All errors are ours alone.
Background on Bulu

- Bantu (A.74)
- Cameroon
- 800,000 speakers (Lewis et al., 2013)
- Original fieldwork in Columbus, OH: January 2013-present
The Bantu augment: Background

The Bantu augment:

- is also called the “initial vowel” or “pre-prefix” (Maho, 1999)
- is present only in a subset of Bantu languages (Maho, 1999)
- varies in form and function from language to language (de Blois, 1970)
- typically has more than one morphophonological realization in a given language; the version realized often depends on noun class (de Blois, 1970)
Not all morphemes that have typically been classified as the “augment” may actually be reflexes of the Proto-Bantu augment morpheme (Van de Velde, in press).

The augment in Eton and other A70 Bantu languages may have arisen from a different set of historical developments.

Can evidence from Bulu shed light on this question?
Alexandre’s (1970) characterization of the Bulu “augment”

2 forms:

- segmental ([ɨ-]): nouns with class prefixes of the form /∅-/ or /C-/  

(1) b-ôt  
   CL₂-person  
   ‘people’  

(1’) ô-b-ôt  
   AUG-CL₂-person  
   ‘people’

- tonal ([ˈ]): nouns with class prefixes of the form /V-/ or /CV-/

(2) bì-tétáṃ  
   CL₈-okra  
   ‘okra (pl.)’  

(2’) bí-tétáṃ  
   AUG.CL₈-okra  
   ‘okra (pl.)’
Contra de Blois (1970), the realization of the Bulu “augment” is phonologically conditioned rather than showing merely class-based allomorphy.
\[ \text{acceptable only with salient contextual alternatives} \]

(7) a. \textit{Context: There are several types/dishes of kpem in your house.}
\[ \text{mà dʒi' \{á-Ø-\text{kpèm}/#Ø-\text{kpèm}\} ñí-ná} \]
\[ \text{1S eat AUG-CL\textsubscript{9}-kpem/CL\textsubscript{9}-kpem AGR\textsubscript{9}-DEM} \]
\textquoteleft I am eating this kpem.'

b. \textit{Context: There is one type/dish of kpem in your house.}
\[ \text{mà dʒi' \{#á-Ø-\text{kpèm}/Ø-\text{kpèm}\} ñí-ná} \]
\[ \text{1S eat AUG-CL\textsubscript{9}-kpem/CL\textsubscript{9}-kpem AGR\textsubscript{9}-DEM} \]
\textquoteleft I am eating this kpem.'

(see Barlew and Clem 2014 for discussion)
A problematic contrast

[¹] obligatory regardless of contextual alternatives

(8)  a. Context: There are several kinds/pods of okra in your house.
    mà dʒí {é-tétám/#è-tétám} dʒí-ná
    1s eat AUG.CL7-okra/CL7-okra AGR7-DEM
    ‘I am eating this pod of okra.’

b. Context: There is one pod of okra in your house.
    mà dʒí {é-tétám/#è-tétám} dʒí-ná
    1s eat AUG.CL7-okra/CL7-okra AGR7-DEM
    ‘I am eating this pod of okra.’

Clem and Barlew (UC Berkeley & OSU) Bulu augment WOCAL8 9 / 27
The puzzle

Why does [á] but not [´] appear to have semantic content related to salient alternatives?

Why does [´] but not [á] appear to be grammatically obligatory?
Research questions

Are [ə] and [ˈ] allomorphs of a single augment morpheme or are they distinct morphemes?

What semantic, syntactic, and morphophonological factors lead to the distribution in (7) and (8)?
Our argument

- Bulu has two “augment-like” morphemes: /á/ and /´/
- Each morpheme is conditioned by distinct syntactic and semantic factors
- Morphophonological constraints limit the distribution of these morphemes, so that:
  - on nouns with ∅- or C- class prefixes, /´/ is realized as [∅], and
  - on nouns with V- or CV- class prefixes, /á/ is realized as [´].
Both /é/ (glossed “ə”) and /´/ (glossed “ɪ”) can occur on nouns combined with any of the following constituents (Alexandre, 1970):

Note: /é/ examples were elicited in contexts with salient alternatives; /´/ examples were elicited in contexts without such alternatives.

Subject relative clause

(9) mà kómbò lúk  ámb-ìngá  à bìlí bó-nàk
1s want to.marry ámb-CL1-woman SUB1 own CL2-cow
‘I want to marry a woman who has cows.’

(10) ó-sáñ  wó ká tàtè sò  wó bè  èmbíjà  à-bàŋ
H.CL11-squirrel SUB11 PST start come SUB11 COP.PST very CL5-pretty
‘The squirrel, which came down first, was very pretty.’
Both /á/ (glossed “ə”) and /’/ (glossed “h”) can occur on nouns combined with any of the following constituents (Alexandre, 1970):

*Note: /á/ examples were elicited in contexts with salient alternatives; /’/ examples were elicited in contexts without such alternatives.*

**Object relative clause**

(11)  ámb-₀-kpèm mà kò tʃ di ili á sò ámb-kàmèrùn
 ámb-CL₀-kpem 1S PST eat SUB₉ PRES come LOC-Cameroon

‘The kpem that I ate comes from Cameroon.’

(12) ámb-tétám mà kò tʃ di bì ili á sò ámb-kàmèrùn
 ámb.CL₈-okra 1S PST eat SUB₈ PRES come LOC-Cameroon

‘The okra that I ate comes from Cameroon.’
Syntactic distribution of /é/ and /´/

- Both /é/ (glossed “ǝ”) and /´/ (glossed “H”) can occur on nouns combined with any of the following constituents (Alexandre, 1970):
  
  *Note: /é/ examples were elicited in contexts with salient alternatives; /´/ examples were elicited in contexts without such alternatives.*

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**Demonstrative**

(13) mà dʒí ó-∅-kpɔm ṃí-ná
    1s  eat ǝ-CL9-kpem AGR9-DEM
    ‘I am eating this kpem.’

(14) ó-sán ñwó-ná ó nè èmbíjà à-bàŋ
    H.CL11-squirrel AGR11-DEM SUB11 COP very  CL5-pretty
    ‘This squirrel is very pretty.’
Syntactic distribution of /é/ and /’/

Both /é/ (glossed “ə”) and /´/ (glossed “IPA”) can occur on nouns combined with any of the following constituents (Alexandre, 1970):

Note: /é/ examples were elicited in contexts with salient alternatives; /´/ examples were elicited in contexts without such alternatives.

Possessive

(15) ə-dz-ôe d-è dá bè èmbíjà à-bàŋ
     ə-CL5-name AGR5-3S.POSS SUB5 COP.PST very CL5-good
     ‘Her name was very good.’

(16) ó-sán w-âm ó nè èmbíjà à-bàŋ
     H.CL11-squirrel AGR11-1S.POSS SUB11 COP very CL5-pretty
     ‘My squirrel is very pretty.’
Syntactic distribution of /á/ and /´/ 

- Both /á/ (glossed “ə”) and /´/ (glossed “h”) can occur on nouns combined with any of the following constituents (Alexandre, 1970):

  Note: /á/ examples were elicited in contexts with salient alternatives;
  /´/ examples were elicited in contexts without such alternatives.

Genitive

(17) ó-d-ís m-òt tè í nè à-bài
ə-CL5-eye CL1-man DEF SUB5 COP CL5-pretty
‘The eye of the man is pretty.’

(18) ó-sán ábòndò ó nè èmbíjà à-bài
H.CL11-squirrel Abondo SUB11 COP very CL5-pretty
‘Abondo’s squirrel is very pretty.’
Syntactic distribution of /é/ and '/'

- /é/ can additionally occur with ordinals and with the morpheme -bók ‘other’

**Ordinal**

(19) ó-Ø-tít ó-sú è mbó Ø-kóí
ą-CL₉-animal AGR₉-first SUB₉ cop.pst CL₉-monkey
‘The first animal was a monkey.’

**-bók ‘other’**

(20) ó-d-ís é-vòk í nè nàlà
ą-CL₅-eye AGR₅-other SUB₅ COP okay
‘The other eye is so-so.’

- Examples including ordinals and -bók ‘other’ but not contextually salient alternatives have yet to be gathered.
Both morphemes are unacceptable on bare nouns with no post-nominal constituent:

**(21)** (*ó-*)∅-fâm è mbó é bèʔè é-fùmùlù é-sì
ə-CL₉-man SUB₉ COP.PST SUB₉ wear CL₇-white CL₇-hair

‘The man had white hair.’

**(22)** {*bí-tétám/bì-tétám} bí nè à-bàŋ
d{H.CL₈-okra/CL₈-okra} SUB₈ COP CL₅-good

‘The okra is good.’
The Bulu /´/ morpheme

Generalization:

- /´/ occurs as a general syntactic marker for nouns combined with an element from the set of relevant constituents

Hypothesis:

- /´/ makes a N+modifier combination accessible to the rest of the syntax
  - Both NPs and DPs are arguments in Bulu (see Chierchia (1998)).
  - Bare nouns are NPs. Therefore, they can be arguments.
  - When one of the set of relevant constituents composes with an NP, the resulting XP is no longer an NP, and therefore also no longer argumental.

- /´/ is a Determiner head which licenses an XP with surface structure N+modifier to form a DP argument
Phonological constraints on /´/

- A highly ranked faithfulness constraint which preserves root tones prevents /´/ from being realized on root vowels
- The constraint preserving affix tones is ranked below this constraint
- This follows the cross-linguistic tendency of the constraint ranking Root-Faith >> Affix-Faith
- This constraint ranking has the effect of blocking the realization of /´/ on C- and ∅- prefixed nouns
Evidence for Root-Faith >> Affix-Faith

- Additional evidence for the constraint ranking that preserves root tones comes from the interaction of verb and direct object (DO) tone.
- There is a phonological process in Bulu by which the initial tone of the DO noun changes to match the final tone of the verb (Clem, 2014).
- When the tone that would be affected is a root tone rather than an affix tone, the DO tone does not change.

Verb and DO tone interaction

(23) ò-fùmbí
     CL₁₁-orange
     ‘orange’

(24) mà dʒí ó-fùmbí
     1s eat CL₁₁-orange
     ‘I am eating an orange.’

(25) m-ìŋgá
     CL₁-woman
     ‘woman’

(26) ø-zoi 介入 dʒí m-ìŋgá
     CL₉-wolf SUB₉ PRES eat CL₁-woman
     ‘The wolf is eating the woman.’
Neutralization with /ˈ/

- Due to the ranking of faithfulness constraints, the contrast between bare nouns and /ˈ/ is neutralized for C- and Ø- prefixed nouns

(27) Context: There is one type/dish of kpem in your house.

a. mà dʒí Ø-ŋpəm
   1s eat CL₉-kpem
   ‘I am eating kpem.’

b. mà-dʒí Ø-ŋpəm ñí-ná
   1s-eat H.CL₉-kpem AGR₉-DEM
   ‘I am eating this kpem.’
The Bulu /ʼ/ morpheme

- /ʼ/ can also be analyzed as a type of D head
- This morpheme is conditioned by additional semantic factors
- Specifically, it encodes a contrast between the individual denoted by an NP and a contextually relevant set of alternatives

(28)  
a.  **Context:** There are several types/dishes of kpem in your house.
   màn-dʒi #(ʼ-)∅-kpêm ṣí-ná
   1S-eat  ṣ-CL₉-kpem  AGR₉-DEM
   ‘I am eating this kpem.’

b.  **Context:** There is one type/dish of kpem in your house.
   màn-dʒi (#ʼ-)∅-kpêm ṣí-ná
   1S-eat  ṣ-CL₉-kpem  AGR₉-DEM
   ‘I am eating this kpem.’
Morphophonological constraints on /á/

- Nouns stems may only have one prefix in Bulu, preventing /á/ from attaching to V- and CV- prefixed nouns.
- Instead, the morpheme is realized as a high tone on the class prefix.
- In contrast, C- prefixes form part of the stem, allowing /á/ to attach to these nouns, in addition to nouns without an overt prefix.
  - Similar phenomena have been described in the verbal and nominal domains for other Bantu languages (see Marlo 2014 for discussion).
  - Evidence for this process in Bulu comes from a process of reduplication.

### Noun reduplication (Bates, 1926)

<table>
<thead>
<tr>
<th>BASE FORM</th>
<th>GLOSS</th>
<th>REDUPLICATED FORM</th>
<th>GLOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>kum</td>
<td>‘being head man’</td>
<td>nkukum</td>
<td>‘head man’</td>
</tr>
<tr>
<td>mvuk</td>
<td>‘being dumb’</td>
<td>mvumvuk</td>
<td>‘dumb person’</td>
</tr>
<tr>
<td>atyeñ</td>
<td>‘being skilled’</td>
<td>ntyetyeñ</td>
<td>‘skilled person’</td>
</tr>
</tbody>
</table>

(29)
Neutralization with /é/

- Due to the constraint on the number of prefixes, the contrast between /é/ and /é/ is neutralized for V- and CV- prefixed nouns

(30)  

a. **Context: There are several kinds/pods of okra in your house.**

   mà dʒí é-tétám dʒí-ná
   1S eat ə.CL7-oker AGR7-DEM

   ‘I am eating this pod of okra.’

b. **Context: There is one pod of okra in your house.**

   mà dʒí é-tétám dʒí-ná
   1S eat H.CL7-oker AGR7-DEM

   ‘I am eating this pod of okra.’
Conclusion

- Bulu has two “augment-like” morphemes with
  - similar syntactic distributions and functions,
  - distinct semantic content, and
  - distinct phonological forms

- Independently motivated language-specific morphophonological constraints make it appear as though these two morphemes are allomorphs of a single “augment” morpheme

- This analysis
  - accounts for divergences between generalizations about reflexes of the Proto-Bantu augment, such as de Blois’, and the Bulu data
  - supports van de Velde’s (in press) hypothesis that purported reflexes of the proto-Bantu augment may actually have different historical antecedents in some Bantu languages
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