Existential quantification in Luragooli: Distribution and semantics of \( ku \)

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Quantification in Bantu languages

- Apart from a few mainly descriptive studies (Zerbian & Krifka 2008, Landman 2015) quantification in Bantu languages has been largely neglected.
- In this talk, we’ll focus on one aspect of the quantificational system in Luragooli (Luhya, Bantu), namely the particle *ku*.
- The goal here is to add to the nascent literature on quantification in Bantu languages, as well as introduce some theoretically challenging data to recent cross-linguistic studies of quantification (Matthewson 2001, 2013).
In its most basic use, *ku* is a particle which occurs post-verbally and appears to provide existential DP(/NP)-quantification, as exemplified in (1).

(1)  
a. n-so:m-i vi-tabu.  
1SG.S-read-FV 8-book  
‘I read the books.’  
b. n-so:m-i **ku** vi-tabu.  
1SG.S-read-FV KU 8-book  
‘I read some of the books.’

We’ll show that this is an overly simplistic view of *ku*
**Claim 1**: *ku* is an A-quantifier that is associated with the verb

**Claim 2**: Due to its underspecification, *ku* can be interpreted as providing (something like) existential quantification over a number of different items, including nouns, verbs, adjectives, and so on.
Roadmap

- Background on Luragooli
- Data on the distribution and interpretation(s) of $ku$
  - Comparison with other Luragooli quantifiers
  - $ku$ in unembedded contexts
- Single unified meaning: A-quantifier expressing existential quantification, underspecified!
- Interpretation of $ku$ in embedded contexts
- Wrap-up
Background on Luragooli

- Bantu language in the Luhya subfamily
- Spoken in western Kenya and Tanzania by approximately 618,000 people (Ethnologue 2015)
- Also called Maragoli, Logoori, Lulogoori, and Lugooli
- Our data is from one male native speaker, collected in Los Angeles, CA, USA from 2014-2015
17 noun classes
   Generally in singular/plural pairs
No overt determiners
Strictly SVO
Tense/aspect is marked on the verb through prefixes, suffixes, and tone
Has two tones (high and non-high), which we do not mark (Samuels & Paster 2015)
Only clause-level negation (typically marked clause finally); no nominal negation (Zerbian & Krifka 2008)
Largely wh in situ
• Unembedded versus embedded
  • By embedded, we refer to environments embedded under the scope of a semantic operator, e.g. negation, question operators, and so on

• Preverbal versus postverbal
  • We’ll mainly limit our discussion to the post-verbal use, although we’ll see a few examples of pre-verbal *ku*, and we’ve put more discussion in the appendix.

-ku is fundamentally different from other Luragooli (DP-)quantifiers in three respects:

1. Lack of agreement
2. Syntactically associates with the verb
3. Inability to take subject scope
Unlike other quantifiers, *ku* does not agree with its argument it appears to scope over.

(2) a. Imali y-i:t-i ma-nyonyi ma-lala
   1Imali 1-kill-FV 6-bird 6-one
   ‘Imali killed some birds’

   b. Imali y-i:t-i (*ma-)ku ma-nyonyi
      1Imali 1-kill-FV (6-)ku 6-bird
      ‘Imali killed some birds’

(NB: There is one other non-agreeing quantifier, *vuri*, ‘every’, which obligatorily appears with an NP argument, unlike *ku*. See Landman (2015) for discussion of other quantifiers in Luragooli.)
Comparison with other quantifiers 2: associates with predicate

- *ku* does not form a constituent with its DP argument.
  - For instance, no variant of (3d) is a grammatical response to *What did Sira kill?*, while (3b) and (3c) are acceptable.

(3)  

a. *What did Sira kill?*

b. ma-nyonyi ga-o:si  
   6-bird 6-all  
   ‘All the birds.’

c. ma-nyonyi ma-lala  
   6-bird 6-one  
   ‘Some birds.’

d. * ku ma-nyonyi  
   KU 6-bird  
   Intended: ‘Some birds.’
Comparison with other quantifiers 2: associates with predicate

- $ku + $DP cannot be coordinated

(4) *Imali y-i:t-i [ ku ma-nyonyi ] na [ ku zi-si:mba ]
   1Imali 1-kill-FV KU 6-bird and KU 10-lion

intended: ‘Sira killed some birds and some lions.’
Comparison with other quantifiers 2: associates with predicate

- Post-verbal *ku* invariantly occurs directly after the predicate, even when the object has been A-bar moved away (5b).

(5)  

a. * n-so:m-i vi-tabu ku  
   1SG.s-read-FV 8-book KU  
   Intended: ‘I read some of the books’

b. vi-ndeki vi-a Sira a-ror-i ku  
   8-what 8-COMP 1Sira 1-see-FV KU  
   ‘What are some of the things that Sira saw?’

c. * ku vi-ndeki vi-a Sira a-ror-i  
   KU 8-what 8-COMP 1Sira 1-see-FV  
   intended: ‘What are some of the things that Sira saw?’
Comparison with other quantifiers 3: lack of subject scope

- *ku* cannot be used to express quantification over a subject:

\[(6) \quad \text{(ku) ma-nyonyi (ku) ga-eemb-i.} \]
\[
\begin{array}{ll}
\text{KU} & \text{6-bird} \quad \text{KU} \quad \text{6-sing-FV} \\
1) & \text{‘Some of the birds sang.’} \\
2) & \text{(means: ‘So, the birds sang.’)}
\end{array}
\]

- Even when *ku* remains post-verbal, it is never interpreted as scoping over the subject:

\[(7) \quad \text{ma-nyonyi ga-eemb-i ku.} \]
\[
\begin{array}{ll}
6\text{-birds} & 6\text{-sing-FV KU} \\
1) & \text{‘Some of the birds sang.’} \\
2) & \text{‘The birds sang a little.’}
\end{array}
\]

- We return to the second reading shortly.
The lack of subject scope applies to derived subjects e.g., unaccusatives, passives.

(8) a. zi-nyo:mba zi-he-e ku.
   10-houses 10-burn-FV KU
   1) *‘Some of the houses burned.’
   2) The houses partially burned. (Unaccusative)

b. vi-tabu vi-soom-u-e ku
   8-book 8-read-PASS-FV KU
   1) *‘Some of the books were read’
   2) ‘The books were partially read’ (Passive)

Thus, \textit{ku} appears to provide DP-quantification only of surface objects.

- Caveat: A-bar moved objects can reconstruct below \textit{ku}. 
Importantly, this differentiates ku from the other quantifiers, which are compatible with subjects

\[(9) \text{ va-ndu va-lala va-sye:v-i} \]
\[2\text{-person 2\text{-one} 2\text{-danced-Fv}}\]
\[\text{‘Some people danced.’} \]

Note that Landman (p.c.) observes that, at least for some speakers, certain quantifiers can be stranded in A-movement, which is not true of ku (cf, passive example above)
Summary of comparison to other quantifiers

1. Does not agree
2. Always occurs directly after the predicate
3. Cannot combine with any DP other than the object

This array of properties calls for a syntactic explanation.
Proposition: Syntax of *ku*

*ku* merges above the verb phrase (and subsequent head movement of the verb derives the surface order).

```
   ....
    /    
   /     
  ....  kuP
     /     
   /      
 ku      VP
 /        
Verb  Object
```
Accounting for the differences

1. **Does not agree:**
   Assuming that the domain of agree/concord is internal to the DP/NP, then $ku$ is outside of this domain.

2. **Associates with the predicate:**
   $ku$ takes the VP as a complement, and so does not associate with the DP directly; it’s an A-quantifier.

3. **Lack of subject scope:**
   $ku$ can only combine with an element in its syntactic domain.

- In the next section, we discuss the consequences of this syntactic analysis with respect to possible interpretations.
While most of the examples so far have shown quantification over DP elements, *ku* does not solely quantify over DPs but can be interpreted as quantifying over other predicates as well.

- The general constraint is that *ku* can quantify over anything in its syntactic domain that satisfies the condition of “gradability”.

- In this section, we discuss the various interpretative properties that are available for *ku* when it is outside the scope of a semantic operator – i.e., **unembedded**
 ku can be interpreted as taking DP_{object} scope when it combines with a transitive predicate with a non-atomic object:

(10) n-de-e \ ku \ vi-tungguru.
\text{1sg.s-eat-FV KU 8-onion}
‘I ate some onions.’

Can be interpreted as scoping over plurals (10), (non-atomic) singulars (11), and mass terms (12), always yielding the interpretation ‘some’

(11) n-de-e \ ku \ ki-tungguru.
\text{1sg.s-eat-FV KU 7-onion.}
‘I ate some onion.’

(12) nda-nw-a \ ku \ ma-aze.
\text{1sg.s-drink-FV KU 6-water}
‘I drank some of the water.’

Note that it can take definite or indefinite arguments (no morphological contrast in Luragooli)
Intransitive VP-quantification is generally translated as ‘a little (bit)’

(13) a. Sira a-ngo:r-i.
   1Sira 1-stretch-FV
   ‘Sira stretched.’

   b. Sira a-ngo:r-i ku.
      1Sira 1-stretch-FV KU
      ‘Sira stretched a little bit.’

(14) a. Sira a-ngo:r-i.
   1Sira 1-draw-FV
   ‘Sira drew.’

   b. Sira a-ngo:r-i ku.
      1Sira 1-draw-FV KU
      ‘Sira drew a little bit.’
This reading occurs with predicates that have a Process (Vendler 1967, Dowty 1979)
  - Any predicate that does not consist solely of an instantaneous occurrence (e.g. semelfactives and achievement verbs).

This interpretation is not available with any other NP/DP-quantifier, e.g. *la(la) ‘one’*
Non-process verbs

- Verbs like *die* and *kill* are typically assumed to lack a process portion of the event, and so are pragmatically infelicitous with *ku*

(15) a. Sira a-kuz-i.
   Sira 1-die-FV
   ‘Sira died.’

   b. #Sira a-kuz-i ku.
   Sira 1-die-FV KU
   #‘Sira died a little.’

(16) a. Imali y-iiit-i ri-nyonyi.
   1Imali 1-kill-FV 5-bird
   ‘Imali killed the bird.’

   b. #Imali y-iiit-i ku ri-nyonyi.
   1Imali 1-kill-FV KU 5-bird
   #‘Imali partially killed the bird.’
ku can also be interpreted as scoping over AP-predicates

Typically results in the reading ‘slightly’

(17) a. vi-tabu ni vi-ritu ku.
   8-books COP 8-heavy KU
   ‘The books are slightly heavy.’

   b. i-nyo:mba ni y-a ovo-doge ku.
   9-house COP 9-COMP 15-yellow KU
   1) ‘The house is yellowish.’
   2) ‘Part of the house is yellow.’

The two readings in (17b) do not reflect a difference between AP-level vs. subject-level scope; rather, both readings are compatible with an object being “slightly” yellow
In combination with Incremental Theme predicates, *ku* can be interpreted as either having VP-level or DP-level scope (Dowty 1991)

(18) a. Imali a-samb-i zi-nyo:mba.
    1Imali 1-burn-FV 10-house
    ‘Imali burned the houses.’

b. Imali a-samb-i ku zi-nyo:mba.
    1Imali 1-burn-FV KU 10-house
    1) ‘Imali partially burned the houses.’ (VP-level)
    2) ‘Imali burned some houses.’ (DP-level)
(19) Imali a-samb-i ku zi-nyo:mba.
1Imali 1-burn-FV KU 10-house
‘Imali burned some houses.’
(20) Imali a-samb-i ku zi-nyo:mba.
1Imali 1-burn-FV KU 10-house
‘Imali partially burned the houses.’
The underspecified meaning of *ku* gives rise to a number of different interpretations, depending on the type of predicate it combines with.

<table>
<thead>
<tr>
<th>Combines with</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitive, non-atomic DP\text{Object}</td>
<td>‘some DP\text{Object}’</td>
</tr>
<tr>
<td>Process predicates</td>
<td>‘partially,’ ‘a little bit’</td>
</tr>
<tr>
<td>Adjectival predicates</td>
<td>‘slightly’</td>
</tr>
</tbody>
</table>

**Table:** Interpretation of *ku*, depending on predicate qualities

Although it is an A-quantifier, *ku* is compatible with interpretations similar to both D-quantifiers and A-quantifiers in English.

So far, we have not found any context in which post-verbal *ku* is ungrammatical: some reading is always available.

**Caveat:** Our data on nominal predicates (*Sira is a teacher*) is inconclusive, though *ku* is grammatical in combination with these predicates.
A consequence of claiming that *ku* provides existential quantification is that it also accounts for the interpretation(s) of *ku* in embedded contexts, in which *ku* occurs under the scope of a semantic operator.

- Semantic operators include negation, question operators, and so on.

- In embedded contexts, *ku* is variously interpreted as *any*, *ever*, and *at all*.

- Again, the interpretation of *ku* depends on the qualities of the predicate it combines with.

<table>
<thead>
<tr>
<th>Combines with</th>
<th>Unembedded</th>
<th>Embedded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitive, non-atomic DP_{object}</td>
<td>‘some DP_{object}’</td>
<td>‘any DP_{object}’</td>
</tr>
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<td>Process predicates</td>
<td>‘partially,’</td>
<td>‘ever,’ ‘at all’</td>
</tr>
<tr>
<td></td>
<td>‘a little bit’</td>
<td></td>
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</tbody>
</table>

**Table:** Interpretations of *ku* in unembedded and embedded contexts, depending on predicate qualities.
Negating a VP-level scope interpretation of *ku* leads to the reading ‘not ever’/‘never’

Recall that negation is always expressed clause-finally

(21) a. va-eemb-a da.
    2-sing-FV  NEG
    ‘They didn’t sing.’

b. va-eemb-a ku da.
    2-sing-FV  KU NEG
    ‘They never sang.’
    = ‘There does not exist an event of them singing’

Luragooli clause-final negation morphemes *da*, *da:ve*, and *mba* always take clause-level scope
Negating a DP-level scope interpretation of \textit{ku} leads to the reading \textit{any}.

(22) a. mu-ndu a-re-e ma-barabandi da:ve. \\
1-thing 3SG.s-eat-FV 6-loquat NEG \\
‘Nobody ate loquats.’

b. mu-ndu a-re-e ku ma-barabandi da:ve. \\
1-thing 3SG.s-eat-FV KU 6-loquat NEG \\
‘Nobody ate any loquats.’

= ‘There do not exist some loquats that someone ate.’
We have tested the interpretation(s) of *ku* in a range of embedded contexts.

We have found the ‘any,’ ‘ever,’ ‘at all,’ and so on readings of *ku* in effectively all environments in which NPIs are licensed.

That is, typically downward entailing and/or non-veridical environments (Giannakidou 2002).
**Environments**

Negation and negative indefinites

*They never sang.*

Questions

*Did you eat any mandazi?*

Inherently negative verbs (*deny, refuse, doubt, etc.*)

*Sira denied eating any mandazi.*

RCs with a universally quantified head

*Every man who ever robbed a store felt guilty.*

‘exactly n’

*Exactly 100 people have ever climbed Mt. Kilimanjaro.*

‘without’

*We left Kenya without seeing any elephants.*

‘before’

*We left Kenya before seeing any elephants.*
This is compatible with assuming
1) a basic existential meaning of $ku$
2) that $ku$ scopes under negation/other operators

Like in unembedded contexts, the interpretation of $ku$ in embedded contexts depends on the qualities of the predicate it combines with
In summary

- Showed that *ku* is an A-quantifier and cannot be a D-quantifier
- Presented data on the available interpretations of *ku* in unembedded and embedded contexts
  - ‘some’ in combination with transitive predicates with non-atomic object DPs
  - ‘partially’ in combination with Process predicates
  - ‘slightly’ in combination with adjectival predicates
- Proposed that *ku*
  1) scopes over the predicate
  2) has a basic meaning of existential quantification
  3) specific readings arise depending on the qualities of the predicate that *ku* combines with
Thank you!

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- Meredith Landman
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Challenging data: ‘sometimes’

- When *ku* combines with a stative predicate, the reading ‘sometimes’ is also available

(23)

   1PL.S-teach-FV
   ‘We teach.’

b. *ku*-igiz-a *ku*.
   1PL.S-teach-FV KU
   ‘We teach sometimes.’

- Still has a basic existential reading, but seems to range over times
- Given our syntactic story, it’s somewhat unclear how to account for this
- Supports the notion that *ku* will effectively always find something gradable to combine with: in this case, times
Challenging data: ‘so,’ ‘happened to,’ ‘once’

- Only occurs with the preverbal, typically clause-initial, usage of *ku*

(24)  
  a. ma-nyonyi ga-buruk-i.  
      6-bird  6-fly-FV  
      ‘The birds flew away.’
  
  b. ku ma-nyonyi ga-buruk-i.  
      KU 6-bird  6-fly-FV  
      ‘So, the birds flew away.’

(25)  
      Sira 3SG.s-build-FV 10-house  
      ‘Sira built houses.’
  
      Sira KU 3SG.s-build-FV 10-house  
      ‘So, Sira built houses.’
Different placement in the structure from postverbal *ku*
- Is it scoping over the entire clause?
- Could it be overt existential closure?

Again, basic existential meaning: ‘There exists an event of birds flying’

Possible tonal difference: our consultant frequently reports that preverbal *ku* has high tone, whereas postverbal *ku* has low tone
(26) a. nze  nzigiza
    1SG.s teacher
    ‘I’m a teacher.’

b. nze  nzigiza ku.
    1SG.s teacher KU
    1) ‘I’m a teacher sometimes.’
    (= ‘I teach sometimes.’)
    2) ‘I’m a TEACHER teacher.’
When *ku* co-occurs with a universal D-quantifier, the VP-level ‘partially’ interpretation is still available.

(27)  a. n-re-e vi-tungguru vi-o:si.
     1SG.s-eat-FV 8-onions 8-all
     ‘I ate all the onions.’

       b. n-re-e ku vi-tongguuru vi-o:si
          1SG.s-eat-FV KU 8-onion 8-all
          ‘I ate a bit of all the onions.’

(28)  a. i-nyo:mba i-o:si ni y-a ovu-du:ge.
     9-house 9-all COP 9-COMP 15-yellow
     ‘The whole house is yellow.’

       b. i-nyo:mba i-o:si ni y-a ovu-du:ge ku.
          9-house 9-all COP 9-COMP 15-yellow KU
          ‘The whole house is yellowish.’
The English existential quantifier *some* can give rise to a scalar implicature:

\[ (29) \quad \text{John ate some of the cookies.} \]
\[ \sim \quad \text{John didn’t eat all of the cookies.} \]

\[ (30) \quad \Diamond P \sim \neg \forall P \]
We do not find a strong implicature of this type for Luragooli *ku*:

(31)  

a. Imali a-samb-i  ku  zi-nyomba. Na he:ne,  
Imali 3SG.s-burn-FV  KU 10-house  in  fact  
a-samb-i  zi-o:si!  
3SG.s-burn-FV 10-all  
?‘Imali burned some of the houses... in fact, she  
burned all of them!’  

b. Imali a-samb-i  zi-nyomba zi-ndara. Na he:ne,  
Imali 3SG.s-burn-FV 10-houses 10-some  in  fact  
a-samb-i  zi-o:si!  
3SG.s-burn-FV 10-all  
‘Imali burned some of the houses... in fact, she  
burned all of them!’