Two Bantu augment morphemes or one: Evidence from Bulu

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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)

Minority report

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

(1)	b-òt	(1′)	ə́-b-òt
	CL2-person		AUG-CL2-person
	'people'		'people'

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

(2)	bì-tétám	(2′)	bí-tétám
	CL8-okra		AUG.CL8-okra
	'okra (pl.)'		'okra (pl.)'

Phonologically determined form

- Contra de Blois (1970), the realization of the Bulu "augment" is phonologically conditioned rather than showing merely class-based allomorphy

Phonological conditioning (Alexandre, 1970)

- Class 2

(3) ə́-b-ìŋgá
     AUG-CL2-woman
     'women'

(4) bé-jál
     AUG.CL2-wife
     'wives'

- Class 5

(5) ə́-d-ìs
     AUG-CL5-eye
     'eye'

(6) á-lú
     AUG.CL5-night
     'night'

A problematic contrast

[ɔ́] acceptable only with salient contextual alternatives

(7) a. *Context: There are several types/dishes of kpem in your house.*
    mà dʒí {ɔ́-∅-k͡pə̀m/#∅-k͡pə̀m}   ɲí-ná
    1S eat AUG-CL9-kpem/CL9-kpem AGR9-DEM
    'I am eating this kpem.'

    b. *Context: There is one type/dish of kpem in your house.*
    mà dʒí {#ɔ́-∅-k͡pə̀m/∅-k͡pə̀m}   ɲí-ná
    1S eat AUG-CL9-kpem/CL9-kpem AGR9-DEM
    'I am eating this kpem.'

(see Barlew and Clem 2014 for discussion)

A problematic contrast

[´] 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.'

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

Why does [´] but not [ə́] appear to be grammatically obligatory?

Are [ə́] and [´] 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: /ə́/ 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, /ə́/ is realized as [´].

Syntactic distribution of /ə́/ and /´/

- Both /ə́/ (glossed "ə") and /´/ (glossed "H") can occur on nouns combined with any of the following constituents (Alexandre, 1970):

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

Subject relative clause

(9) mà kɔ́mbò lúk   ə́-m-ìngá   à   bìlí bə́-ɲàk
1S want   to.marry ə-CL1-woman SUB1 own CL2-cow
'I want to marry a woman who has cows.'

(10) ó-sʌ́n   wɔ́ kə́ tàtə̀ sɔ̀ wɔ́ bə̀ èmbíjà à-bʌ̀ŋ
H.CL11-squirrel SUB11 PST start come SUB11 COP.PST very CL5-pretty
'The squirrel, which came down first, was very pretty.'

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Object relative clause

(11) ə́-∅-kpə̀m   mà kə́ ꜜdʒí ì   á   sɔ̀   ə́-kàmèrùn
      ə-CL9-kpem 1S PST eat SUB9 PRES come LOC-Cameroon
      'The kpem that I ate comes from Cameroon.'

(12) bí-tétám   mà kə́ ꜜdʒí bì   á   sɔ̀   ə́-kàmèrùn
      H.CL8-okra 1S PST eat SUB8 PRES come LOC-Cameroon
      'The okra that I ate comes from Cameroon.'

Syntactic distribution of /ə́/ and /´/

- Both /ə́/ (glossed "ə") and /´/ (glossed "H") can occur on nouns combined with any of the following constituents (Alexandre, 1970):

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Demonstrative

(13) mà dʒí ə́-∅-k͡pə̀m   ɲí-ná
      1S eat ə-CL9-kpem AGR9-DEM
      'I am eating this kpem.'

(14) ó-sʌ́n   ↓wú-ná   ó   nə̀   èmbíjà à-bʌ̀ŋ
      H.CL11-squirrel AGR11-DEM SUB11 COP very   CL5-pretty
      'This squirrel is very pretty.'

Syntactic distribution of /ə́/ and /´/

- Both /ə́/ (glossed "ə") and /´/ (glossed "H") can occur on nouns combined with any of the following constituents (Alexandre, 1970):

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Possessive

(15) ə́-dʒ-óe   d-è   dá   bè   èmbíjà à-bʌ̀ŋ
ə-CL5-name AGR5-3S.POSS SUB5 COP.PST very   CL5-good
'Her name was very good.'

(16) ó-sʌ́n   w-âm   ó   nè̀ èmbíjà à-bʌ̀ŋ
H.CL11-squirrel AGR11-1S.POSS SUB11 COP very   CL5-pretty
'My squirrel is very pretty.'

Syntactic distribution of /ə́/ and /´/

- Both /ə́/ (glossed "ə") and /´/ (glossed "H") can occur on nouns combined with any of the following constituents (Alexandre, 1970):

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

Genitive

(17) ə́-d-ís   m-òt   tè í nə̀ à-bàŋ
ə-CL5-eye CL1-man DEF SUB5 COP CL5-pretty
'The eye of the man is pretty.'

(18) ó-sʌ́n   ábòndò ó   nə̀ èmbíjà à-bàŋ
H.CL11-squirrel Abondo SUB11 COP very   CL5-pretty
'Abondo's squirrel is very pretty.'

Syntactic distribution of /ə́/ and /´/

- /ə́/ can additionally occur with ordinals and with the morpheme *-bók* 'other'

Ordinal

(19) ~~ə́~~-∅-tít   ò-sú   è   mbə́   ∅-kói
       ə-CL9-animal AGR9-first SUB9 cop.pst CL9-monkey
       'The first animal was a monkey.'

-bók 'other'

(20) ~~ə́~~-d-ís   é-vɔ̀k   í   nə̀   nàlè
       ə-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.

Syntactic distribution of /ə́/ and /´/

- Both morphemes are unacceptable on bare nouns with no post-nominal constituent:

Bare noun

(21) (*ə́-)∅-fám è   mbə́   é   bə̀ʔə̀ 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   nə̀   à-bàŋ
     {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
CL_{11}-orange
'orange'

(24) mà dʒí ó-fùmbí
1S eat CL_{11}-orange
'I am eating an orange.'

(25) m-ìŋgá
CL_1-woman
'woman'

(26) ∅-zòi ì à dʒí m-ìŋgá
CL_9-wolf SUB_9 PRES eat CL_1-woman
'The wolf is eating the woman.'

Neutralization with /´/

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

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

    a. mà dʒí ∅-k͡pə̀m
        1S eat CL9-kpem

        'I am eating kpem.'

    b. mà-dʒí ∅-k͡pə̀m   ɲí-ná
        1S-eat H.CL9-kpem AGR9-DEM
        'I am eating this kpem.'

The Bulu /ə́/ morpheme

- /ə́/ 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.*
             mà-dʒí #(ə́-)∅-k͡pə̀m ɲí-ná
             1S-eat   ə-CL9-kpem   AGR9-DEM
             'I am eating this kpem.'
        b.   *Context: There is one type/dish of kpem in your house.*
             mà-dʒí (#ə́-)∅-k͡pə̀m ɲí-ná
             1S-eat   ə-CL9-kpem   AGR9-DEM
             'I am eating this kpem.'

Morphophonological constraints on /ə́/

- Nouns stems may only have one prefix in Bulu, preventing /ə́/ 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 /ə́/ 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 reduplicaion

Noun reduplication (Bates, 1926)

	BASE FORM	GLOSS	REDUPLICATED FORM	GLOSS
(29)	kum	'being head man'	nkukum	'head man'
	mvuk	'being dumb'	mvumvuk	'dumb person'
	atyeñ	'being skilled'	ntyetyeñ	'skilled person'

Neutralization with /ə́/

- Due to the constraint on the number of prefixes, the contrast between /ə́/ and /´/ 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-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   dʒí-ná
  1S eat H.CL7-okra 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 generalzations 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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