Markers of reciprocity (e.g., each other) are well known to display a high degree of polysemy within a language (Frajzyngier and Curl, 1999; König and Gast, 2008; Nedjalkov, 2007; Evans et al., 2011).

Three main types of reciprocal polysemy (Nedjalkov, 2007):

**Reflexive-reciprocal** : The same marker is used for reflexive and reciprocal situations (cf Murray 2008)

(1) Les enfants se voient
the children see_PRES
‘The children see each other’

(2) kör-üs
see-US
‘to see each other’

‘to see (something/somebody) together’

Yakut Nedjalkov 2007, p. 17
### Types of reciprocal polysemy III

**Iterative-reciprocal**: The same marker is used to signal a plural event and a reciprocal (cf. Lichtenberk 1999; Davies 2000)

(3) a. avaana va-lol-an-i  
   2child 2SM-see-AN-FV  
   ‘The children saw each other.’

b. Sira y-ashiamul-an-i  
   1Sira 1SM-sneeze-AN-FV  
   ‘Sira sneezed repeatedly.’  
   Logoori (Luhya, Bantu)

-\textit{an} marks a reciprocal situation
  - robustly found across Bantu languages (Maslova, 2007) and reconstructed in Proto-Bantu (Schadeburg, 2003b; Nurse, 2008).

### The problem of polysemy

**Why polysemy?** How can one morpheme express multiple meanings?

$\Rightarrow$ It’s just a case of \textit{accidental syncretism/homophony}.

$\Rightarrow$ ... probably not if it occurs consistently across languages

$\Rightarrow$ There’s only \textit{one morpheme} which is expressed in multiple environments due to its syntactic, semantic, and morphological properties.

We would need to do an in-depth investigation in a particular language...
Proposal

The suffix -an is a cumulative event pluralizer which selects for events with a single participant.

⇝ Syntactic distribution: explains valency and antecedent restrictions
⇝ Morphological distribution: explains interaction with other suffixes
⇝ Semantic distribution: explains both iterative and reciprocal meaning

Overview of Logoori

● One of ≈25 Luhya languages spoken in Western Kenya and Uganda
  ▪ JE41 (Niger-Congo>Southern Bantoid>Bantu>Lacustrine)
  ▪ aka Logoli, Maragoli, Luragooli, Llogoori, among others
● Healthy and stable population of speakers (≈2 million)
  ▪ Ex-urban daily life is conducted primarily in 1st language (tribal language)
  ▪ Swahili and English are widely spoken (taught in schools)
● Data from 4 consultants collected on-site in Kenya and in Los Angeles in structured elicitations

Roadmap

1. Introduction
2. Overview of Logoori
3. Iterative use
   • Cumulative plurality
   • Intransitive restriction
   • (Near) root adjacency
4. Accounting for the iterative use
5. Comparison to reciprocal use
   • Conflicting properties
   • A uniform distribution
   • The last piece of the puzzle
6. Another use? Embedded clauses
7. Reciprocal polysemy in perspective
8. Conclusion
Overview of Logoori I

- Two tones, grammatical and lexical, tone spreading, down-step (Samuels and Paster, 2015; Marlo, 2017)
  
  (5) ku-áá-kl-¹kúút-a
  1PL.SM-REM.PAST-7OM-scratch-FV
  'We scratched it 7 (a long time ago).'

- in standard orthography (used here):
  - Tones aren't marked; long vowels are ng = η; ny = n

Overview of Logoori II

- S-V-O, pro-drop, no case marking, prepositions
- Verbal template:
  \[ \text{Agr}_{\text{subj}} - \text{tns} - (\text{Agr}_{\text{obj}} - )\text{ROOT} - \text{deriv} - \text{asp} - \text{final vowel} \]
  
  (6) Sira a-a-lol-anj-i vibaga
  1Sira 1SM-PAST-see-HAB-FV 8cat
  'Sira saw cats regularly (two weeks ago).'

- 17 noun classes (generally grouped in pairs of sg/pl)
- At least 7 tenses (4 past, 1 present, 2 future)

The iterative use

(9) Sira y-ashiamul-an-i
  1Sira 1SM-sneeze-AN-FV
  'Sira sneezed repeatedly.'

- Syntactically, -an only attaches to intransitive verbs.
- Morphologically, -an always appears next to (or near to) the root.
- Semantically, -an expresses a cumulative plural event (in the sense of Krifka 1989).
Property 1: Cumulative plurality I

Informally, an event is cumulatively plural if it is perceived as being a single event of P with multiple sub-events of P.

(10) Sira y-ashiamul-an-i
Sira 1SM-sneeze-AN-FV
'Sira sneezed repeatedly.'

✓ ✓ Sira had a fit of sneezing.
✓ ○ Over the course of the day, Sira sneezed multiple times.

Property 1: Cumulative plurality II

(11) kisaga ki-vun-ik-an-i
7branch 7SM-break-AC-AN-FV
'The branch broke in many pieces.'

✓ ✓ Sira stepped on a branch, and it broke in many pieces.
✓ ○ Over the course of the day, many people stepped on a branch, breaking it in many pieces.

⇝ A cumulative plural event is a single event with (identical) sub-events.

Property 2: Intransitive restriction

Only attaches to intransitive verbs

○ kwishiamul-an-a 'to sneeze repeatedly,' kwum-an-a 'to freeze (intrans) over and over,' kusunduk-an-a 'to spill (intrans) here and there,' kuvezagir-an-a, 'to belch repeatedly'

(12) * Sira a-ras-an-i mpira
Sira 1SM-throw-AN-FV ball
[intended: 'Sira threw the ball repeatedly']

-an attaches to semantic, rather than syntactic intransitives.

A clear distinction when considering two ways to derive intransitive predicates in Logoori: passive vs. anticausative.

Passive vs. anticausative

Passives in Logoori are syntactically intransitive, but semantically transitive ⇝ two event participants

(13) mpira gu-ras-w-i (na Sira)
3ball 3SM-throw-PASS-FV by Sira
'The ball was thrown (by Sira)'

Anticausatives in Logoori are syntactically and semantically intransitive ⇝ one event participant (Gluckman and Bowler, 2016a), see also (Schäfer, 2008) a.o.

(14) mpira gu-ras-ik-i (*na Sira)
3ball 3SM-throw-AC-FV by Sira
'The ball was thrown (by Sira).'
Restriction to semantic intransitives

-\textit{an} can only attach to intransitives derived by the anticausative -\textit{ik}.

(15) a. *mpira gu-ras-\textit{w-an-i}  (na Sira)
   3ball 3SM-throw-\textit{PASS-AN-FV} by Sira
b. mpira gu-ras-\textit{ik-an-i}  (*na Sira)
   3ball 3SM-throw-\textit{AC-AN-FV}

'The ball was thrown over and over.'
(i.e., it was juggled)

Property 3: (near) root adjacency

-\textit{an} always appears root adjacent (unless following the anticausative).

(19) Applied arguments:

\begin{verbatim}
Sira y-ashiamul-\textit{an-il-i} Imali
1Sira 1SM-sneeze-\textit{AN-APPL-FV} Imali
'Sira sneezed repeatedly for Imali.'  (*\textit{yashiamul-il-an-i})
\end{verbatim}

(20) Causative:

\begin{verbatim}
Sira y-ashiamul-\textit{an-iz-i} Imali
Sira 1SM-sneeze-\textit{AN-CAUS-FV} Imali
'Sira made Imali sneeze repeatedly.'  (*\textit{yashiamul-iz-an-i})
\end{verbatim}

(21) Aspect:

\begin{verbatim}
mpira gu-ras-\textit{ik-an-ag-a}
3ball 3SM-throw-\textit{AC-AN-PROG-FV}
'The ball is being thrown a lot.'  (*\textit{guras-ik-ag-an-a})
\end{verbatim}

Summary of iterative use

Minimum we need to explain,

-\textbf{Meaning} \(\Rightarrow\) indicates cumulative plural event

-\textbf{Syntactic distribution} \(\Rightarrow\) "semantic" intransitives

-\textbf{Morpho-syntactic location} \(\Rightarrow\) outside of valency reducing (anticausatives), inside of valency increasing (applicatives, causatives)
**Analysis: -an as an event pluralizer**

-\( an \) selects for phrases which describe properties of events (≈ VoiceP) which have a single argument and asserts that the event is cumulatively plural.

(22)

**Accounting for morpho-syntactic location I**

Since the anticausative -\( ik \) derives intransitives, -\( an \) attaches above this head (assumed to be \( \text{Voice}^0 \) (Schäfer, 2008)). By head movement, appears outside of -\( ik \).

(23) mpira gu-ras-\( ik \)-\( an \)-i
3ball 3sm-throw-AC-AN-FV

‘The ball was thrown over and over.’

**Accounting for morpho-syntactic location II**

Since applicatives/causatives increase valency (Pylkkänen, 2008), they only attach above -\( an \), and hence appear outside.

(24) Sira y-\( ashiamul-\( an \)-\( il \)-i Imali
Sira 1sm-sneeze-AN-APPL-FV Imali
‘Sira sneezed repeatedly for Imali’
Summary of iterative use

- **Meaning** ⇝ cumulatively pluralizes single-participant event
- **Syntactic distribution** ⇝ therefore only selects for phrases describing single-participant events
- **Morpho-syntactic location** ⇝ therefore appears outside of valency decreasers and inside of valency increasers

A uniform distribution?

The reciprocal use seems to directly contradict the properties outlined above.

Attaches to transitives (obligatorily):

(25) avaana va-lol-an-i
    2child 2SM-see-AN-FV
    ‘The children saw each other.’

Can appear outside of valency increasing morphology

(26) avaana va-hanzuk-il-an-i
    2child 2SM-shout-APPL-AN-FV
    ‘The children shouted at each other.’

Imposes restrictions on subject (Condition A Chomsky 1981)

(27) * avaana va-vor-i
    2child 2SM-say-FV
    [ ndii that Maina a-lol-an-i ]
    1Maina 1SM-see-AN-FV
    ‘*The children said that Maina saw each other.’

A semantic generalization

- an has a uniform distribution because reciprocal situations involve a cumulative plural event with a single event participant (Kemmer, 1993; Schein, 1993; Evans et al., 2011) a.o.

(28) The children saw each other
    ⇝ a single participant because there is just one NP – the children.
    ⇝ cumulatively plural because there is a single event with sub-events.

Ultimately: -an expresses a subset of reciprocal meaning.

Additional assumption: nouns scopally interact → reciprocity!

Roadmap for reciprocal use

Step 1: Given what we know about -an, show why it appears in reciprocal structures, and account for morphological and syntactic constraints.

Step 2: Tackle the meaning.
A single event participant

Reciprocal situations are semantically intransitive because they only involve a single referential expression, i.e., one event-participant.

VoiceP
DP$_j$

Voice$^0$
VP
V
DP$_i$

Describes an event involving a single participant (mapped to subject and object roles) (Kemmer, 1993; Klaiman, 1991) a.o.

 metav - correlation between rec./refl. and morph./synt. valency reduction (König and Gast, 2008; Nedjalkov, 2007)

Consequence

Since -an selects for properties of events with a single participant, it can select for transitive verbs – as long as they have a single event participant.

Morpho-syntactic location

Semantic intransitivity corresponds to multiple syntactic configurations

Syntactic constraints I

Cannot be used in a double object construction … with complications, see appendix

(29) avaana va-lol-an-i
2child 2SM-see-AN-FV
‘The children saw each other.’

(30) avaana va-hanzuk-il-an-i
2child 2SM-shout-APPL-AN-FV
‘The children shouted at each other’

(31) * avikura va-many-il-an-i ipicha
2boy 2SM-show-APPL-AN-FV picture
[intended: ‘The boys showed each other a picture.’]

(32) avikura va-many-i ipichi
2boy 2SC-show-FV picture
aveene ku veene themselves to themselves
‘The boys showed a picture to each other.’
**Syntactic constraints II**

Enforces syntactic locality (e.g., Condition A Chomsky 1981) and general subject-orientation.

(33) * avaana va-vor-i [ ndii Maina 2child 2SM-say-FV [ that 1Maina a-lol-an-i ] 1SM-see-AN-FV ] '*The children' said that Maina saw each other.'

(34) * Sira a-many-an-i avaana 1Sira 1SM-show-AN-FV 2child [intended: ‘Sira showed the children each other (in the picture).’]

~~ doesn’t have a semantically intransitive event

~~ there’s no phrase that describes a single-participant event

---

**Cumulative plurality I**

A reciprocal situation is perceived as a single event, which is comprised of sub-events (Kemmer, 1993; Schein, 1993)

(35) Last week, Imali stared at Sira. The following day, Sira stared at Imali.

a. # Sira na 1Maini va-hondolel-an-i 1Sira and Imali 2SM-stare-AN-FV '

'Sira and Imali stared at each other.'

Speaker comment: "This only makes sense if Sira and Imali are staring at each other at the same time."

---

**Interim summary**

Because -an selects for single-participant events,

- **syntactic distribution** ~~ restricted to two-argument predicates (and restrictions on antecedent are derived)
- **morphological distribution** ~~ can appear outside of valency increasing morphology
- **semantics** ~~ ??

**Cumulative plurality II**

(36) On Tuesday, Sira kicked Imali. On Wednesday, Imali kicked Sira.

a. # Sira 1Maini va-nagiz-an-i 1Sira and Imali 2SM-kick-AN-FV '#Sira and Imali kicked each other.'

Speaker comment: "No… They did it on different days? They need to do it like one after the other."

Overall consistent with -an’s meaning… but what else?
Weak vs. strong relations

-\( an \) expresses a cumulative, single participant event, but this is only part of a reciprocal meaning.

**RECIROCITY**

![Diagram](image)

-\( an \) does this

**Cumulativity**

**Valency decrease**

"each other"

Plural event

Strong and weak reciprocity I

**Strong reciprocity**

\( \approx \) Every individual acts on every (other) individual, and every individual is acted on by every (other) individual.

(37) avaana va-lol-an-i

2child 2SM-see-AN-FV

‘The children saw each other.’

Non-reciprocal strong and weak

Weak reciprocity

\( \approx \) Every individual acts on with some (other) individual, and every individual is acted on by some (other) individual.

(38) avaana va-lol-an-i

2child 2SM-see-AN-FV

‘The children saw each other.’

... there are many ways for a situation to be weakly reciprocal

(Dalrymple et al., 1998; Evans et al., 2011) a.o.
Strong and weak relational plurals I

Strong relation
≈ Every individual in the subject acts on every individual in the object, and every individual in the object is acted on by every individual in the subject.

\( (39) \) avikura va-vagaa va-lol-i avakana
2boy 2-three 2SM-see-FV 2girl
va-vagaa
2-three
‘Three boys saw three girls.’

\( (40) \) avikura va-vagaa va-lol-i avakana
2boy 2-three 2SM-see-FV 2girl
va-vagaa
2-three
‘Three boys saw three girls.’

Scope of subject and object

The relationship between the subject and the object is independent of reciprocity, and can be attributed to independently needed processes pairing the subject and the object (Fiengo and Lasnik, 1973; Heim et al., 1991; Schein, 1993; Sternefeld, 1998; Beck, 2001; Murray, 2008), a.o.

VoiceP
PL VoiceP
DP, Voice 0
VP V DP,
⇝ a cumulative plural event with a single participant
⇝ DPs are not scopally independent

Summing up

Treating -an as a cumulative event pluralizer which selects for single-participant events accounts for,

- **Syntactic distribution** ⇝ valency restrictions and constraints on antecedent (Condition A!)
- **Morphological distribution** ⇝ linear ordering of morphemes (different orderings!)
- **Semantic distribution** ⇝ the same meaning in all contexts (iterative and reciprocal meaning!)

... only possible by considering all properties.
A curious use of -an that has received a fair bit of attention in other (Narrow) Bantu languages is in clausal embedding contexts (cf Mchombo 1993; Dubinsky and Simango 1996; Seidl and Dimitriadis 2003), also (Gluckman and Bowler, 2016b)

(41)  a. e-lol-ek-a kulesia Sira a-zi-i
  9SM-look-AC-FV like 1Sira 1SM-go-FV
  'It looks like Sira left.'
  b. e-lol-ek-an-a kulesia Sira a-zi-i
  9SM-say-AC-AN-FV like 1Sira 1SM-go-FV
  'It looks like Sira left.'

-an is optional — but speakers do not have strong intuitions about a meaning difference.

Context 1: You come home and see that Sira’s jacket is gone.
Context 2: You, Kageha, and Maina come home, and you all see that Sira’s jacket is gone.

(42)  a. e-lol-ek-a kulesia Sira a-zi-i
  9SM-look-AC-FV like 1Sira 1SM-go-FV
  'It looks like Sira left.'

(b) preferred over (52b) in Context 1

(53b) preferred over (53a) in Context 2.

The term “polysemy” may be a misnomer with respect to reciprocal markers. Maybe just realizing “pieces” of reciprocity.

- Reflexive-reciprocal markers grammaticalize the relation between the subject and object (Murray, 2008).
- Sociative-reciprocal markers grammaticalize the plurality of the single participant.
- Iterative-reciprocal markers grammaticalize the plural event.
  - Sub-types? Madurese iterative-reciprocal markers don’t assert cumulativity of the event (Davies, 2000).
Reciprocity involves a number of complex semantic and syntactic operations

⇝ cumulative event plurality, valency reduction, (cumulative) nominal plurality, distributivity, locality, c-command, . . . 
Languages may choose to grammaticalize (or recruit morphology for) just one part. Other processes in the language “pick-up the slack.”
⇝ See the numerous bi-partite reciprocal markers (Nedjalkov, 2007) a.o.

Further questions

● Emergent binding theory? What does it mean that Condition A is just a side-effect of -an’s selectional requirements?
● What is the range of meanings of the cognate suffixes across Luhya? Across Bantu?
   - How do they interact with various (language-specific) syntactic/morphological properties in those languages?
● What are the limits of polysemy? How much or how little meaning can be attributed to a single morpheme? How much can we attribute to other processes (cf. Safir and Sikuku 2018)

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Appendix: Reflexives

Mchombo (1993, 2004); Dalrymple et al. (1998) observe that in Bantu languages, reflexive and reciprocal situations differ languages: while reciprocals pattern like intransitives, reflexives pattern like transitives (See also (Safir and Sikuku, 2018) for a critical discussion in Lubukusu.)

(44) Sira y-ii-lol-i
    1Sira 1-REFL-see-FV
    ‘Sira saw himself.’

Appendix: Ditransitives

There are two periphrastic ways to express reciprocity: aveene ku veene, lit, ‘themselves to themselves’ and mla sia mlala lit: ‘the one how the one.’

Additionally double object constructions can be formed by adding a reflexive prefix to the front of the verb, and stacking applicative morphology outside of -an.

(45) avikura va-ii-many-an-il-i ipicha
    2boy 2SM-REFL-show-AN-APPL-FV ipicha
    ‘The boys showed each other a picture.’
    [maybe: ‘The boys showed the picture amongst themselves’]

Semantics of cumulativity

(46)

\[(56)\] = 1 iff \(\exists e, e'[\text{Sira-sneeze}(e) \& \text{Sira-sneeze}(e') \& e \neq e' \& \forall e, e'[\text{Sira-sneeze}(e) \& \text{Sira-sneeze}(e') \rightarrow \text{Sira-sneeze}(e \oplus e')]]\]