Epistemic Marking on Nouns in Nyala East*

John Gluckman and Margit Bowler
University of Kansas and University of Manchester

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1   Introduction

- The Luhia Bantu language Nyala East (`nle` JE 32) has a rich system of encoding *perspectival* information.

- Through prefixation on verbs, complementizers, and nouns, the language can indicate, variously i) perspectival source (where the information comes from) or ii) privileged information (who is aware of the information).

- In this talk, we focus on what we call *epistemic marking* (EM) on nouns: certain nouns can be prefixed to indicate, broadly, "perspectival source."

(1)   a.   *e-**vi**-ou-vehi*
           8AUG-**8EM**-14NC-lie
           'a lie (that everyone knows the truth about)

      b.   *e-**li**-ou-vehi*
           5AUG-**5EM**-14NC-lie
           'a lie (that only a specific person/only I know the truth about)

- Our study contributes to recent typological work on varieties of perspectivization and privileged information (Evans et al., 2018; Schultze-Berndt, 2017; Bergqvist, 2015), as well as recent theoretical work on Bantu nominal semantics (Gambarage, 2019; Gambarage and Matthewson, 2020).

2   Background on Nyala East

- Like all Eastern Bantu languages, Nyala East has an extensive noun class system reflected in nominal prefixes, verbal subject agreement, adjectival concord, and object marking (not shown in Table 1) .

Class	Noun marker	Subj marker	Adj concord	Example
1	(o)mu-	a-/ka-[1]	mu-	omusomi, 'student'
2	(a)va-	va-	va-	avasomi, 'students'
3	(o)mu-	ku-	mu-	omusaala, 'tree'
4	(e)mi-	ki-	mi-	emisaala, 'trees'
5	**e-**	**li-**	**e-**	**ekhene, 'monkey'**
6	**(a)ma-**	**ka-**	**ma-**	**amakhene, 'monkeys'**
7	(e)si-	si-	si-	esitau, 'book'
8	**(e)vi-**	**vi-**	**vi-**	**evitau, 'books'**
9	**e-**	**e-**	**e-**	**emoosi, 'calf'**
10	e-	chi-	e-	emoosi, 'calves'
11	(o)lu-	lu-	lu-	olusia, 'string'[2]
12	(a)kha-	kha-	kha-	akhalang'o, 'small door'
13	(e)chu-	chu-	chu-	ochulang'o, 'small doors'
14	ou-	ou-	ou-	ouvehi, 'lie'
21	(o)ku-	ku-	ku-	okupusi, 'big cat'[3]

Table 1: Noun classes in Nyala East

- We highlight the four subject agreement morphemes for class 5, 6, 8, 9 because these are morphologically identical to what we describe as *epistemic marking* in the next section, though we additionally note that none of the non classes are inherently "perspectival."

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[1]The class 1 agreement *ka-* is found only in particular tense/aspect combinations, and so can be distinguished from class 6, which is invariant across tense/aspect combinations.

[2]Class 11 forms plurals in class 10.

[3]Class 21 forms plurals in class 4.

3   Nominal-EM

- As noted above, nouns in Nyala East indicate noun class using an obligatory pre-fixal noun class marker. The noun class may be preceded by a sometimes omitted augment (cf, Halpert 2017). The augment in Nyala East is only overt on CV noun classes.

(2)   *e-khuwa*
5NC-word
'word/news'

(3)   *(a-)ma-khuwa*
6AUG-6NC-word
'words/news'

- Certain nouns in Nyala East may also appear with the four EM markers. We refer to this as **nominal-EM** (glossed as EM).

(4)   a.   ***(e-)vi-****e-khuwa*
8AUG-8EM-5NC-word

'word/news (that everyone knows about)'

b.   ***(a-)ka-****e-khuwa*
6AUG-6EM-5NC-word

'word/news (that a few people know about)'

c.   ***(e-)li-****e-khuwa*
5AUG-5EM-5NC-word

'word/news (that a specific person knows about)'

d.   ? ***e-****e-khuwa*
9EM-5NC-word

'word/news (that someone knows about)'

(5)   a.   ***(e-)vi-****a-ma-khuwa*
8AUG-8EM-6AUG-6NC-word

'words/news (that everyone knows about)'

b.   ***(a-)ka-****a-ma-khuwa*
6AUG-6EM-6AUG-6NC-word

'words/news (that a few people knows about)'

c.   ***(e-)li-****a-ma-khuwa*
5AUG-5EM-6AUG-6NC-word

'words/news (that a specific person knows about)'

d.   ? ***e-****a-ma-khuwa*
9EM-6AUG-6NC-word

'words/news (that someone knows about)'

- The presence of nominal-EM indicates, broadly, a *source* of information. The classes make the following contributions which are highly dependent on context and the lexical semantics of the associated noun.

  - *evi-amakhuwa* : 'news according to everyone/based on a lot of things'
  - *aka-amakhuwa* : 'news according to a few people/based on a few things'

- *eli-amakhuwa* : 'news according to someone specific/based on a specific thing'

- *?e-amakhuwa* : 'news according to someone/based on something'

- Class 9 EM is degraded on most nouns for all speakers. We believe this is because its contribution is particularly weak. The difference between class 9 and the absence of nominal-EM is so subtle—if it exists at all—that speakers choose not to use class 9 EM.

- The meaning that nominal-EM contributes is context dependent in two ways.

  - **The "source" relationship:** *eviembaha*, derived from *embaha* 'story' with class 8 EM, can mean either "the story that everyone heard," or "the story that everyone told," or "the story that everyone knows," etc.

  - **The contextually relevant group:** *akeembaha*, derived from *embaha* 'story' with class 6 EM, may indicate a story that the discourse participants (you and I) know, but that no one else does. *eliembaha* may indicate a story that only I know. Such "clusivity" distinctions are not hard-wired into the meaning of the nominal-EM, and arise due to pragmatic factors: discourse participants/the speaker are often the most salient contextually relevant entities.

- Nominal-EM can appear on any noun that is either *propositional* (i.e., has propositional content) or *subjective*, Table 2.

	Class	Gloss	*(e)vi-*	*(a)ka-*	*(e)li-*	*e-*
ousiva	14	sadness	*eviousiva*	*akousiva*	*eliousiva*	*yousiva*
ouvi	14	badness	*eviouvi*	*akouvi*	*eliouvi*	*youvi*
ousang'afu	14	happiness	*eviousang'afu*	*akousang'afu*	*eliousang'afu*	–
oulembo	14	beauty	*evioulembo*	*akoulembo*	*elioulembo*	–
outinyu	14	difficulty	*evioutinyu*	*akoutinyu*	*elioutinyu*	*youtinyu*
ouvehi	14	lie	*eviouvehi*	*akouvehi*	*eliouvehi*	*youvehi*
oung'ali	14	truth	*evioung'ali*	*akoung'ali*	*elioung'ali*	*young'ali*
embaha	9/10	story/stories	*eviembaha*	*akeembaha*	*eliembaha*	*yembaha*
amakhuwa	6	news/words	*eviamakhuwa*	*akamakhuwa*	*eliamakhuwa*	–
omupango	3	plan	*eviomupango*	*akomupango*	*eliomupango*	–
emipango	4	plans	*eviemupango*	*akemipango*	*eliemupango*	–
amakoso	6	mistake	*eviamakoso*	*akamakoso*	*eliamakoso*	*yamakoso*
amalocho	6	dream	*eviamalocho*	*akamalocho*	*eliamalocho*	–

Table 2: Epistemic marking on nouns

- We believe that this is a natural class: they are the nouns that are *evaluated* relative to an individual's beliefs/judgements.

  - The idea that subjective predicates occur with a *judge* is fairly standard (e.g. Stephenson 2007 among many others).

  - It is less standard to assume that propositional "content" nouns require a judge argument, but see Djärv (2019) for a recent proposal to this effect.

- Nominal-EM is not found on any other noun.[4]

(6)   a.   *e-si-tau*
           7AUG-7NC-book
           'a/the book'

     b.   * *e-vi-e-si-tau*
           8AUG-8EM-7AUG-7NC-book
           [Intended: 'a/the book (that everyone know about)']

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[4]We note that it is also not found on "picture" NPs (e.g., *epicha*, 'picture'), suggesting that these NPs involve a different notion of "perspective" than propositional and subjective nouns. Nominal-EM are also not found in false-belief contexts, e.g., *eliomusaala*, derived from *omusaala* 'tree' with the intended meaning of 'a tree (according to someone/me).'

    c.   * *a-ka-e-si-tau*
          6AUG-6EM-7AUG-7NC-book

          [Intended: 'a/the book (that a few people know about)']

    d.   * *e-li-e-si-tau*
          5AUG-5EM-7AUG-7NC-book

          [Intended: 'a/the book (that someone specific knows about)']

    e.   * *e-e-si-tau*
          9SM-7AUG-7NC-book

          [Intended: 'a/the book (that someone knows about)']

- Morpho-syntactically, nouns with nominal-EM act like they are in the noun class of the EM marker. They trigger concordial agreement on adjectives, subject agreement, and object marking, all reflecting the noun class of the EM.

(7)   Without EM → Subject/adjectival agreement reflects noun class.

    e-mbaha   y-al-i   e-layi
    9NC-story 9AGR-COP-FV 9AGR-good
    'The story was good.'

(8)   With EM → Subject/adjectival agreement reflects EM.

    a.   ***e-vi-****e-mbaha*   ***vi-****al-i*   ***vi-****layi*
          8AUG-8AGR-9NC-story 8AGR-COP-FV **8AGR-**good

          'The story (that everyone told) was good.'

    b.   ***a-ka-****e-mbaha*   ***ka-****al-i*   ***ma-****layi*
          6AUG-6AGR-9story **6AGR-**COP-FV **6AGR-**good

          'The story (that a few people told) was good.'

    c.   ***e-li-****e-mbaha*   ***li-****al-i*   *e-layi*
          5AUG-5AGR-9NC-story **5AGR-**COP-FV **5AGR-**good

          'The story (that a specific person told) was good.'

    d.   ***e-****e-mbaha*   ***y-****al-i*   *e-layi*
          9AGR-9NC-story **9AGR-**COP-FV **9AGR-**good

          'The story (that someone told) was good.'

- Referentially, nouns with EM reflect the "inner" (true) noun class of the noun. For instance, Class 8 strictly consists of (count) plurals (*evitau* 'books'), but does not refer to a plurality when class 8 is used as nominal-EM.

(9) a.   ***e-vi-****ou-rembo*   *vi-li*   *e-ua*
          8AUG-8AGR-14NC-beauty 8SM-COP 5NC-flower

          '(Everyone thinks that) Beauty is a flower.'

     b.   **e-vi-tau*   *vi-lala*
          8AUG-8NC-book 8AGR-one

          '*one books'

     c.   ***e-vi-****o-mu-pango*   *vi-lala*
          8AUG-AGR-3AUG-3NC-plan 8AGR-one

          'one plan (that everyone came up with)'

4 Analysis

> **Components of the analysis**
>
> - A determiner that asserts belief of existence → Gambarage; Gambarage and Matthewson's (2019; 2020) choice function analysis
>
> - Propositional (content) nouns and subjective nouns have in internal *judge* argument.
>
> - A "perspectival operator" in the nominal domain (by analogy to the CP domain, as proposed in e.g. Speas 2004; Koopman and Sportiche 1989; Sundaresan 2018).

4.1 Part I: the Bantu augment and speaker-oriented meaning

- We start with the observation that nominal-EM is always prefixed outside of the augment, that is, nominal-EM obligatorily appears outside of an augment.

(10) *(e-)vi-*(a-)ma-khuwa*
      8AUG-8EM-**6AUG-**6NC-word

      'news (that everyone knows about)'

- The Bantu augment has been proposed to serve a range of functions across Bantu languages, from purely syntactic to semantic/pragmatic, though almost all authors identify the element as instantiating the category D (cf, Halpert 2017; Gambarage 2019 for recent overviews).

- Most recently Gambarage (2019); Gambarage and Matthewson (2020) propose that the augment in some Bantu languages asserts a belief-of-existence on the part of the speaker. In using an augment, the speaker commits themselves to a belief in the existence of a referent for the associated NP.

- As G&M observe, for those languages, the augment is obligatory in positive declaratives, but not obligatory under non-factual operators, like negation, intensional predicates, or in hypothetical situations.

- Nyala East's augment fits this pattern.

    – It is obligatory in positive declaratives (11).

    – It can be omitted under non-factual operators like negation (12) and modals (13).

    – It does not correlate with definiteness, specificity, or related meanings (14).

(11)   **Augmentless nouns not possible in positive declaratives**

    Masika ka-von-e   *(a-)va-ana
    Masika 1SM-see-FV 2AUG-2NC-child

    'Masika saw (the) children.'

(12)   **Augmentless nouns possible under negation**

    Masika si   ka-von-e   (a-)va-ana
    Masika NEG 1SM-see-FV 2AUG-2NC-child
    'Masika didn't see (the) children.'

(13)   **Augmentless nouns possible under modals**

    aundi Wekesa ka-kul-a   (e-)si-tau
    maybe 1Wekesa 1SM-buy-FV 7AUG-7NC-book

    'Maybe Wekesa bought a/the book.'

(14)   a.   **Augments permitted on indefinite nouns**
        khali   khaali   khu-ali   neende o-mu-ami
        15.long.time 15.long.time 15NC-COP with   1AUG-1NC-king

        'Long ago there was a king.'

    b.   **Augments permitted on non-specific nouns**

n-gamir-e   e-si-tau
1OM-pass-FV 7AUG-7NC-book

'Pass me a book.'
[Context: there are many books on the table and you want any of them.']

- Following others (e.g. Carstens 2008), Gambarage and Matthewson assume that the augment instantiates the category D. Noun class prefixes instantiate a ϕ-head below D.[5]

(15)   *amakhuwa*, 'words/news':
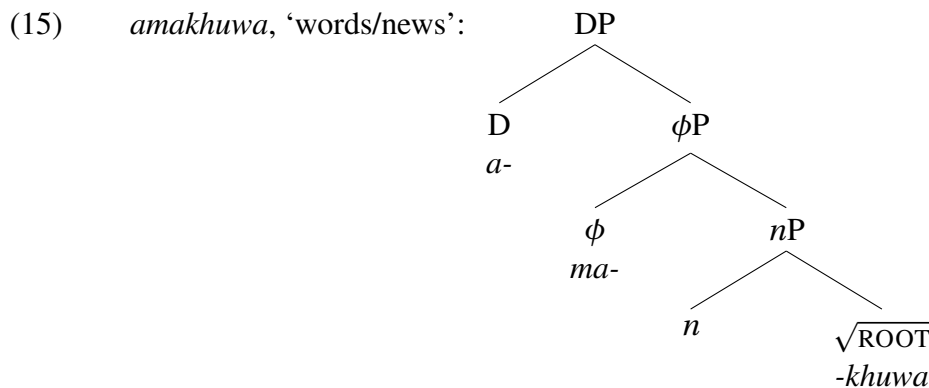
- Gambarage and Matthewson model the semantics of the augment (overt D) using a choice function, which is functionally "parameterized" to the speaker.

(16) a.   *Wekesa ka-ul-iy-e   a-ma-khuwa*
          1Wekesa 1SM-hear-ASP-FV 6AUG-6NC-news

          'Wekesa heard the news.'

      b.   ⟦(16a)⟧ = 1 iff ∃f [f is a choice function for the speaker & Wekesa heard f(news)]

- The absence of an augment (in non-predicative uses), is labelled *covert D*, and it is only possible in the scope of a non-factual operator. Covert D simply provides narrow-scope existential quantification.

(17) a.   *Wekesa si   ka-ul-iy-e   ma-khuwa ta*
          1Wekesa NEG 1SM-hear-ASP-FV 6NC-word NEG

          'Wekesa didn't hear any news.'

      b.   ⟦ (17a) ⟧ = 1 iff ¬∃x [Wekesa heard news(x)]

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[5]DP-less ϕPs are found in predicative positions, and consequently obligatorily lack an augment.

4.2   A perspectival operator in the nominal domain

- We adopt the same basic structural and semantic assumptions as Gambarage and Matthewson.

- We propose that nominal-EM is used when the speaker wishes to express a *non-speaker-oriented* meaning. Nominal-EM asserts belief of existence *relative to a contextually salient group*. In many cases (most?) cases, salience correlates with discourse participation.
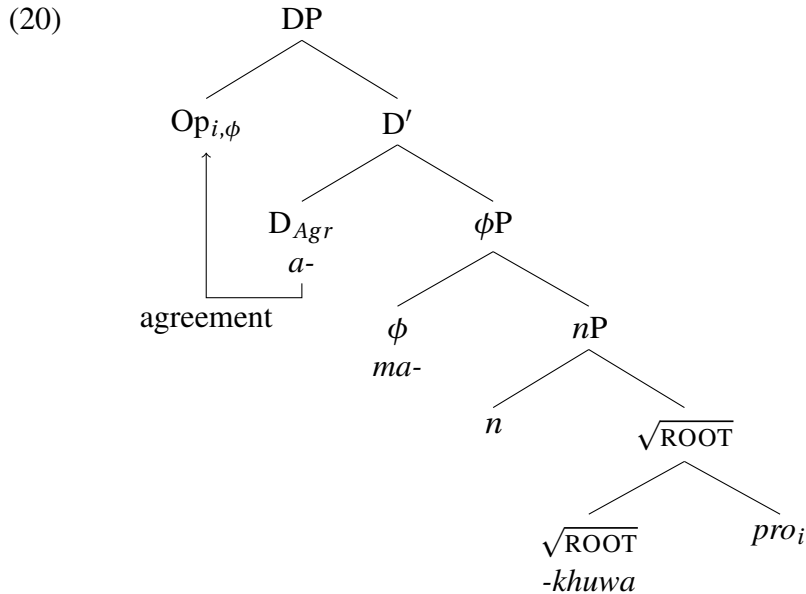
(18)   a.   *Wekesa   ka-ul-iy-e   e-vi-a-ma-khuwa*
            1Wekesa 1SM-hear-ASP-FV 8AUG-8EM-6AUG-6NC-news

            'Wekesa heard the news (that everyone knows about).'

    b. $[\![(18a)]\!]^g = 1$ iff $\exists f_{g(i)}$ [$f_{g(i)}$ is a choice function for $g(i)$ & Wekesa heard $(g(i), f_{g(i)}(\text{news}))$]

- The meaning of (18a) is that some contextually relevant group (whoever $g(i)$ is) commits to a belief in what that group judges to be news, and Wekesa heard that news.[6]

- We note that the precise "way" of choosing is context-dependent, accounting for the fact that the relation between the group and the associated noun is not fixed. This is a natural consequence of using a choice function.

- We propose that the relevant group of individuals is determined by a *perspectival operator* in the DP left periphery, by analogy to the well known work on similar projections in the CP left periphery (e.g., Speas 2004 among many others). There are four such operators, imbued with different class features which correlate with different contextually salient groups.

(19)   Where X ranges over the contextually salient people or evidence:
    a. $\text{Op}_{i,\phi:8}$: all of X
    b. $\text{Op}_{j,\phi:6}$: some of X
    c. $\text{Op}_{k,\phi:5}$: a specific member of X
    d. $\text{Op}_{l,\phi:9}$: a non-specific member of X.

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[6]Note that we are additionally adopting the idea from Kratzer (1998, p. 168) that choice functions may bind internal, implicit variables. In this case, the judge argument is being bound.

- We postulate an "agreeing determiner" in Nyala East again by analogy to the "agreeing complementizer" found in many Luhia languages—including Nyala East—and which has a similar semantic function of "orienting" the embedded clause (Diercks, 2013; Carstens, 2016; Gluckman, pear).

- The agreeing determiner agrees with the perspectival operator in the left periphery of the DP, and realizes this as inflectional agreement morphology.

(20)

```
                        DP
                      /    \
              Op_{i,φ}       D'
                 ↑          /    \
                 |      D_{Agr}    φP
                 |        a-      /    \
              agreement          φ      nP
                                ma-    /    \
                                     n      √ROOT
                                           /    \
                                      √ROOT      pro_i
                                      -khuwa
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- This explains the function of the inner augment, but it doesn't explain the "outer" augment, which functions like other augments in being obligatory in positive declaratives, and optional otherwise under non-factual operators like negation.

(21) a.   *Wekesa   ka-ul-iy-e   *(e-)vi-a-ma-khuwa*
           1Wekesa 1SM-hear-ASP-FV 8AUG-8EM-6AUG-6NC-news

           'Wekesa hear the news (that everyone knows about).'

      b.   *Wekesa   si   ka-ul-iy-e   vi-a-ma-khuwa*
           1Wekesa NEG 1SM-hear-ASP-FV 8EM-6AUG-6NC-news

           'Wekesa didn't hear any news (that everyone knows about).'

- This outer augment serves the function of providing speaker-oriented meaning, just like the normal "non-agreeing" determiner found elsewhere in the language.

(22)   a.   *Wekesa   ka-ul-iy-e   e-vi-a-ma-khuwa*
            1Wekesa 1SM-hear-ASP-FV 8AUG-8EM-6AUG-6NC-news
            'Wekesa heard the news (that everyone knows about).'

       b. $[\![(22a)]\!]^g = 1$ iff $\exists f, f_{g(i)}$ [f is choice function for the speaker & $f_{g(i)}$ is a choice function for $g(i)$ & Wekesa heard $f(g(i), f_{g(i)}(\text{news}))$]

- The final result is that the speaker asserts belief in the existence of some news which is believed to exist by some contextually relevant group, and Wekesa heard that news.

- **Morpho-syntactically**, Op is the highest element in the DP and is therefore available for agreement dependencies.

- **Semantically**, Op does not change the reference of the NP it occurs with.

5   Conclusion

- We are unaware of any other language that similarly marks "epistemic" marking on nouns, though we believe that particular properties of Nyala East have given rise to this synchronic patterns.

- In particular, we believe the "agreeing determiner" was derived by analogy to an "agreeing complementizer," found in many Luhia languages (Diercks, 2013).

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