Reflexivity and Reciprocity in Competition*

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May 7, 2019

1 Introduction

- Reflexive and reciprocal situations are often marked identically in a language (Fra- jzyngier and Curl, 1999; König and Gast, 2008; Nedjalkov, 2007).
  - Identity between reflexive and reciprocal markers reflects the fact that reflexivity and reciprocity inherently overlap: they both express a relation in a set of individuals, which can be given a uniform semantics as in Murray (2008).

- However, we also find many languages where reflexive and reciprocal meanings are not expressed by the same marker (e.g., English).

- **Given that reflexivity and reciprocity share some meaning, what strategies (morphological, syntactic, and/or semantic) do languages use to distinguish these situations?**

- The goal of today is to explore reflexive and reciprocal marking in Logoori (Luhia, Bantu).
  - Logoori uses different strategies for encoding reflexive and reciprocal situations such that the markers for each are entirely independent, i.e., do not share morphological, syntactic, and semantic information.

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*Thanks to Mwabeni Indire, Bernard Lavussa, Walter Kigali, and Bernard Chahilu for sharing their language with me. Thanks also Margit Bowler, Mike Diercks, Pam Munro, Ed Keenan, Ken Safir, Andrew McKenzie, and audiences at UCLA’s American Indian Seminar, Triple A 5 in Konstanzt, and the University of Kansas, and the University of Missouri for helpful feedback.
Moreover, the marker for reflexive meaning may also be used to express reciprocal meaning in some contexts.

- I argue that in this case, the system must rely on (utterance-level) competition to determine which marker appears in which context.
- The core takeaway is that the distribution of reflexive and reciprocal markers may be partly determined by pragmatic factors (in addition to syntactic factors like condition A).

2 "Anaphoricity" in Logoori

- Like most Narrow Bantu languages, Logoori (Luhia, Bantu, JE 41, rag) has a “reflexive” and a “reciprocal” marker, -i- and -an respectively.

(1) a. REFLEXIVE
   Sira a-i-yag-i
   1Sira 1SM-i-yag-FV
   ‘Sira scratched himself.’

   b. RECIPROCAL
   aavaana va-yag-an-i
   1Mali 1SM-scratch-AN-FV
   ‘The children scratched each other.’

- -i- occurs in the slot associated with object markers (and is in complementary distribution with them).

(2) a. Sira a-mu-lol-i
   1Sira 1SM-1OM-see-FV
   ‘Sira saw him/her.’

   b. Sira a-ga-ho-i
   1Sira 1SM-6OM-hear-FV
   ‘Sira heard it (the news).’

(3) a. Sira a-i-lol-i
   1Sira 1SM-i-see-FV
   ‘Sira saw himself.’

   b. Sira a-i-ho-i
   1Sira 1SM-i-hear-FV
   ‘Sira heard himself.’

1/2/3/ : noun class  
OM : object marker  
FV : final vowel  
SM : subject marker

2 The object markers, including -i-, are likely to be clitics (Marlo, 2015). Note that there is variation across Bantu as to whether the object markers may co-occur with over nominals. In Logoori, they cannot.
• *i-* patterns like other reflexive markers in that it is subject to Condition A of binding theory, and is generally subject-oriented.

(4) a. *Sira a-vol-i ndee Imali a-i-lol-i
   1Sira 1SM-say-FV that Imali 1SM-1-see-FV
   ‘Sira said that Imali saw herself/*himself.’
   LOCALITY
b. *vareni vya Sira va-i-lol-i
   2friend 2of 1Sira 2SM-1-see-FV
   ‘Sira’s friends saw themselves/*himself.’
   C-COMMAND

• *i-* does not vary for person or number.

(5) a. *ku-i-yag-i
   1PL-1-scratch-FV
   ‘We scratched ourselves.’
b. *nzi-i-yag-i
   1SG-1-scratch-FV
   ‘I scratched myself.’

• *-An is one of the Bantu “extensions,” typically grouped together with the derivational affixes which appear after the verb root.

(6) a. *avaana va-lol-an-i
   2child 2SM-see-AN-FV
   ‘The children saw each other.’
b. *avasazi va-yag-an-i
   2parent 2SM-scratch-FV
   ‘The parents scratched each other.’

• *-An is also subject to Condition A and is generally subject-oriented; in addition -an must also appear with a plural antecedent.³

(7) a. *avaana va-vol-i ndee Imali a-lol-an-i
   2child 2SM-say-FV that Imali 1SM-see-AN-FV
   ‘*The children said that Imali saw each other.’
b. *mureni ya avaana a-lol-an-i
   1friend 1of 2child 1SM-see-AN-FV
   ‘*A friend of the children saw each other.’
c. *Sira a-lol-an-i
   1Sira 1SM-see-AN-FV

³Logoori also has adverbial strategies that can be used to express reciprocal constructions, including *aveene ku veene*, literally ‘themselves to themselves,’ and *mla sia mlala*, literally, ‘one how the other.’
• This description is standard across (Narrow) Bantu languages (Nurse and Philipp-
son 2003), though I’ll note that Logoori does not have an associative construction,
which is commonly found among Bantu languages (cf. Dammann 1954; Maslova
2007).

(8) Sira a-na-pend-an-a na Imali
     * Sira y-a-yaanz-an-a na Imali
     1Sira 1SM-PRES-love-AN-FV and Imali
     ‘Sira and Imali love each other’

3 Underspecified reflexivity

• i- marked verbs are felicitous in so-called “mixed” scenarios (Murray 2008).

(9) Mixed scenario context: Sira, Imali, and Kageha went hiking and got bitten by
mosquitos. Sira scratched his own bug-bites while Imali scratched Kageha’s and
Kageha scratched Imali’s.
    a. avaana va-i-yag-i
       2child 2SM-I-scratch-FV
       ‘The children scratched themselves/each other.’
    b. # avaana va-yag-an-i
       2child 2SM-scratch-AN-FV
       ‘The children scratched each other.’

• This suggests that i- is “underspecified” in that it does not encode strict reflexivity
(as in English)\[4\]

• Note however that is not entirely underspecified: i- is felicitous whenever at least
one member of the subject set is in a reflexive relation. Thus, it is not used in purely
reciprocal situations; only -an is felicitous in such contexts.

\[4\]I’ll note this appears to be consistent across Bantu languages which have both (cognates of)
i- and -an. For instance, Swahili productively uses the reflexive marker ji- in mixed contexts. It is also
consistent across the five other Luhia languages I’ve looked at, as well as in Kuria.
Reciprocal scenario context: Sira, Imali, and Kageha went hiking and got bitten by mosquitos. Sira scratched Imali’s bug-bites, Imali scratched Kageha’s and Kageha scratched Sira’s.

- Still, the ability for i- to express a non-reflexive relation at all suggests that its meaning is more than just pure “reflexivity.”

4 Reciprocity and event quantification

- In addition to its use as the reciprocal maker, -an also expresses event plurality.

- -an may only occur with intransitive predicates: it may not attach to transitive verbs to express a plural event.

- Gluckman (2018, in prep) analyzes -an as the exponent of event number: it expresses event plurality for intransitives predicates.
Because reciprocal situations also involve plural events of intransitive predicates (Kemmer, 1993; Evans et al., 2011), -an expresses this meaning in its “reciprocal” use as well.

- That is, -an doesn’t mean “reciprocal,” rather, it expresses a sub-part of the (complex) meaning associated with reciprocity (as in Davies [2000]; Faller [2004]).

More explicitly: I assume that reciprocal situations are a sub-type of relational plurals, which are relation between two (or more) plural individuals, e.g., The children saw the parents (Fiengo and Lasnik, 1973; Langendoen, 1978; Sauerland, 1998).

- Reciprocals are the case when the two plural individuals are “indistinct,” e.g., The children saw the children (Kemmer, 1993). For this reason, reciprocals often pattern as intransitive.

Relational plurals minimally involve cumulativity (***) and/or distributivity (*) operators (Link, 1983; Beck, 2001), as well as event plurality (PL-EV). The combination of PL-EV and * or ** results in pairs of individuals getting mapped to a plural event, sketched in (15).^^5

- See appendix for a complete syntax/semantics and derivation.

(13) For any set of events $P$, PL-EV($P$) is the set such that,
   a. $P \subseteq$ PL-EV($P$), and
   b. there are events $e', e''$ such that $e' \neq e''$ and $e', e'' \in$ PL-EV($P$) and $e' \oplus e'' \in$ *PL-EV($P$), and
   c. if $e \in$ *PL-EV($P$) and $e', e'' \leq e$, then $e', e'' \in$ P

(14) For any relation between an individual and an event, *(F) is the relation such that, for some event $e$
   a. $F \subseteq$ *(F), and
   b. if $\langle x, e \rangle \in$ *(F) and $x' \leq x$, then $\langle x', e \rangle \in$ *(F), and
   c. if $\langle x, e \rangle \in$ *(F) and there is no $x' \leq x$, then $\langle x, e \rangle \in$ F.

The operators are allowed to apply freely. The combination of PL-EV and two instances of * derives strong reciprocity (i.e., a total mapping between subject and object).

^^5See Davies (2000); Faller (2004) for comparable ideas in different Madurese and Cuzco Quechua respectively.
(15) a. *avaana va-lol-i avasazi*
   2child 2SM-see-FV
   ‘The children saw the parents.’

b. $\exists e \ [ avaana \ [ * \ [ \lambda 1 \ [ avasazi \ [ * \ [ \lambda 2 \ [ PL-EV \ [ V_P \ t_1 \ -lol- \ t_2 \ ] ] ] ] ] ] ] ]$

c. $\exists e \forall x, y [ x \in CHILDREN \land y \in PARENTS \rightarrow \#(\#(PL-EV(see)))(y)(x)(e) ]$

d. “There’s a plural event of seeing such that each ordered pair of children and parents is mapped to a sub-event of the plural seeing event.”

- *-An is simply the realization of PL-AN with an intransitive predicate.

(16) a. $\exists e \ [ avaana \ [ * \ [ \lambda 1 \ [ avaana \ [ * \ [ \lambda 2 \ [ PL-EV \ [ V_P \ t_1 \ -lol- \ t_2 \ ] ] ] ] ] ] ] ]$

b. $\exists e \forall x, y \in CHILDREN \rightarrow \#(\#(PL-AN(see)))(y)(x)(e) ]$

c. “There’s a plural event of seeing such that each ordered pair of children is mapped to a sub-event of the plural seeing event.”

- Note that this does not explicitly rule out the reflexive relation — I return to this in a moment.

Recap

*i- and -an are independent.*

- **No morphological overlap:** they do not share phonological shape or template position.

- **No syntactic overlap:** They are of different categories.

- **No semantic overlap:** *i-* expresses a relation between individuals, and *-an is a quantifier over events.

Logoori uses two different strategies for expressing reflexive and (pure) reciprocal situations (contra Mchombo 1993; Baker et al., 2013).

- Reflexivity is expressed directly, i.e., *i-* indicates that there is a relation *in* a set of individuals, including the reflexive relation.

- Reciprocity is expressed compositionally. There is no one thing that means “reciprocal,” rather the meaning is a sum of different interacting processes.
5 Co-occurrence

- Because *i-* and -*an* are independent, we can immediately explain why they can co-occur (see [Safir and Sikuku 2018](#) for similar observations in Lubukusu, a related Luhia language).  

(17) a. *avaana va-i-yag-an-i*
   2child 2SM-i-scratch-AN-FV
   ‘The children scratched themselves/each other (a lot).’

b. *Sira y-i-yag-an-i*
   1Sira 1SM-i-scratch-FV
   ‘Sira scratched himself a lot.’

- (17a) is felicitous in the **mixed scenario context** above; the addition of -*an* simply reinforces that there is a plural event.

- In (17b), the addition of -*an* asserts that the event is plural.

6 Competition

- **If *i-* is underspecified, then why not use that instead of -*an?** That is, if *i-* can independently be used to express a reciprocal situation, then why bother using -*an* at all?

- We can understand this if utterances marked with *i-* are in competition with utterances marked with -*an*.

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6I note that a plural event with intransitive predicates is sometimes expressed without -*an*, just in the case that event plurality is otherwise inferable. For instance, *avaana vashiamuli*, ‘The children sneezed’ involves a plural event of sneezing, but the addition of -*an* is not necessary (though it is possible) in this context because sneeze naturally involves distribution of individuals over events.

7A Lubukusu example:

(i) *ba-khansi ba-a-i-khosy-an-a ba-b-eene ne ba-b-eene*
   2-woman 2SM-PAST-RFM-photograph-RCM-FV 2-2-own  with 2-2-own
   ‘(The) women photographed each other.’  

Baker et al argue that the co-occurrence of reflexive and reciprocal markers in Lubukusu stems from the fact the markers instantiate different heads in the syntax which license a direct object anaphor. Note that Lubukusu differs from Logoori in that it has a comitative (aka associative construction) with -*an* and -*an* cannot be used to indicate event plurality alone. Gluckman (in prep) suggests that languages associate-*an* treat -*an* as a quantifier over individuals.
• Since *i-* is felicitous in *-an* contexts, but not vice versa, I assume that *i*-marked predicates are “stronger” than *-an*-marked predicates.

• We therefore expect that an utterance with *-an* can be pragmatically strengthened to *i-*, but not vice versa.

(18) a. _avaana va-i-yag-i_
   2child 2SM-1-scratch-FV
   ‘The children scratched themselves.’

   b. _# Indiyo, va-yag-an-i_
      Yes, 2SM-scratch-AN-FV
      ‘Yes, they scratched each other.’

(19) a. _avaana va-yag-an-i_
   2child 2SM-scratch-AN-FV
   ‘The children scratched each other,

   b. _Indiyo, va-i-yag-i_
      Yes, 2SM-1-scratch-FV
      ‘Yes, they scratched themselves.’

• To account for the fact that *i-* requires there to be at least one reflexive relation it’s possible to encode this directly into the meaning of the morpheme, but it’s also possible to explain this as a result of pragmatics.

  – If a speaker uses *i-*, then the hearer infers that there must be at least one person in a reflexive relation, otherwise the speaker would have used *-an*.

• This allows us to keep the meaning for *i-* completely underspecified.

• Note finally that the competition is at the utterance level. Since *i-* and *-an* are completely independent, it does not make sense to consider them as part of a Horn scale like ⟨every, some⟩.

7 Conclusion

• Though reflexivity and reciprocity share some semantic overlap, a language may use different strategies to encode the different relations.
In general, reciprocity seems to involve compositionality in a way that reflexivity doesn’t (Heim et al., 1991; Nedjalkov, 2007). This is presumably due to the fact that reciprocal meaning is simply more complex than reflexive meaning.

• It possible though that one marker expresses some piece of meaning that is compatible with both contexts.
  – Here we see that $i-$, because it’s underspecified, is possible in both reciprocal and reflexive situations.
  – Another example may be detransitivization morphology (cf., Greek; see e.g. Nedjalkov, 2007).

• In this case, if a language wishes to grammatically distinguish the categories, then it must rely on some further process.
  – This could involve competition, as suggested above, when the markers are entirely independent.
  – It could also involve additional morphology in addition to the reflexive (i.e., bipartite constructions; see Nedjalkov, 2007).

• More importantly, though reflexive and reciprocal markers are often broadly considered to fall into the class of “anaphora,” in fact within a language there may be no class that subsumes both markers (cf. Safir, 1996).
References


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**Appendix**

(20) \[ [PL_{E^0}] = \lambda f_{E^0} \lambda e. *E f(e) \]

(21) For any set of events \( P \), \( *E P \) is the set such that,
   a. \( P \subseteq *E P \), and
b. there are events $e', e''$ such that $e' \neq e''$ and $e', e'' \in *E_p$ and $e' \oplus e'' \in *E_p$, and
c. if $e \in *E_p$ and $e', e'' \leq e$, then $e', e'' \in *E_p$, and
d. if $e \in *E_p$ and there is no $e' \leq e$, then $e \in P$.

(22) a. Sira 1-ashiamul-an-i 1Sira 1SM-sneeze-REC-FV
   ‘Sira sneezed repeatedly.’

b. 
   \[
   \begin{array}{l}
   \text{NumP} \\
   \text{Num} \quad \text{VP} \\
   \text{PL}_{Ev} \quad \text{DP} \quad \text{V} \\
   \text{Sira} \quad \text{-ashiamul-} \\
   \text{sneeze}
   \end{array}
   \]

c. \(PL_{Ev}(\lambda e.\text{Sira-sneezed}(e))\)
d. \(\lambda e.\text{*E-sira-sneezed}(e)\)

(23) \[[\text{DISTR}] = \lambda F_{(x, e)} \lambda x \lambda e. \text{*DF}(x)(e)\]

(24) For any relation between an individual and an event, \text{*DF} is the relation such that, for some event $e$
a. \(F \subseteq \text{*DF}\), and
b. if \(\langle x, e \rangle \in \text{*DF}\) and \(x' \leq x\), then \(\langle x', e \rangle \in \text{*DF}\), and
c. if \(\langle x, e \rangle \in \text{*DF}\) and there is no \(x' \leq x\), then \(\langle x, e \rangle \in F\).

(25) a. \([\text{avaana} \quad \text{DISTR} \quad [1 \quad \text{[NumP \quad PL}_{Ev} \quad [t_1 \cdot \text{-shiamul-}]]\] \] ] ]]
b. \(\exists e[\lambda x \lambda e. \text{*E-sneeze}(x)(e)]([\text{avaana}])((e)\]

\[\text{Part (d) is typically left out of definitions of plurality, though it is crucial. Take the following definition of *}.\]
(i) Let $S$ be any set of entities. \text{*S} is defined as the smallest set such that:
   a. $S \subseteq *S$
   b. For all $x, y \in *S$, $x + y \in *S$

Under this definition, \text{*S} allows in its extension events which may not be events of $S$. Thus, \text{*sneeze} allows events of coughing, laughing, jumping, etc as long as their mereological sum is also in \text{*sneeze}. The problem is that we only want elements of $S$ and their sums in \text{*S}, but this is not guaranteed. This appears to be a persistent problem in definitions of the Link’s plural operator. Credit goes to Andrew McKenzie for pointing out this issue.
c. \( \exists e \forall x [x \leq \text{CHILDREN} \rightarrow *D_{E}^{*}\text{sneeze}(x)(e)] \)

(26) a. *avaana va-lol-an-i*

2child 2sm-see-AN-FV

‘The children saw each other’.

b. \[ *avaana [ \text{DISTR} [2 [ *avaana [ \text{DISTR} [1 [ [\text{NumP PL}_{Ev} t_{2} -lol- t_{1}] ] ] ] ] ] ] \]

c. \( \exists e [[[\lambda x \lambda y \lambda e. *D_{E}^{*}\text{see}(x)(y)(e)]([\text{avaana}])][([\text{avaana}])](e) \)

d. \( \exists e \forall x, y [x, y \leq \text{CHILDREN} \rightarrow *D_{E}^{*}\text{see}(x)(y)(e)] \)