Reciprocals in Malagasy

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We analyze the highly productive reciprocal morphology in Malagasy (Madagascar) as a phrasal affix that combines with two place predicates (P2s), possibly complex, reducing valency by one. We argue for our analysis over one in which reciprocal morphology originates as an argument of the verb and incorporates into it.

1. SIMPLE-RECIPROCALS ILLUSTRATED.\(^1\) (1a) is a minimal S built with a transitive verb; (1b) is its minimal correspondent built with a reciprocal verb.\(^2\)

(1) a. m+an-enjika (Manenjika) an-dRabe Rakoto.
   \(\text{ACC-Rabe} \quad \text{Rakoto}\)
   ‘Rakoto is chasing Rabe.’

b. m+if-an-enjika (Mifanenjika) Rabe sy Rakoto.
   \(\text{ACC-Rabe sy Rakoto}\)
   ‘Rabe and Rakoto are chasing each other.’

The tensed verb manenjika in (1a) is transitive, requiring a Theme, here the accusatively marked Rabe, and an Agent, here the unmarked Rakoto. In contrast, the verb mifanenjika in (1b) is intransitive, taking a single, group-level argument: Rabe sy Rakoto. *Mifanenjika Rakoto with an individual denoting argument is nonsense in Malagasy just as *John is chasing each other is in English.

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1. Research for this paper was done while the first author was a Fulbright Scholar at the Département Interdisciplinaire et de Formation Professionelle at the Université de Madagascar, directed by Prof. Roger-Bruno Rabenilaina. Special thanks both to the Fulbright Commission for its support and to Prof. Rabenilaina for providing the hospitality that made this research possible. Thanks also to two OJ reviewers whose careful critiques improved this paper extensively.

2. Verbs are given in morphemic decomposition followed by their orthographic form (in parentheses) when that is not simply the concatenation of the morphemes. \(N\)-indicates an appropriate (pre)nasalized segment. See Paul (1996) for a precise statement. Malagasy expressions are given in standard orthography except for \(N\)- and + to mark morpheme boundaries. Relevant orthography-phonology correspondences are: \(\alpha = /\,\text{hi}\); word final \(-y = \text{word internal}\); \(\text{\dot{\imath}} = /\,\text{hi}\); \(\text{\dot{\imath}}\) is a voiceless prepalatal affricate, \(\dot{\text{r}}\) (or \(\text{dr}\)) its voiced counterpart. \(j = /\,\text{dz}\), \(\text{ts}\) is its voiceless counterpart. With one exception (footnote 18), a nasal followed by a consonant is the prenasalized version of that consonant (including \(n-dR\) where the dash indicates a morpheme boundary). \(h\) is not sounded, but surfaces orthographically and phonologically as \(k\) under many morphophonemic processes. Glosses use the following abbreviations: ACC, accusative; ACT, active; ART, article; CAU, causative; CIRC, circumstantial; EXCL, exclusive; Fut, future; GEN, genitive; IMP, imperative; INCL, inclusive; NOM, nominative; PL, plural; POSS, possessive; PRES, present; REC, reciprocal; SG, singular; THEM, theme.
Phonologically the verb in (1b) differs from that in (1a) solely by the presence of the prefix if-. We shall then treat if- as morphology that derives group level intransitive predicates from individual level transitive ones. Here and later we use "P2" for two place predicate. Transitive verbs are lexical P2s (but we will also see many syntactically complex P2s).

Semantically we interpret if- as a function IF as in (2), where A is a set (the antecedent set) with at least two elements and p is a possible P2 denotation, a function taking two arguments yielding a Sentence interpretation as value.

(2) \( \text{IF}(p)(A) = \text{True if and only if for all distinct x,y in A, p(y)(x) = True.} \)

So treating Jo and Mo as denoting the set whose elements are Jo and Mo, (2) says:

(3) \( \text{IF(chase)(Jo and Mo)} = \text{True iff chase(Jo)(Mo) and chase(Mo)(Jo) = True.} \)


We further ignore the semantic contribution of tense, which is independent of reciprocal marking but always included in our examples, as native speakers don’t recognize tenseless verbs, such as -ananjika, as Malagasy.

This approach to the syntax and semantics of reciprocals in Malagasy obliges us in the interests of descriptive adequacy to respond to the following questions:

Q1. What is the class of P2s that if- combines with? Just lexical transitive verbs? Or must we countenance syntactically complex P2s? What derivational operations feed Reciprocal Formation?

Q2. What derivational operations apply to reciprocal predicates? Can we nominalize them? Change their voice? Do they enter control structures?

Q3. Which expressions may denote the antecedent set? Just the subject of the reciprocal verb? Both subject and object? Just the Agent, whether subject or not?

Anticipating our answers, we will invoke many syntactically complex P2s; in consequence we treat if- as phrasal morphology with its values at complex P2s given

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3. One important issue here concerns the interpretation of reciprocals when the antecedent set is many members: The boys are chasing each other does not entail that each boy is chasing all the other boys. Another issue is raised by our discussion of frequentatives in example (51). A third issue are the polysemes (Kemmer 1993) often associated with reciprocals—reflexive, collective, and chaining. Only chaining arises with any frequency in Malagasy: dimby ⇒ Mifandimby ny tona ‘the years succeed each other’. Reciprocals do not overlap with collectives: from luo ‘leave’ we form Mifandao Rabe sy Raso ‘meaning only ‘Rabe and Raso separated’, not ‘They left together’. Accompaniment without reciprocity is expressed with a pre-verb miaraka ‘be, do together’, as in Miara-mandeha isika ‘We are traveling together’. If- verbs never receive a reflexive interpretation, patterning in this respect with the Oceanic languages (Lichtenberk 1991). Reflexives use the nominal tena ‘body’, not a verbal affix. And inherently reciprocal predicates (Kemmer 1993) may be constructed without reciprocal morphology: mialy ‘fight (with e.o.)’, mivory ‘gather’, misovitory ‘be similar’, sanihafa ‘different’, etc.

4. Indeed Malagasy linguists, such as Rabajatarizafy (1966), treat the reciprocal prefix as mif-, despite the fact that the past tense form replaces the initial m- with n- and the future with h:- ninfanjika ‘chased’ and hifanjnija ‘will chase’.
recursively. Second, reciprocal verbs are productively nominalized, do undergo voice changes, and enter complex types of control structures. Regarding Q3, Agents (roughly) rather than subjects denote the antecedent set of reciprocals.

2. WHICH TWO-PLACE PREDICATES HOST RECIPROCAL MORPHOLOGY? Hebrew presents both verbal and NP reciprocals and Siloni (2001) argues that the verbal one is strictly lexical. Similarly Mchombo (1991) treats the verbal reciprocal in Chichewa as lexical. But in Malagasy, we argue, the reciprocal affix may take complex P2s in its scope. Even the simplest cases like (1a) show that the expression the reciprocal affix combines with is complex, consisting of a prefix aN- and a verbal root, enjika, which yields different verbs depending on the choice of prefix. For example, with prefix i- the derived verb meaning flee is intransitive:

\[(4)\] M+i+enjika any an-tsaha ny omby.  
pres+act+fun there at-hills the cows  
'The cows are running to the hills.'

The intransitive verb in (4) does not host if-. But with other roots, (16), i- builds transitive verbs that do host if-, so to define the class of verbs if- combines with we must examine their subcategorization, not just their affixes. Also, different ways of deriving verbs determine different antecedent NPs.

2.1 VERBAL DERIVATION. Overwhelmingly, Malagasy verbs are formed by affixing roots that are not themselves verbs, sometimes not even words (Keenan and Polinsky [K&P] 1998). We may classify verbs according to the number, case, and semantic (theta) role of their argument NPs, the latter ordered as follows:

\[(5)\] Agent > Experiencer > Theme/Patient > Other

aN- and i- are among the most productive verb-forming prefixes that combine with roots. They both have the property that the NP expressing the highest role on the ordering in (5) is placed rightmost. Other NPs are presented between the verb and that NP. Moreover in Ss such as (1a), there is massive evidence that the verb plus its Theme form a VP constituent to the exclusion of the Agent argument, which we call the EXTERNAL ARGUMENT (Pearson 2001, to appear; also Keenan 1976, 2000; Paul 1999). Here we just note two pieces of evidence. First, the yes-no question particle ve must separate the external argument from the rest of the S. It cannot separate other arguments from the verb:

\[(6)\] a. Manenjika an-dRabe ve Rakoto?  
'Is Rakoto chasing Rabe?'

b. *Manenjika ve an-dRabe Rakoto?  
'Is Rakoto chasing Rabe?'

Second, only the external argument in (1a) can relativize; the Theme cannot:

\[(7)\] a. ny olona izay manenjika an-dRabe  
the person who chases aco-Rabe

'the person who is chasing Rabe'
Verbs whose external arguments carry the highest theta role required by the verb will be called **Actor Focus (AF)**. The question and relativization tests support that the conjoined NP in (8) is the external argument, and that the verb is AF:

(8) a. Mifanenjika ve Rabe sy Rakoto?
   ‘Are Rabe and Rakoto chasing each other?’

b. ny mpianatra izay mifanenjika
   ‘the students who are chasing each other’

To relativize the Theme argument of roots which have Agents, suffix -ina (or -(a)na) to the root, or, sometimes, prefix a-, yielding a verb which forms a VP with its Agent in the genitive case. That VP in turn takes the Theme as external argument, as in (9). The verbs of such VPs will be called **Theme Focus (TF)**.

(9) 0-enjika+ina+Rakoto (Enjehin-dRakoto)Rabe.
   pres-chase+rakeg+Rakoto.gen Rabe
   ‘Rakoto is chasing Rabe.’

In (9) question particles immediately precede the external NP and cannot separate the verb from its genitive complement. And only the external NP relativizes:

(10) a. Enjehin-dRakoto ve Rabe?
    ‘Is Rabe who Rakoto is chasing?’

b. *Enjehina ve Rakoto Rabe?
    ‘Is Rabe who Rakoto is chasing?’

(11) a. ny olona izay enjehin-dRakoto
    ‘the person who Rakoto is chasing’

b. *ny olona izay enjehina Rabe
    ‘the person who Rakoto is chasing’

In line with the grammatical tradition for Philippine languages but contrary to that for Malagasy, we treat the verbs in (1a) and (10a) as distinct transitive verbs, differing with regard to whether the Theme or Agent is external, and in consequence which can be relativized, and so forth. Following Keenan (1995), roots determine a relation, including a set of theta roles, and the affix determines the assignment of case and theta roles to the NPs that combine with the verb.

For example, the root *enjika* denotes a binary relation whose two participants bear the Theme (TH) and Agent (AG) theta roles. The subcategorization of the verb formed by suffixing -ina is given in (12a), that for aN+enjika in (12b):

(12) a. enjika+ina [NPGEN, NP NOM]  b. aN+enjika [NP ACC, NP NOM]
    AG TH AG
    TH AG

5. One might imagine an analysis of (1b) in which it was the external argument that was missing, bound say by if, thought of as a variable binding operator. The question particle, relativization, and nominative pronoun replacement tests defeat such an analysis.
We use the convention that the leftmost NP in the subcategorization frame of a verb is the one it combines with first, yielding a VP whose subcategorization is given by the remaining case- and theta-marked NPs. When no NPs are left in the subcategorization frame, the result is a Sentence. Thus *enjehina* in (10a) combines first with a genitive case Agent NP to form a complex P1 (one place predicate, VP), such as *enjehin-dRakoto*, which subcategorizes a nominative Theme NP. In contrast, the complex P1 *mananjaka an-dRabe* 'chases ACC-Rabe' created by combining *mananjaka* with its accusative Theme leaves us with a P1 that takes a nominative Agent argument. So complex predicates inherit a subcategorization. And AF verbs are ones whose rightmost NP in their subcategorization frame bears the highest theta role in the frame.

More traditional work on Malagasy (including my own over 30 years) treats Theme Focus (TF) and other non-Actor Focus verbs as PASSIVES. But this terminology is misleading (Pearson to appear) and Keenan and Manorohanta [K&M] (2001)). For example K&M show that a majority of TF verbs in texts present Agent Phrases and that missing Agent Phrases may be controlled by Agent Phrases of other non-AF verbs. Equally, Agent Phrases of certain classes of non-AF verbs may antecede reflexives and reciprocals. Note too that AF and TF verbs are comparable in terms of morphological complexity, both being formed by affixing the root. Finally both AF and TF verbs form imperatives, with the TF ones being those most commonly volunteered as translations of French imperatives. Returning now to reciprocals,

**Gen 1** Reciprocal morphology only combines directly with Actor Focus verbs.

Thus while *mifanjika* 'chases each other' in (1a) is fully natural, any attempt to combine *if-* with *enjehina* is incomprehensible:

(13) *if+enjika+ina+Rabe sy Rakoto (ifenjehin-dRabe sy Rakoto)

Similarly, some roots prefix *a-* to form TF verbs, and these also do not host *if-*:

(14) a. *m+N+tolostra (Nanotola) vary (hoan’)ny vahiny Rabe.

\[ \text{Pres+ACT+offer} \text{ rice } \text{ the guest Rabe} \]

'Rabe offers rice to the guests.'

b. *θ+o+tolostra+Rabe (Atola-dRabe) (hoan’)ny vahiny ny vary.

\[ \text{Pres+THM+offer-Rabe} \text{ GEN} \text{ to the guests the rice} \]

'The rice is offered by Rabe to the guests.'

c. *θ+tolostra+ana+Rabe (Tolotra-dRabe) vary ny vahiny.

\[ \text{Pres+offer+GOAL-Rabe} \text{ GEN} \text{ rice the guests} \]

'The guests are offered rice by Rabe.'

No attempt to prefix the verbs in (14b) or (14c) with *if-* is grammatical. Both the verbs in (14b,c) are non-AF, with the Agent a genitive internal argument. The external argument is Theme or Goal. So Gen 1 covers these cases as well.

Many transitive verbs, like *mifanjika*, are formed from *aN-* root, and they host *if*: *mifanjaja (< haaja) ‘respect e.o.’, mifamanja (< vangy) ‘visit e.o., mifandaka (< daka) ‘kick e.o., mifamabo (< babo) ‘capture e.o.’, etc. Equally, the causative
prefix ana- is often used with adjectival roots to form AF transitive verbs that host reciprocal if-: soa 'good, beautiful' ⇒ manasoa 'makes good, improves' ⇒ mifana-soa 'improve, do good for e.o.'

However an-+root is sometimes intransitive: mandehe (<leha) 'goes', mandihy (<dihy) 'dances', and mandohalika (<lohalika) 'kneels', not to mention the more numerous uncusatives: howitra ⇒ mangoovitra 'shivers', hatsiaka ⇒ mangatsiaka 'is cold', and so forth. Intransitive an- verbs do not host reciprocal morphology: *mifandeha, *mifangovitra, and so on.

Finally, Gen 1 also covers the few verbs that, exceptionally, do form TF forms by suffixing AF forms:

\[(15)\]
\[
a. \text{m+anN+hataka (Mangakata) vola an-dRabe Ravao.}\\
\text{PRES+ACT+ask} \quad \text{money acc-Rabe Ravao}\\
\text{Ravao asks Rabe for money.}\\
\]
\[
b. \text{θ+mN+hataka+ina+Ravao (Angathain-dRavao) vola Rabe.}\\
\text{PRES+ACT+ask+THM+Ravao,GEN} \quad \text{money Rabe}\\
\text{Ravao asks Rabe for money.}\\
\]
\[
c. \text{m+i+anN+hataka (Mifangakata) vola Rabe sy Ravao.}\\
\text{REC+ACT+ask+THM+Rabe,GEN} \quad \text{and Ravao money}\\
\text{Rabe and Ravao ask each other for money.}\\
\]
\[
d. *i+anN+hataka+ina+Rabe (Ifanganahain-Ifangan) sy Ravao vola,}\\
\text{REC+ACT+ask+THM+Rabe,GEN} \quad \text{Ravao money}\\
\text{Rabe and Ravao ask each other for money.}\\
\]

Similarly, halatra 'steal' ⇒ AF mangalatra and TF angalarina; voly 'plant' ⇒ AF mangboky and TF ambolena. The AF forms host if-, the TF ones do not.

Further, the i- prefix often forms transitive verbs, and these do host reciprocal morphology, using the allomorph ifamp-.

\[(16)\]
\[
a. \text{M+i+jery azy aho.}\\
\text{PRES+ACT+look+at him 1}\\
\text{I am looking at him.}\\
\]
\[
b. \text{M+i+ifamp+i+jery isika.}\\
\text{PRES+REC+ACT+look+at me we,INCL}\\
\text{We (you and I) are looking at each other.}\\
\]

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6. A reviewer points out that we can decompose ifamp- into if+amp-, where amp- itself derives by normal Malagasy phonology from an- + f. f. a nominalizer, as in fasterha 'act or manner of going (<f+anN+leha 'NOM+ACT+go'). But synchronically, reciprocal ifamp- lacks the causative meaning regularly associated with amp-, as in (22). So this analysis cannot account for the ambiguity in verbs such as mifampatyko, built from matoxy (<m+a+toky) 'trusts, has confidence in', according as it is simply the reciprocal of matoxy 'trust e.o.' as in (ii) or the reciprocal of the ditransitive causative mampatyko (<m+amp+a+toky) 'inspire confidence in', as in (iii).

i. \text{M+a+toky azy aho.} \quad \text{M+i+ifamp+a+toky isika.}\\
\text{PRES+ACT+trust him 1} \quad \text{PRES+REC+ACT+trust we,INCL}\\
\text{I trust him.} \quad \text{We trust each other.}\\

ii. \text{M+i+ifamp+a+toky isika.}\\
\text{PRES+REC+CAUS+ACT+trust him we,INCL}\\
\text{We inspere each other to trust him.}
Any attempt to prefix if- directly in (16a) is unrecognizable: *mijery isika. Like mifampijery 'look at e.o.', we have mifampidera (< dera) 'praise e.o., mifampilaza (< laza) 'say to e.o.', and mifampitantara (< tantara) 'narrate to e.o.'.

There are also a few, if commonly occurring, AF verbs that exceptionally allow tense marking to combine directly with the root rather than using a prefix like an- or i-: m+ino 'believes', m+aaka 'takes'. The very few of these verbs that are transitive also form reciprocals with ifamp-: mifampino 'believe e.o.'.

Finally, some AF stative verbs are formed with the causative/potentiality prefix ah+: m+aha+lala 'knows'. Their reciprocals use the allomorph ifanka-, as in mifankahalahala 'know e.o.'. A few other nonactivity roots form AF verbs by prefixing a+: m+a+ha 'sees'. Some but not all of them also form reciprocals with ifanka, as in mifankahita 'see e.o.', mifankahay 'agree, get along'.

To summarize, and generalize slightly, we derive reciprocal morphology on verbs using a function, which we call Rec. We write "i" for concatenation:

\[
\text{Rec}(\text{pref-root}) = \begin{cases} 
\text{if-pref-root} & \text{if pref = an- or ana- or amp- or ank-} \\
\text{ifamp-pref-root} & \text{if pref = i- or } n \\
\text{ifank-pref-root} & \text{if pref = a- or } ah-
\end{cases}
\]

We use if- as a cover term for if-, ifamp- and ifanka. 8 Second, we treat Reciprocal Formation as a function REC deriving Ps from P2s, satisfying:

\[
\text{REC}([\text{NP}_{\text{ACC}}, \text{NP}_{\text{NOM}}]) \rightarrow \text{Rec(verb)}: [\text{NP}_{\text{NOM,PL}}], \text{where } 0' > 0 \text{ in (5)}
\]

Here is an example (with tense marking included for readability):

\[
\text{REC} \text{manenjika:} [\text{NP}_{\text{ACC}}, \text{NP}_{\text{NOM}}] \Rightarrow \text{mifanenjika:} [\text{NP}_{\text{NOM,PL}}] \\
\text{TH} \quad \text{AG} \quad \text{AG}
\]

And, per (2), the interpretation of REC(P2) is IF(P2), the function IF maps the P2 denotation to. In what follows we extend REC to syntactically complex P2s.

We should note a second way of expressing reciprocals in which the external argument may be singular and the other party engaged in the reciprocal action is expressed as an object of the preposition am- 'with', as in (20).

\[
\text{PREP+REC+FACT+chase} \quad \text{with-Rabe} \quad \text{Rakoto} \\
\text{Rakoto is engaged in mutual chasing with Rabe.'}
\]

7. Again one might argue that ifanka- consists of if- combined with anka-, decomposable by regular Malagasy phonology into an- + ha, ha- 'is a nominalizer of (limited productivity); tsara 'good' => hatsara 'goodness'. But this decomposition is synchronically unjustified: in mifankahita 'see e.o.', hahita does not exist as a nominalization (it is the normal future tense form of 'sees'), nor does *mankahita exist. Similarly in mifankata 'like/love e.o.', *mankata does not exist, nor is there any nominalization **hataia.

8. ifamp- and ifanka- might be regarded as "heavy;" Kenmer (1993:25–28), bare if- as "light," but we find no semantic differences, such as light forcing simultaneous action, heavy allowing sequential involvement. They are just variants conditioned by the AF prefixes.
(20) is a rough paraphrase of (1b) and is much more natural than suggested by our English translation, which serves nonetheless to heighten the fact that one of the reciprocating parties is focused relative to the others. And this, in turn, has further consequences. For example, (21a) is natural, and (21b) incoherent.

(21) a. ny olona iray izay mifanenjika amin-dRabe
    the person one who PRES+REC+ACT+chase with-Rabe
    ‘the one person who is engaged in mutual chasing with Rabe’

b. *ny olona iray izay mifanenjika
    the person one who PRES+REC+ACT+chase
    ‘the one person who is chasing each other’

To generate expressions like (20), we need a second way of deriving reciprocals. But we shall not pursue this construction here, though it appears to be an option in all languages with verbal affix reciprocals: Japanese (Nishigauchi 1992), Chichewa (Mchombo 1991), Nêlêmwa (New Caledonia; Bril 1994:134 and to appear), Hebrew and Hungarian (Siloni 2001).

The verb-forming affixes so far considered are *primary in the sense of combining directly with roots to form verbs. But Malagasy also presents two productive affixes that only apply to already affixed roots. These are *if- itself and the causative amp- (less productively anka-), and both are limited to apply to AF verbs. Causatives present their own complexities, which we cannot review here (see Randrianasimanana 1986 and Andrianiereanana 1996). Highly productive are causatives of intransitive verbs. They are P2s and host reciprocal *if- as expected:

(22) a. M+i+homehy aho.
    PRES+ACT+laugh 1.SG.NOM
    ‘I am laughing.’

b. M+amp+i+homehy azy aho.
    PRES+CAUS+ACT+laugh 3.ACC 1.SG.NOM
    ‘I am making him laugh.’

c. M+if+amp+i+homehy isika.
    PRES+REC+CAUS+ACT+laugh 1.PL.INCL
    ‘We are making each other laugh.’

Like mifampihomehy ‘make e.o. laugh’ we have mifampandihi ‘make e.o. dance’, mifampijaly ‘make e.o. suffer’ and many others. We should note, though, that the more common use of the causative in (22b) is as an intransitive:

(23) M+amp+i+homehy izany.
    PRES+CAUSE+ACT+laugh that
    ‘That is funny, makes (one) laugh.’

The AF noncausative verb mihomehy ‘laughs’ selects for animate, usually human, subjects, whereas the intransitive causative does not:

(24) a. vaovao mampihomehy
    news funny
    ‘a funny piece of news’

b. *vaovao mihomehy
    news laughs
    ‘news which is laughing’
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Similar in all these respects are: malahoelo ‘sad’ / mampalahelo ‘makes (one) sad’, mito-many ‘cries’ / mampitomany ‘makes (one) cry’, and mangovastra ‘shivers’ / mampangovitra ‘makes (one) shiver’. A similar paradigm obtains with the weaker causative aha: gaga ‘surprised’ / mahagaga ‘is surprising’, faly ‘happy’ / mahafaly ‘joyous’, and so on.

Examples with anka- are rarer, as the external NP of verbs it builds is often an inanimate cause acting on an animate object (Rahajarizafy 1960:55). But we note:

(25) a. m+a-siaka Rabe. b. m+anka+a+siaka (Mankasiaka) azy aho.  
   PRES+ACT+nasty Rabe PRES+CAUS+ACT+nasty him I  
   ‘Rabe is nasty.’ ‘I am making him nasty.’

   c. m+if+anka+a+siaka (Mifankasiaka) Rabe sy Ranaivo.  
   PRES+REC+CAUS+ACT+nasty Rabe and Ranaivo  
   ‘Rabe and Ranaivo are making each other nasty.’

Also sitraka ‘agreeable’ ⇒ mankastiraka ‘accepts’ ⇒ mifankastiraka ‘find e.o. agreeable’.

2.2 SYNTAXICALLY COMPLEX P2S. A P2 formed by causativizing a P1 is already complex; causativizing a P2 to form a P3 (ditransitive verb) is more so. P3s combine with NPs to form syntactically complex P2s. But, as with causatives of intransitives, the understood Agent of the verb causativized is usually not required, so the resulting causative verb is often merely transitive. Still, (26b) and (27b) are causative P3s that behave as expected under if- prefixation.

(26) a. m+aN+sasa (Manasa) lamba Rasoa.  
   PRES+ACT+wash clothes Rasoa  
   ‘Rasoa is washing clothes.’

   b. m+amp+aN+sasa (Mampanasana) lamba an-dRaso sy aho.  
   PRES+CAUS+ACT+wash clothes ACC-Rasoa 1.SG.NOM  
   ‘I am having Rasoa wash clothes.’

   c. m+if+amp+aN+sasa (Mifampanasana) lamba Rabe sy Rasoa.  
   PRES+REC+CAUS+ACT+wash clothes Rabe and Rasoa  
   ‘Rabe and Rasoa are making each other wash clothes.’

(27) a. N+ii-anatra zavatra betsaka aho.  
   PAST+ACT+study thing many 1.SG.NOM  
   ‘I studied many things.’

   b. N+amp+ii-anatra zavatra betsaka ahy Rabe.  
   PAST+CAUS+ACT+study thing many 1.SG.ACC Rabe  
   ‘Rabe taught me many things.’

   c. N+if+amp+ii-anatra zavatra betsaka isika.  
   PAST+REC+CAUS+ACT+study thing many 1.PL.INCL  
   ‘We taught each other many things.’

Because the result of combining the P3 mampanasana ‘cause-wash’ in (26b) with its object lamba ‘clothes’ is a P2, it is in the domain of REC, as is mampianatra zavatra betsaka ‘teach many things’ in (27b). To derive the right form, we need simply to
extend the domain of the morphological function Rec to include the concatenations of P3s with their objects:

\[(28) \text{Rec}(P_3 + \text{NPcase}) = \text{Rec}(P_3) + \text{NPcase}, \text{where case = acc or oblique.}\]

Thus, ignoring tense marking,

\[(29) \text{Rec}(\text{mampanasa} + \text{lamba}) = \text{Rec}(\text{mampanasa}) + \text{lamba} \quad \text{by (28)}
\]

\[= \text{mifampanasa} + \text{lamba} \quad \text{by (18)}\]

This is our first example of morphology assignment to proper phrases. This extension applies without change to P2s built from lexical P3s:

\[(30) \]
a. \(n+aN+ome\) (Nanome) boky an-dRabe aho.
\[\text{PAST+ACT+give} \quad \text{book} \quad \text{ACC-Rabe} \quad \text{1.SG.NOM}\]
\[\text{‘I gave Rabe a book.’}\]
b. \(n+if+aN+ome\) (Nifanome) boky izahay.
\[\text{PAST+REC+ACT+give} \quad \text{book} \quad \text{1.PL.EXCL}\]
\[\text{‘We gave each other books.’}\]

Here nanome boky ‘gave a book’ is a P2 consisting of a \(P_3 + \text{NP}\), so Rec as extended in (28) applies, yielding nifanome boky ‘gave e.o. books’. We also extend REC slightly in the following natural way: namely, just as \(0\) is required to outrank \(0\) in (18), so the case borne by the \(0\)-marked NP is now required to outrank that of the \(0\)-marked one on the following ordering:

\[(31) \text{nominative > accusative > oblique (=} \text{Object of Preposition})\]

In Malagasy, objects of prepositions are normally genitive—they take the same pronominal forms and, when full NPs, the same complex morphology (K&P) as possessors of nouns. Also, nonexternal Agent Phrases are genitives. Text counts (Keenan 1995) show that the genitive case is the most widely used in Malagasy; then comes accusative, then nominative. The three cases have distinct pronominal forms, (32). In addition, accusative proper nouns (and a few other definite NPs) mark accusative with an-, as an-dRasoo, an'i Soa. Nominative is largely limited to external arguments.

\[
\begin{array}{cccccc}
\text{NOM} & \text{1.SG.} & \text{2.SG.} & \text{1.PL.EXCL.} & \text{1.PL.INCL.} & \text{2.PL.} \\
\text{AH} & \text{ah} & \text{ianao} & \text{izahay} & \text{isika} & \text{ianareo} & \text{izy} \\
\text{ACC} & \text{ahy} & \text{anao} & \text{anay} & \text{antsika} & \text{anareo} & \text{azy} \\
\text{GEN} & \text{-ko} & \text{-nao} & \text{-nay} & \text{-ntsika} & \text{-nareo} & \text{-ny} \\
\end{array}
\]

Third person pronouns may force a plural interpretation when accompanied by a plural-marked demonstrative, as in izy ireo ‘3\text{nom} DEM+PL’, or a numeral + noun, as in izy roa lahy ‘3\text{nom} two men’, or a kin term, as in izy mbavy ‘3\text{nom} spouses’.

Now observe, unsurprisingly, that several “standard” P3s present their two internal arguments as an accusative and an oblique (which often alternates with an accusative when pronominal, but even verbs like ‘give’, which take two accusatives, do not permit a sequence of two accusative pronouns). The oblique is typically a human Recipient and is not present in the reciprocal form of the verb.
(33) a. H+i+laza vaovao amin-dRabe aho.
   FUT+ACT+say news PREP-Rabe 1.SG.NOM
   ‘I will tell Rabe the news.’

   b. H+famp+i+laza vaovao isika.
   FUT+REC+ACT+say news 1.PL.INCL
   ‘We will tell each other the news.’

(34) a. m+aN+soratra (Manoratra) taratasy hoan-dRabe Rasoa.
   PRES+ACT+write letter to/for-Rabe Rasoa
   ‘Rasoa is writing a letter to Rabe.’

   b. m+i+f+aN+soratra (Mifanoratra) taratasy Rabe sy Rasoa.
   PRES+REC+ACT+write letter Rabe and Rasoa
   ‘Rabe and Rasoa write each other letters.’

(35) a. m+aN+lainga (Mandainga) amin-dRasoa Rabe.
   PRES+ACT+lie to-Rasoa Rabe
   ‘Rabe lies to Rasoa.’

   b. m+i+f+aN+lainga (Mifandainga) Rabe sy Ranaivo.
   PRES+REC+ACT+lie Rabe and Ranaivo
   ‘Rabe and Ranaivo lie to each other.’

So the a-Ss above pattern like (30), save that the complex P2, for example, manoratra taratasy ‘write letters’ takes an oblique object, not an accusative one.

We stretch the cases in (33)–(35) to include ones with a benefactive or dative of interest interpretation. These may be expressed with the preposition heon’, which also marks some notional indirect objects, as in (34a).

(36) a. m+aN+tao (Manao) farafara hoan-dRasoa Rabe.
   PRES+ACT+make bed for-Rasoa Rabe
   ‘Rabe is making a bed for Rasoa.’

   b. m+i+f+aN+tao (Mifanao) farafara Rabe sy Ranaivo.
   PRES+REC+ACT+make bed Rabe and Ranaivo
   ‘Rabe and Ranaivo are making each other beds.’

To generate (36b) with our extended REC rule, it is not necessary to assume that manao ‘make’ subcategorizes a benefactive. It suffices that in Ss like (36e) we can analyze manao farafara as a P2 taking an oblique complement. It may be that the process, not understood and not analyzed here, of “free benefactive” insertion simply imposes some argument structure on whatever predicate hosts it. But in general, objects of “rich” prepositions are not accessible to REC.

(37) a. M+i+petraka akaikin-dRasoa Rabe.
   PRES+ACT+sit next-to-Rasoa Rabe
   ‘Rabe sits next to Rasoa.’

   b. *M+i+famp+i+petraka Rabe sy Rasoa.
   PRES+REC+ACT+sit Rabe and Rasoa
   ‘Rabe and Rasoa sit next to each other.’

9. (37b) is acceptable on an analysis in which the verb is the reciprocal of the causative: m+amp+i+petraka = ‘seats (transitive)’, in which case mifampiptipetraka means ‘seat e.o.’
(38) a. Tsy m+i+teny amin’ny olona afa-tsy Rabe irery izy ireo.
not PRES+ACT+ speak +with the people except Rabe alone 3NOM DEM+PL
'They don’t speak with anyone except Rabe.'

b. *Tsy m+ifamp+i+teny amin’ny olona Rabe sy Ranaivo.
not PRES+REC+ACT+ speak +with the people Rabe and Ranaivo
'Rabe and Ranaivo don’t speak with anyone but each other.'

These examples suggest that in verbal affix reciprocal (at least in Malagasy), the antecedent NP cannot bind a position that isn’t “accessible” from the verb. Thus in (37a) and (38a), the presence of the locative ‘next to Raso’ and the exception NP ‘except for Rabe’ are not predictable from the verb. This is less important in languages with NP reciprocals, as the location of the reciprocal pronoun overtly marks the position bound by the antecedent NP.

A second limitation on Reciprocal Formation in Malagasy derives from the very limited ability of if to combine more than once with a verb. For example from ditransitive mancho ‘show’ one might expect to apply REC twice in a row to obtain (39b), but in fact that is not possible.

(39) a. m+if+aN+seho (Mifaneho) sary isika.
PRES+REC+ACT+ show pictures WE.INCL
‘We are showing pictures to each other.’

b. *m+if+iN+seho (Mifaneho) isika
PRES+REC+REC+ACT+ show WE.INCL
‘We are showing each other to each other.’

A pragmatically more natural case is (40c), which is still not possible:

(40) a. n+if+aN+seho (Nampancho) sary ny mpianatra ahy Rabe.
PAST+CAUS+ACT+ show picture the student(s) 1.SG.ACC Rabe
‘Rabe had me show pictures to the students.’

b. n+if+iN+seho (Nifampancho) sary ny mpianatra isika.
PAST+REC+CAUS+ACT+ show picture the student 1.PL.INCL
‘We had each other show pictures to the students.’

c. *n+if+if+iN+seho (Nifampancho) sarya isika.
PAST+REC+REC+CAUS+ACT+ show picture 1.PL.INCL
‘We had each other show each other pictures.’

Note that on our analysis (39b) and (40c) is not derivable. REC just combines with the P2 ‘show pictures’ to yield ‘show e.o. pictures’, which is a P1, so REC does not apply to it. However we can get two nonadjacent if’s on a verb when they are separated by a (valency increasing) causative prefix.

(41) a. n+if+aN+daka (Nifandaka) isika.
PAST+REC+ACT+kick WE.INCL
‘We kicked each other.’

b. n+if+if+iN+daka (Nampifandaka) antsika Rabe.
PAST+CAUS+REC+ACT+kick US.INCL Rabe
‘Rabe made us kick each other.’
c. n+i+if+if+aN+daka (Nifampifandaka) isika. 
PAST+REC+CAUS+REC+FACT+kick 
WE.INCL
'We made each other kick each other.'

However, the ability to first reduce valency with if- and then raise it again with amp- is limited. We can say “make each other suffer” (42b), but we cannot in the same way say "make each other make each other suffer":

(42) a. M+i+jaly aho. 
PRET+FACT+SUFFER 1.SG.NOM
'I suffer'

b. M+i+if+if+i+if aho. 
PRET+REC+CAUS+FACT+SUFFER Rabe and Rasoa
'Rabe and Rasoa make each other suffer.'

c. *M+i+if+if+i+if+i+jaly aho. 
PRET+REC+CAUS+FACT+SUFFER Rabe and Rasoa
'Rabe and Rasoa make each other make each other suffer.'

We turn now to two cases of complex P2 formation that are not registered on the verb. The first is P2 Modification, of which we treat Possessor Raising (Keenan and Ralalaoheryivo 2000), illustrated in (43b), as a special case.

(43) a. m+aN+sintona (Manintona) ny volo+n'i Vao i Velo. 
PRET+FACT+pull the hair+GEN ART Vao ART Velo
'Velo is pulling Vao’s hair.'

b. Manintona volo an'i Vao i Velo.
pulls hair ACC ART Vao ART Velo
'Velo is hair-pulling Vao.'

c. m+i+if+aN+intona (Mifanintona) volo [i Vao sy i Velo]. 
PRET+REC+FACT+pull hair ACC Vao and ART Velo
'Vao and Velo are pulling each other’s hair.'

Now assuming an operation of PossR in which volo ‘hair’ in (43b) forms a complex P2 with manintona ‘pull’ without inducing an essential change in its subcategorization, then manintona volo ‘pull hair’ is just another complex P2. Extending REC so that Rec(P2 + N) = Rec(P2) + N, the complex P2 in (43b) undergoes REC to yield mifanintona volo in (43c).

We forego the temptation to treat P2+N as a case of incorporation (Baker 1996:38–48), though most of our examples are ones in which the N is a body part or kin term, thus indicating inalienable possession. But speakers do accept cases where the N is not inalienably possessed. They may even be modified, (44d).

---

10. Some speakers smile and accept (i) with two causatives:

i. M+i+if+i+if+i+if aho. 
PRET+CAUS+REC+CAUS+FACT+SUFFER 3.ACC DEM+PL 1
'I make them make each other suffer.'
(44) a. n+aN+halatra (Nangalatra) ny bitro+n’i Vao i Velo.
   \hspace{1em} \text{PAST+ACT=theft} \hspace{1em} \text{the rabbit+POSS\ ART Vao ART Velo}
   \hspace{1em} ‘Velo stole Vao’s rabbit.’

b. ?Nangala-bitro an’i Vao i Velo.
   \hspace{1em} \text{stole-rabbit} \hspace{1em} \text{ACC\ ART Vao ART Velo}
   \hspace{1em} ‘Velo rabbit-stole Vao.’

c. n+if+aN+halatra+bitro (Nifangala-bitro) i Vao i Velo.
   \hspace{1em} \text{PAST+REC+ACT=theft+rabbit} \hspace{1em} \text{ART Vao ART Velo}
   \hspace{1em} ‘Vao and Velo stole each other’s rabbit.’

d. Nifangala-bitro fotsy i Vao sy i Velo.
   \hspace{1em} \text{PAST+REC+ACT=steal-rabbit white ART Vao and ART Velo}
   \hspace{1em} ‘Vao and Velo stole each other’s white rabbit.’

The use of bare Ns as predicate modifiers preserving argument structure is common in Malagasy. From the root sasa ‘wash’ we form transitive manasa. (26a), and intransitive misasa, (45a), modified by a body part N in (45b).\(^{11}\)

(45) a. M+i+sasa Rasoa.
   \hspace{1em} \text{PRES+ACT=wash} \hspace{1em} \text{Rasoa}
   \hspace{1em} ‘Rasoa is washing (herself).’

b. M+i+sasa tanana Rasoa.
   \hspace{1em} \text{PRES+ACT=wash hand} \hspace{1em} \text{Rasoa}
   \hspace{1em} ‘Rasoa is washing her hands.’

Two further points concerning PossR should be noted. First, hosts may be themselves syntactically complex.

(46) a. m+aN+omme (Manome) vola ny zanan-dRavelo Rasoa.
   \hspace{1em} \text{PRES+ACT=give} \hspace{1em} \text{money the child-of-Ravelo Rasoa}
   \hspace{1em} ‘Rasoa gives money to the children of Ravelo.’

b. Mifanome vola zanaka Rasoa sy Ravelo.
   \hspace{1em} \text{PRES+REC+ACT=give money child} \hspace{1em} \text{Rasoa and Ravelo}
   \hspace{1em} ‘Rasoa and Ravelo give money to each other’s children.’

(47) a. m+aN+toro (Manoro) hevitra ny zanan-dRabe Rakoto.
   \hspace{1em} \text{PRES+ACT=indicate idea the child-of-Rabe Rakoto}
   \hspace{1em} ‘Rakoto gives advice to the child of Rabe.’

b. m+if+aN+toro (Mifanoro) hevitra zanaka Rabe sy Rakoto.
   \hspace{1em} \text{PRES+REC+ACT=indicate idea child Rabe and Rakoto}
   \hspace{1em} ‘Rabe and Rakoto give advice to each other’s child.’

But PossR itself does not iterate, and (48c,d) are ungrammatical.

\(^{11}\) A more common use of N-modification is with a Means interpretation:

Mandeha (fiara) any Antsirabe aho.
\hspace{1em} \text{goes \hspace{1em} (car) there Antsirabe 1}
\hspace{1em} ‘I go to Antsirabe (by car).’
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(48) a. Manintona ny volon’ny zanak’i Soa i Vao.
    pulls the hair the child ART Soa ART Vao
    ‘Vao is pulling the hair of Soa’s child.’

b. Manintona volo ny zanak’i Soa i Vao.
    pulls hair the child ART Soa ART Vao
    ‘Vao hair-pulls Soa’s child.’

c. *Manintona volo zanaka an’i Soa i Vao.
    pulls hair child acc’ART Soa ART Vao
    ‘Vao child-hair-pulls Soa.’

d. *Mifanintona volo zanaka i Soa sy i Vao.
    pres+rec+act+pull hair child ART Soa and ART Vao
    ‘Soa and Vao are pulling each other’s child’s hair’

Second, and of some concern, PossR is more restricted in application than REC.

(49) a. m+if+aN+fantatra (Mamantatra) ny toetra+n’i Soa i Vao.
    pres+act+known the character+gen’art Soa ART Vao
    ‘Vao seeks to know Soa’s character/state of mind.’

b. *?Mamantatra toetra an’i Soa i Vao.
    knows character acc’art Soa ART Vao
    ‘Vao character-knows Soa.’

c. m+if+aN+fantatra (Mifamantatra) toetra [i Soa sy i Vao].
    pres+rec+act+known character ART Soa and ART Vao
    ‘Soa and Vao seek to know each other’s character.’

This suggests that the use of N-modification in (49c) is independent of PossR. So let us generalize REC still further, without attempting to define precisely the conditions under which a bare N can modify a predicate:

(50) Rec(P2 + Mod) = Rec(P2) + Mod, where Mod = N, Adverb, or PP.

So we let adverbs and PPs modify P2s without changing subcategorization. Thus mandaka ‘kicks’ takes the same arguments as mandaka intole ‘kicks three times’ and thus undergoes REC. We can now represent an interesting ambiguity, according as ‘three times’ is under the scope of REC, (51b), or vice versa, (51c):

(51) a. Mifandaka intole Rabe sy Ravao.
    pres+rec+act+kick three+times Rabe and Ravao
    ‘Rabe and Ravao kicked each other three times.’

b. Rec(kick three times)(Rabe and Ravao) = True if and only if
    ‘Rabe kicked-three-times Ravao and Ravao kicked-three-times Rabe.’

c. (Three times)(Rec[kick])(Rabe and Ravao)
    ‘It happened three times that Rabe and Ravao kicked each other.’

(51c) lends itself to the interpretation that there were three mutual kickings, whereas (51b) seems to allow three independent kickings by each party (though no definite conclusion can be reached in the absence of an explicit semantics for frequentatives like ‘three times’). Moreover the narrow scope construal, (51c), is preferred in this
instance. (51a) “They kicked each other three times” is not a natural way to report the situation in which Rabe kicked Ravao three times last week and this week Ravao took revenge by kicking him three times. Judgments weaken, but only slightly, with actions that are naturally separated by a time interval:

(52) Nifampindram-bola intelo Rabe sy Ravao.
\[ \text{PAST+REC+BORROW-MONEY} \text{ three+times Rabe and Ravao} \]

‘Rabe and Ravao borrowed money from each other three times.’

Here it is natural to think that there were three exchanges of money: say Rabe borrows and pays it back, then Ravao borrows and pays back, then Rabe again.

Much more judgment work is needed here before any firm conclusions can be drawn. Nonetheless it does seem that the verbal affix reciprocal in Malagasy favors the “mutual event” reading over the independent event reading. This is consistent with Siloni’s claim (2001) for Hebrew that the NP reciprocal allows the independent event reading but the verbal one only the mutual event reading.

Our second case of complex P2 formation not registered on the verb is RtoO (Raising to Object), illustrated in (53b). RtoO is quite productive, being hosted by over 50 verbs in Malagasy (Paul and Rabao-vololona 1998). (53b) is a paraphrase of (53a). (53c) is reciprocal, built from (53b), not (53a).

(53) a. M+i+laza Ravelo fa n+aN+halatra+vary (nangala-bary) Rasoa.
\[ \text{PRES+ACT+SPY Ravelo that PAST+ACT+steal+rice} \text{ Rasoa} \]

‘Ravelo says that Rasoa stole rice.’

b. M+i+laza an-dRasoa ho nangala-bary Ravelo.
\[ \text{PRES+ACT+SPY ACC-Rasoa as PAST+steal-rice Ravelo} \]

‘Ravelo says Rasoa to have stolen rice.’

c. N+ifamp+i+laza ho nangala-bary Rasoa sy Ravelo.
\[ \text{PAST+REC+ACT+SPY as PAST+steal-rice Rasoa and Ravelo} \]

‘Rasoa and Ravelo said each other to have stolen rice.’

(‘Rasoa and Ravelo said that each other stole rice.’)

In (53a) we call \textit{fa}-tensed S a CP (Complementizer Phrase). It occurs rightmost. Nonetheless \textit{Ravelo} functions as the external argument: it is replaceable with a nominative pronoun (\textit{fy}), can relativize, and immediately follows interrogative ve.

In contrast, in (53b) the VP constituent is everything up to clause-final \textit{Ravelo}, which is external and nominative in case; question particles separate it from the VP, and only it relativizes, as expected. Following the general tendency “Light to the left, heavy to the right” in head-initial languages (of which Malagasy is a clear exemplar), we shall assume that there is a movement operation that extraposes the “heavy” \textit{fa}-complement to the right of the external argument in (53a). Thus Actor Focus \textit{milaza} has (51a) among its subcategorizations:

(54) i+laza [CPACC, NPNOM]
\[ \text{TH AG} \]

In order to generate (53b), we will also assign \textit{ilaza} the subcategorization in (55a) and require that the interpretative relation in (55b) be satisfied:
So ‘say Rasoia to have stolen rice’ means the same as ‘say that Rasoia stole rice’. The notation $\theta_ho$ in (52) just means that the theta role of NPacc is relative to the ho marked VP, and so doesn’t bear a theta relation to milaza at all. See Wechsler and Arka (1998) for a related usage. We now also must generalize the domain of REC so that a V it applies to may have any XP (NP, VP, CP) as arguments, and we stipulate, as is natural, that $\theta > \theta'$ when $\theta$ is a role of V and $\theta'$ isn’t (though it is a role internal to one of the arguments of V). As always, the nominative argument of the verb built by REC must have the same category as the additional argument in the subcategorization of the verb REC applies to. For example REC does not apply to (54). But slightly generalized, it does apply to (55a) to yield: 12

(56) ifamp+i+laza   [VP$ho$, NPnom,pl].
     AG

Note that our translation of (53b) and both translations of (53c) are ungrammatical. So here we have reciprocals in Malagasy that do not have correspondents in English (except for the very few verbs, like believe, that host RtoO, yielding, for example, They believe each other to be clever).

It is worth noting that each of the subcategorizations of AF milaza has a corresponding TF one, (57a) and (58a).

(57) a. laza+ina    [NP$gen$, CPnom,]
     AG      TH

b. no+laza+ina+Ravelo (Nolazain-dRavelo) fa nangala-bary Rasoia.
     past+say+tim+Ravelo.gen    that stole-rice Rasoia
     ‘That Rasoia stole rice is said by Ravelo.’

Here the CP is external and, as usual in TF verbs, the Agent is an internal, genitive complement. So in (57b) question particles precede fa, and only the external argument extracts (as in lazy nolazain-dRavelo ‘whatever Ravelo said’).

But using the subcategorization in (58a) we see in (58b) that Rasoia is external, the rest of the expression being the VP with the genitive Agent internal.

(58) a. laza+ina    [NP$gen$, V$pho$, NPnom,]
     AG      $\theta_ho$

b. no+laza+ina+Ravelo (Nolazain-dRavelo) ho nangala-bary Rasoia.
     past+say+tim+Ravelo.gen    as stole-rice Rasoia
     ‘Rasoia was said by Ravelo to have stolen rice.’

12. We assign no theta role to the VP$ho$, and we generalize REC to apply to predicates with the subcategorization [XPacc, (Y), XPnom] where XP can be NP or CP with their theta roles related as earlier, and Y, if present, lacks a theta role for the V subcategorized.
Of course, neither of the verbs in (57a) or (58a) is AF, so reciprocal morphology cannot apply. (59) shows that the verb in RtoO constructions may host a possessive head, thereby relating the possessor and the Agent of the verb:

(59) a. m+aN+antena (Manantena) ny zana-dRasoaho salama Ravelo.
    pres+act+hope the child-of+Raso as healthy Ravelo
    ‘Ravelo hopes the children of Raso to be healthy.’

b. m+if+aN+antena (Mifanantena) zanaka ho salama Raso ay Ravo.
    pres+rec+act+hope child as healthy Raso and Ravo
    ‘Raso and Ravo hope that each other’s children are healthy.’

(60) a. M+i+Iaza ny ray aman-drehi+n’i Soa ho mangala-bary i Vao.
    pres+act+say the parents’gen’art Soa as steal-rice art Vao
    ‘Vao says the parents of Soa to be stealing rice.’

b. M+i+Iaza ny ray aman-drehi ho mangala-bary i Soa sy i Vao.
    pres+rec+act+say father and mother as steal-rice art Soa and art Vao
    ‘Soa and Vao say that each other’s parents are stealing rice.’

Lastly, the verb governed by ho in the RtoO format can itself be in any voice. (61) uses a ho-marked TF verb.

(61) a. M+i+hevitra ny miaramila ho resin’ny fahavalo isika.
    pres+act+think the soldier(s) as defeat+tfm’the enemy gen we.incl
    ‘We think the soldiers to have been defeated by the enemy.’

b. M+i+hevitra ho resin’ny fahavalo ny miaramila.
    pres+rec+act+think as defeat+tfm’the enemy gen the soldiers
    ‘The soldiers think each other to have been defeated by the enemy.’

Finally, a last operation that feeds the formation of verbs in general, including reciprocal ones, is REDUPLICATION. Usually it just applies to roots, but on occasion an entire aN+root can be reduplicated. Semantically the effect of Reduplication is usually imperfectivizing or weakening, but occasionally frequentative. And in distinction to Chichewa (Mchombo 1991, 1999) and DMP (1994), causative and reciprocal affixes are never included in Reduplication:

(62) a. resaka ‘conversation’ ⇒ resaresaka ‘chit chat’

b. M+i+resaresaka amin-dRabe Raso.
    pres+act+chitchat with-dRabe Raso
    ‘Raso is chitchatting with Rabe.’

c. M+i+resaresaka Rabe sy Raso.
    pres+rec+act+chitchat Rabe and Raso
    ‘Rabe and Raso are chitchatting with each other.’

2.3 SUMMARY. We have presented Reciprocal Formation in Malagasy as a way of deriving complex P1s from Actor Focus P2s. The antecedent NP of the derived P1 is always its external argument. The range of reciprocally bindable arguments in Malagasy compares with, but is not identical to, that of English, which uses NP reciprocals. In the case of Raising to Object, we find reciprocals in Malagasy with
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no direct correspondent in English. But in other cases, the restriction that the bind-
able arguments be those of a P2 is limiting. Objects of richly interpreted pre-
positions, as in (38a), are not reciprocally bindable in Malagasy, nor are positions deeply
embedded within an argument NP, as in (48a). Another example is the inability of
verbal affix reciprocals to pick out a single conjunct of a coordinate expression.
Compare:

(63)  a. John and Bill defended each other and each other’s spouses.
     b. N+ia-aro ny zanany sy ny vadiny izy ireo.
       past+act+defend the child+3gen and the spouse+3gen 3nom dem+pl
       ‘They defended their children and their spouses.’
     c. Nifampioaro izy ireo.
       past+rec+act+defend 3nom dem+pl
       ‘They defended each other.’
     d. *Nifampioaro [e] sy ny vadiny izy ireo.
       past+rec+act+defend [e] and spouse+3gen 3nom dem+pl
       ‘They defended each other and their/each other’s spouses.’

3. OPERATIONS THAT APPLY TO RECIPIRAL EXPRESSIONS. A
striking fact about Malagasy reciprocals is the extent to which they are integrated into its
core grammar. Virtually all derivational processes that apply to predicates generally apply
to reciprocal predicates in particular. One might have expected, for example, that the syn-
tactic (hierarchical) relation between a reciprocal verb and its antecedent NP (always
external) would remain fixed under later derivational processes. But this is not so.

3.1 Imperatives. Reciprocal verbs are Actor Focus, and as such they form their
present tense with m- and their imperatives by suffixing -a, shifting stress to the
right, and, when appropriate, inserting an epenthetic consonant.13

(64) manoratra\footnote{A better treatment is given by Pearson (2001), drawing on Erwin (1996). The consonant we treat as epenthetic is really present in the root and disappears when the root is not suffixed in conformity with the ban on word-final consonants. Support for this view is that the same consonant shows up in different forms of suffixing, e.g., imperative suffixing and -ana suffixing.} \Rightarrow Manorata taratsay! \Rightarrow Mifananorata taratsay!
writes \hspace{1cm} Write letters (MP)! \hspace{1cm} Write e.o. letters (MP)!

So AF imperatives lack an antecedent NP. Below we see non-AF imperatives of
verbs built from reciprocals in which the antecedent NP is present internally.

3.2 Circumstantial Verbs. These are built by suffixing -ana to the stem of an AF
verb (root preceded by an AF suffix, such as aN-, ana-, i-, etc.). -ana suffixing shifts
stress rightward and, where appropriate, inserts an epenthetic consonant. Such verbs
will be called CF for CIRCUMSTANTIAL FOCUS. The Agent NPs of CF verbs are gen-
tive complements of the verb, just as with TF verbs. The external argument of a CF
verb is normally an NP bearing an oblique role: Instrument, Benefactive, Locative,
Manner, etc.\footnote{We note the stressed syllable here with an acute mark above the vowel.} Compare the AF (65a) with the CF (65b):

\begin{tabular}{ll}
manoratra & \Rightarrow Manorata taratsay! \Rightarrow Mifananorata taratsay! \\writes & Write letters (MP)! \hspace{1cm} Write e.o. letters (MP)!
\end{tabular}
(65) a. m+aN+tao (Manao) farafara amin'ity vy ity Rabe.
   PRES+ACT+make bed with this metal this Rabe
   'Rabe is making beds with this metal.'

b. Θ+aN+tao+ana+Rabe (Anaovan-dRabe) farafara ity vy ity.
   PRES+ACT+make+CIRC+Rabe.GEN bed this metal this
   'This metal is being used by Rabe to make beds.'

More formally, we can think of CF formation as a valency increasing operation, as

\[
\text{CF}
\]

(66) aN+root: [NP_{ACC}, NP_{Nom}] \rightarrow aN+root+ana:[NP_{GEN}, NP_{ACC}, NP_{Nom}]
   TH AG
   AG TH OBL

The interpretation of circumstantial morphology given in Keenan (1995) suffices to
predict the binding pattern observed (both for reciprocals and for reflexives). Now
reciprocal verbs take CF forms, just as other AF verbs do:

(67) a. m+[if+[aN+tao]] (Mifamao) farafara amin'ity vy ity Rabe sy Rakoto.
    PRES+REC+ACT+do bed from this metal this Rabe and Rakoto
    'Rabe and Rakoto were making each other beds from this metal.'

b. Θ+[if+[aN+tao]]+vana](Ifanaoan)-dRabe sy Ravao farafara ity vy ity.
   PRES+REC+ACT+do+CIRC-Rabe.GEN and Ravao bed this metal this
   'This metal was being made beds with by R and R for each other.'

c. [if+[aN+tao]]+vana+ly](Ifanaoovy) farafara ity vy ity!
   REC+ACT+do+CIRC+IMP bed this metal this
   'Use this metal to make beds for each other!'

Like other non-AF verbs, CF verbs form imperatives by suffixing [u] [i] when an
[u] is present in the root).\textsuperscript{16} Their external arguments are clause-final, relativize,
(68a), immediately follow interrogative ve, (68b), and are replaceable by pronouns in
the nominative series.

(68) a. ny vy (izay) ifanaoan-dRabe sy Rakoto farafara
    'the metal (that) is being used by R and R to make beds for each other'

b. Ifanaoan-dRabe sy Rakoto farafara ve ity vy ity?
    'Is this metal being used by Rabe and Rakoto to make beds for e.o.?’

Of note here is that, while the TF morphology -ina does not combine with reciprocal
verbs, we can force a Theme NP to be external with the CF form by relativizing (questioning, etc.) it, as only the external NP undergoes these operations (Keenan 1972).

---

\textsuperscript{15} In some cases, see Keenan and Polinsky (1998) a CF verb may take a Theme or Goal as extern-

al argument. But neither these cases nor the details of the morphophonological changes
under suffixing affect our claims about reciprocals.

\textsuperscript{16} Translating non-AF verbs as passives is particularly awkward in imperatives. For example

from the root vonjy we have the AF mamony 'saves', whose imperative takes an accusative complement: mamony aho! 'Save me!'. But the natural translation of 'save me' is Vonjoe aho,

with a TF verb, where the imperative is formed by suffixing [u] and the Theme is nominative.
(69)  a. ny tananay (izay) n+f+aN+soratra+ana (nifanoratan)-dRabe sy Raso
      the letters (that) PAST+REC+ACT+write+ERG+GEN-Rabe and Raso
      'the letters (that) were written to each other by Rabe and Raso'

      b. ny tsao(ta)nanay (izay) n+ifamp+i+i+soratra+ana (nifampanotaran)-dRabe sy Raso
      the news (that) PAST+REC+ACT+announce+ERG(Rabe and Raso
      'the news that was told to each other by Rabe and Raso'

      c. ny tanasi (izay) n+f+aN+soratra+ana+tsaka (nifanasanatsaka)
      the good PAST+REC+ACT+do+ERG+PL+INCL+GEN
      'the good that was done for each other by us'

Of note here is that the antecedent NP in circumstantial reciprocals, (67b), (68), and
(69), is the genitive Agent Phrase, never the external argument. Thus

(70)  Circumstantial Formation preserves the binding relations allowable by
      the predicate it applies to.

Keenan (1995) notes that this pattern holds for antecedents of reflexives, which are NP
reflexives in Malagasy, not verbal ones:

(71)  a. m+aN+vono (Mamono) tena houn’ny zanaka ny ray aman-dreny.
      PRES+ACT+kill self for the children the father and mother
      'Parents kill themselves for their children.'

      b. m+aN+vono+aana (Mamono)’ny ray aman-dreny tena ny zanaka.
      PRES+ACT+kill+ERG GEN:the father and mother self the children
      'Parents kill themselves for their children.'

In (71b), the reflexive tena 'self' asymmetrically c-commands its antecedent.

3.3 Causatives. Causative Formation (CAUSE) applies (with poorly understood restrictions) to AF
verbs, including reciprocals.

(72)  a. m+ifanka+aahalala (Mifankahalala) ny mpianatra.
      PRES+REC+know the student(s)
      'The students know each other.'

      b. m+amp+ifanka+aahalala (Mampifankahalala) azy ireo ny mpampianatra.
      PRES+CAUS+REC+know 3ACC. DEM+PL the teacher
      'The teacher introduced the students to each other.'

Note that the antecedent NP in (72b) is not the external argument but rather the accusative
azy ireo 3ACC. DEM+PL. Thus Causative Formation, like Circumstantial Formation,
preserves the binding possibilities allowed by the verb to which it applies. As
Causative is also a valency increasing operation, we generalize:

Gen 2 Valency increasing operations in Malagasy do not change the anaphor-
precedent relations allowed by the predicates they apply to.

Gen 2 also holds for antecedents of reflexives (Randriamasimanana 1986).

(73)  a. n+aN+vono (Namono) tena Rabe.
      PAST+ACT+kill self Rabe
      'Rabe killed himself.'

      b. N+amp+aN+vono tena an-dRabe Rakoto.
      PAST+CAUS+ACT+kill self ACC-Rabe Rakoto
      'Rakoto made Rabe kill himself.'
In (74b) we see that causatives of reciprocals can be put in Circumstantial Focus. They can also be put in TF form using the -ina suffix, (74c).\(^7\)

\[(74a) \text{m+amp+if}a\text{n+tao (Mampifanana) farafara amin'ity vy ity azy ireo aho.} \]
\[\text{PRES+CAUS+REC+ACT+MAKE bed with this metal this 3ACCDEM+PL} \]
\[\text{I am making them make each other beds from this metal.} \]

\[(74b) \text{ð+amp+if}a\text{n+tao+vana+ho (Ampifanaovako) farafanazy ireo ity vy ity,} \]
\[\text{PRES+CAUS+REC+ACT+MAKE+CIRC+1SG.GEN bed 3ACCDEM+PL} \text{this metal this} \]
\[\text{I am making them make each other beds with this metal.} \]

\[(74c) \text{ð+amp+if}a\text{n+tao+vina+ho (Ampifanaoviko) fara amin'ity vy ity R sy R} \]
\[\text{PRES+CAUS+REC+ACT+MAKE+TIME+1SG.GEN with this metal this R and R} \]
\[\text{Rabe and Ranaivo are made by me to make each other beds.} \]

Note that in general CF and TF forms of causative verbs are minimal pairs:

<table>
<thead>
<tr>
<th>VERB</th>
<th>CF(cause(verb))</th>
<th>TF(cause(verb))</th>
</tr>
</thead>
<tbody>
<tr>
<td>manao 'makes'</td>
<td>ampanaovana</td>
<td>ampanaovina</td>
</tr>
<tr>
<td>manasa 'washes'</td>
<td>ampanasana</td>
<td>ampanasaina</td>
</tr>
</tbody>
</table>

### 3.4 Nominalizations.

**Agent Nominals** are AF verbs prefixed with *mp*:\(^8\)

\[(75) \text{mianatra 'studies'} \quad \text{mpianatra 'student'} \]
\[\text{mampianatra 'cause to study'} \quad \text{mpampianatra 'teacher'} \]
\[\text{mandefa 'goes'} \quad \text{mpandeha 'passenger'} \]

Reciprocal verbs form agent nominals like other AF verbs (as they do in Chichewa [Mchombo 1998:515]). Some like *mpifankatia* ‘lovers’ are lexicalized, others naturally have context-bound uses.

\[(76) \text{mifankahala 'detest e.o.'} \quad \text{mpifankahala 'individuals who detest e.o.'} \]
\[\text{nifanampy 'help e.o.'} \quad \text{mpifanampy 'people who are helping e.o.'} \]

In general, Malagasy nominalizing operations are fully productive and preserve the subcategorization of the predicates nominalized (K&P). Prepositions are not inserted to assign case; derived Ns, like lexical Ns, assign case directly. Thus ‘my teacher’ in the sense of the person who teaches me, is *ny mampianatra ahya* ‘the teacher me’ with ‘me’ accusative, not genitive. All the complex reciprocals cited above have corresponding agent nominals:

---

\(^7\) So *-ina* is not exclusively primary. It also converts causative AF verbs to TF verbs. Thus verbs containing reciprocal morphology can be put into a TF form, provided that they have been causativized first. Another example:

\[\text{a. m+amp+ifanka+aaha+lala (Mampifankahalala) ny mianatra aho.} \]
\[\text{PRES+CAUS+REC+POT/CAUSE+KNOw the student(s) I} \]
\[\text{I am having the students get to know each other.} \]

\[\text{b. n+amp+ifanka+aaha+lala+ina (Nampifankahalain'nya) talo ny mpiasa.} \]
\[\text{PAST+CAUS+REC+POT/CAUSE+KNOw+TF+THE director the worker(s)} \]
\[\text{The workers were gotten to know each other by the director.} \]

Similar are *mampifaninastrika* ‘make face e.o.’ and *mampifanahitra* ‘make oppose e.o.’

\(^8\) Pronounced [p], unexpectedly no prenasalization is sounded.
RECIPIRALS IN MALAGASY

(77) a. Mifamangy matetika ireo mpifanome vola ireto.
visit each other often these give to each other these

‘These givers to each other of money visit each other often’

b. Mady mafy ireo mpifamplaza ho mopangalatra ireo.
fight hard those NOM+REC+ACT+say as NOM+ACT+steal those

‘Those people who said each other to be thieves are fighting hard.’

Tensed CF verbs accompanied with ny ‘the’ or a demonstrative function as EVENT NOMINALS. Past tense forms tend to refer to specific past events.

(78) N+arary izy tamin’ny n+aN+leha+ana+nay (nandehanany) t+aany.
PAST+ill he PAST+at the PAST+ACT+go+CIRC+1PL.EXCL.GEN PAST+there

‘He was sick when we went there.’

Reciprocal verbs undergo such nominalization unproblematically:

(79) Tsy faly izy tamin’ny n+if+aN+valy+aana (nifamalian)’ny anahaviny.
not happy he PAST+at the PAST+REC+ACT+respond+CIRC the PAST+there

‘He was not happy during the arguing by his sisters.’

A more abstract type of nominalization, often referring to a generic circumstance of an action or state, is given by replacing the tense marking in CF nominalizations with f-. Such nominalizations are widely used:

(80) AF VERB CF (PRESENT) CF NOMINAL
mivarostra ‘sells’ ivarotana fivarotana ‘store’
mahafaka ‘frees’ ahahafa nanahafa ‘freedom’
mahamarina ‘makes just’ ahamarinina fahamarinina ‘justice’
mandihy ‘dance’ andihizana fandihizara ‘dancing’

f- nominalization applies to reciprocal verbs. (81), taking agent phrases easily.

(81) fifampitiavana ‘mutual love’ fifampitiavana ‘mutual trust’
fifampanizana ‘mutual suffering’ fifampanizana ‘reciprocal jealousy’

(82) a. Tsara ho tadidina ny fifampitikiana’ny Malagasy taloha.
good PUT recall+THEM the mutual+hell+ID+CIRC of the Malagasy of+yore

‘It is good to recall the trust in our day by the Malagasy in the old days.’

b. Hotohiza ny fifanorantsika fanomezana isan-taona.
PUT+continue+THEM the REC+offer+ID+CIRC+by+HIS.GEN.INCL gifts each+year

‘Our yearly giving of gifts to each other will continue.’

3.5 Control. Control structures in Malagasy are rich and complex (Keenan 1995, Law 1995, Polinsky and Potsdam 2001, 2003). Here we illustrate the basic cases of control between verbs of intent and desire, VINT, and their complement verbs.

(83) a. n+i+kasana h+aN+vaky (Nikasa hamaky) io boky io aho.
PAST+ACT+intend PUT+ACT+read that book that I

‘I intended to read that book.’

b. no+kasa+ina+ko ho+vaky+ina (Nokasaiko ho vakina) io boky io.
PAST+HINT+THEM+1.SG.GEN PUT+read+THEM that book that

‘That book was intended by me to be read (by me).’
In both (83a,b) the initial V\textsc{int} is past tense, but selects a complement verb in the future. So, aside from making semantic sense, there is some formal basis for treating V\textsc{int} as forming a constituent with the following V, preserving its subcategorization. The standard constituent tests show that the final NP in (83a,b) is external and the preceding material is a VP.

Reciprocal verbs enter the same control paradigms, (84), with the CF voice playing the role of TF for the reciprocal verb, (84b), as noted earlier.

(84) a. Naniry hifandefana boky izahay.
\hspace{1cm} \textsc{past}+\textsc{act}\{-\textsc{desire} \}\textsc{fut}+\textsc{rec}+\textsc{act}\{-\textsc{send} \}\textsc{book} \textsc{we}\textsc{excl}.
\hspace{1cm} ‘We desired to send each other books.’

b. ny boky h+f\textsc{iry}+i+\textsc{nha}+ny (nirinay) b+h+f\textsc{aA}+\textsc{lefa}+\textsc{sana} (hifandefana)
\hspace{1cm} \textsc{the} \textsc{books} \textsc{past}+\textsc{desire}+\textsc{them}+\textsc{i}\textsc{pl}\textsc{.excl} \textsc{gen} \textsc{fut}+\textsc{rec}+\textsc{act}\{-\textsc{send} \}\textsc{circ} \\
\hspace{1cm} ‘the books we desired to send to each other’

In (84a), the VP *naniry hifandefana boky* ‘desired to send e.o. books’ is reciprocal, because its external argument is plural. Thus we treat AF V\textsc{int}’s as modifying future tense AF Vs without change of subcategorization. So REC applies to *naniry hifandefana boky* ‘desired to send books’, a P2, with Goal and an Agent arguments.

(85) \textsc{Rec}(\text{verb[\textsc{int}]} \wedge \text{P2}) = \text{verb[\textsc{int}]} \wedge \text{Rec(P2)}

Thus \textsc{Rec}(naniry hifandefana boky) = naniry + \text{Rec}(handefana boky) \quad \text{by (85)}

\hspace{1cm} = naniry + \text{Rec}(handefana) + boky \quad \text{by (28)}

\hspace{1cm} = naniry + hifandefana + boky \quad \text{by (18)}

In (84b), *nirinay* ‘desired by us’ can be replaced by many other agented non-AF verbs: *nokasin-dRabe sy Rakoto* ‘intended by R and R’, *tiantsika* ‘liked by us.incl., and so forth, as long as the controlling Agent phrase is plural. Replacing *nirinay* with *niriko* ‘desired by me’ in (84b) is ungrammatical. Non-AF control in Malagasy is often more natural than control by AF verbs. (86b) is a natural way to say ‘We have much to tell each other’. (86a) is not.

(86) a. m+a+a=azo (Mahazo) m+i+f\textsc{amp}+i+t\textsc{anasa} wa\textsc{oop}a maro isika
\hspace{1cm} \textsc{pres}+\textsc{a}=\textsc{a}+\textsc{receive} \textsc{pres}+\textsc{rec}+\textsc{act}\{-\textsc{tell} \}\textsc{news} \textsc{much} \textsc{we}\textsc{incl}.
\hspace{1cm} ‘We may / are permitted to tell each other much news.’

b. Maro ny va\textsc{oop}a a\textsc{zo}+t\textsc{anasa} \textsc{i}f\textsc{amp}+i+t\textsc{anasa}+\textsc{ana}.\textsc{19}
\hspace{1cm} \textsc{many} \textsc{the} \textsc{news} \textsc{receive}:\textsc{them}\{-\textsc{i}\textsc{pl}\}\textsc{incl} \textsc{gen} \textsc{rec}+\textsc{act}\{-\textsc{tell} \}\textsc{circ} \\
\hspace{1cm} ‘We have much to tell each other.’

So genitive arguments of non-AF verbs can control the genitive arguments of non-AF verbs they govern, whence antecedence of the reciprocal arguments in examples like (86b) is as in nonreciprocal cases, (83b). Malagasy has object control verbs as well (Law 1995)—such as *help, ask, force*—which may be reciprocal.

\textsc{19.} (The last word is elided to ifamp+tanasa.) Many roots are TF verbs without affixes (KdM): *azo* ‘received’, *hena* ‘heard’, *rey* ‘defeated’, etc. Only a few roots are AF verbs, usually degenerate. No roots are CF verbs.
RECIPROCALS IN MALAGASY

(87) a. h+aN+ampy (Hanampy) azy h+i+tsara ireto fanadinana ireto isika.
fut+act+help 3acc fut+act+judge these exam 3we incl
'We will help them grade these exams.'

b. h+Hi+f+aN+ampy (Hifanampy) h+i+tsara ireto fanadinana ireto isika.
fut+rec+act+help fut+act+judge these exams 3we incl
'We will help each other grade these exams.'

In (88a), these exams is the external argument, as shown by (88b,c). The matrix verb help each other goes into the CF form and the governed verb grade is TF. I find no English translation presenting the Malagasy external argument as subject.

(88) a. Hifanampiantsika hotsaraina ireto fanadinana ireto.
fut+rec+act+help+circ+1 incl gen fut+act+judge+thm these exam 3we incl
"We will help each other grade these exams."

b. Hifanampiantsika hotsaraina ve ireto fanadinana ireto?
fut+act+judge+thm 3we incl
"Will we help each other grade these exams?"

c. ny fanadinana izay hifanampiantsika hotsaraina
fut+act+judge+thm 3we incl
"the exams that we will help each other grade"

Such expressions can be easily embedded under verbs of intent and desire:

(89) a. N+i+kasa hifanampy hitsara ny fanadinana izahay.
past+act+intend fut+act+judge fut+act+judge the exam 1pl excl
'We intended to help each other grade the exams,'

b. no+i+kasa+ina+ray (Nokasaingay) hifanampyana hotsaraina
past+intend+thm+1pl excl gen fut+rec+act+help+circ fut+act+judge+thm
ny fanadinana.
the exams
fut+act+judge+thm 3we incl
"We intended to help each other grade the exams."

c. ny fanadinana izay nokasaingay hifanampyana hotsaraina
fut+act+judge+thm 3we incl
"the exams that we intended to help each other grade"

And the verb governed by the reciprocal in these cases may itself be reciprocal (with the "higher" accusative NP denoting the antecedent set, in [90a]):

(90) a. Namampy azy nifandefana entana isika.
past+act+help them past+rec+act+send packages 3we incl
'We helped them send each other packages.'

b. Nifanampy nifandefana entana isika.
"We helped each other send each other packages."

c. ny entana nifanampiantsika nifandefasana
fut+act+help+circ+1 pl incl gen past+rec+act+send+circ
the package(s) (that) we helped each other send each other

The examples in (90) resemble multiple reciprocals like protect e.o. from e.o. or, Williams (1991), give e.o. pictures of e.o. but only one argument from each verb is bound. We hypothesize that Gen 3 holds of verbal affix reciprocals across languages.

Gen 3 Verbal reciprocal morphology licenses the absence of just one argument of the verb it combines with.
This completes our descriptive study of Reciprocal Formation in Malagasy. There are certainly competitors to the phrasal morphological analysis we have provided. See Lidz (2001) and Nishigauchi (1992) for two specifically concerned with verbal morphology. Here we conclude by comparing our approach to a generic incorporation approach—one in which reciprocal if- originates as an anaphoric argument of the predicate and incorporates into it. We favor our phrasal derivational approach for Malagasy, but the comparison reveals aspects of the structure of reciprocals that have so far not been highlighted.

4. IF- AS ANAPHOR? The “if- = Anaphor” hypothesis is that if- originates as an object anaphor, as in (91a). This is the structure that is semantically interpreted, perhaps as in HLM 1991. If- is listed in the lexicon as an affix and therefore must move at some post-interpretative level to find a host, yielding (91b).

\[
\begin{align*}
(91) & \quad \text{m+aN+enjika (Mifanjnjika) if-} \\
& \quad \text{pres+act=chase} \quad \text{each+other Rabe and Rakoto} \\
& \quad \text{Rabe sy Rakoto.}
\end{align*}
\]

This treatment is compatible with a suggestion by Guthrie for Gikuyu (Mchombo 1991) and shares some properties with Nishigauchi’s (1992) analysis of Japanese.

Mchombo and DMP argue against this analysis for Chichewa in favor of a lexical derivational rule (compatible with our proposal, though they do not consider complex P2s). Below we give our reasons for preferring our derivational account.

First, on the if- = Anaphor view, reciprocal verbs—ones with the if- incorporated—are not semantically interpreted. The nonreciprocal transitive verb is interpreted, as is its object, then the combination is interpreted compositionally. So on this view it is unnatural to handle noncompositional cases, because that would involve assigning a meaning (albeit an unpredictable one) to a reciprocal verb, and they are not expressions that are assigned a meaning at all. In contrast, on our “if- = Affix” view, reciprocal verbs are semantically interpreted, (19), so we need only stipulate ad hocly the interpretation of the noncompositional cases. For example, mifampody is the reciprocal of the causative of mazy (< fody) ‘return home’ and literally means ‘make e.o. go home’. But in fact it means ‘to reconcile, said of husband and wife’. Similarly mifangahazo and mifandroy, which both may mean ‘receive e.o.’ are commonly used to mean ‘to get along, have good relations’. And fivamprozoana is the circumstantial nominalization of the reciprocal of mamovovy ‘send in all directions’ but is used to mean ‘traffic (cars)’.

More extreme noncompositionality is found in cases in which the transitive verb that appears to have hosted if- has been historically lost. Thus mifaneraserera ‘communicate with e.o.’ would derive from the now nonexistent *manerasera, itself built from the root seraserera (a reduplication of the now nonexistent sera). Similarly mifanena means ‘meet e.o. (perhaps accidentally)’ but its ostensible transitive source *musera is nonexistent, though the root tsera exists and derives the existent misseta ‘meet (intentionally)’.

Second (adapted from DMP), comparatives built from transitive verbs with overt objects induce ambiguities of the sort in (92a):
(92) a. m+a+N+haja (Manaja) an-dRabe kokoa Rasoa noho Ranaivo.
pres+act+respect acc-Rabe more Rasoa than Ranaivo
‘Rasoa respects Rabe more than (she respects) Ranaivo.’
‘Rasoa respects Rabe more than Ranaivo (does).’
b. m+i+f+a+N+haja (Mifanaja) kokoa izy ireo noho Ravelo sy Ravao.
pres+rec+act+respect more 3 dem+pl than Ravelo and Ravao
‘They respect e.o. more than Ravelo and Ravao respect e.o.’
*‘They respect e.o. more than (they respect) Ravelo and Ravao.’

So the reading of (92a) in which the object of the comparative noho is the object of the verb is unavailable in (92b) where there is no object to compare on the if- = Affix view. But this reading should be available on the if- = Anaphor view, because there the transitive verb manaja ‘respects’ has an object.

Third, on the if- = Anaphor view, it is likely that the empty category [e] will fail to be properly bound. Even in the simplest case, the gross hierarchical structure of the VP in (1b) would be as in (93), in which case the moved if- does not c-command [e], in violation of the ECP (Empty Category Principle).

(93) [if+anenijika] [e]

One might argue that [e] is “sufficiently” bound by the external NP Rabe sy Rakoto, which does c-command it. But even that condition fails in the CI’ voice, (92b).

(94) a. m+i+f+a+N+vono (Nifanomo) [e] tamin’ity basy ity Rabe sy Ravao.
past+rec+act+kill [e] past+with this gun this Rabe and Ravao
‘Rabe and Ravao killed each other with this gun.’
b. Nifanomo-an-dRabe sy Ravao [e] ity basy ity.
past+rec+act+kill+circ+gen Rabe and Ravao [e] this gun this
‘This gun was used by Rabe and Ravao to kill each other.’

Here [e] is a sister to a constituent properly containing its antecedent Rabe sy Rakoto, so it asymmetrically c-commands it. To reinforce the naturalness of this judgment, note (95c), where two agential CF verbs have been coordinated and take a common, overt, object that asymmetrically c-commands both of them.

(95) a. 0+i+f+a+N+tolona+sana (Ifanoloran)’ny olona fanomezana ny taom-baovao.
pres+rec+act+offer+circ the people gen gifts the year new
‘The New Year is when people offer presents to each other.’
b. 0+i+f+a+N+rai+sana+ny (Ifandranisany) fanomezana ny taom-baovao.
pres+rec+receive+circ+3gen gifts the year new
‘The New Year is the time they receive gifts from each other.’
c. [[[Ifanoloran’ny olona sy ifandranisany] fanomezana]
rec+offer+circ the people and rec+receive+circ+3gen gifts
ny taom-baovao.
the year new
‘The New Year is when people offer to e.o. and receive from e.o. gifts.’
Fourth, specifying the class of verbs that \textit{if-} combines with is more natural on the \textit{if-} = Affix view, because it is given as a derivational operation (REC) that takes predicates as arguments. So it is natural that it selects its predicates: Actor Focus ones. In addition, causative \textit{amp-} and the agent nominalizer \textit{mp-} also select AF verbs. So \textit{if-} forms part of a natural derivational class in Malagasy. In contrast, on the \textit{if-} = Anaphor view, we would have to specify the class of verbs that the object can prefix to. No other nominal expressions incorporate as prefixes, so this is a new stipulation, not, as on the \textit{if-} = Affix view, just another example of a pattern otherwise well attested in Malagasy.

Fifth, the \textit{if-} = Anaphor view provides a less satisfactory account for why we do not get multiple reciprocals in Malagasy (\textit{protect e.a. from e.a.}, etc.). English shows that multiple NP reciprocals make sense, so we should expect multiple \textit{if's} on the host verb, contrary to fact. In contrast, on our view, the absence of iterated \textit{if-} is a theorem, as is the claim that a single \textit{if-} does not license more than one gap.

Sixth is a technical issue that favors the \textit{IF = Affix} view. Consider the natural coordinations in (96) and (97c), and the ungrammatical one in (97b).

\begin{enumerate}
\item[(96)a.] \texttt{N+i+a+ifita sy n+i+araha+ba azy ireo aho.}
\begin{footnotesize}
\texttt{PAST+ACT+see and PAST+ACT+greet 3ACC DEM+PL 1SG.NOM}
\end{footnotesize}
\begin{flushright}
'I saw and greeted them.'
\end{flushright}
\item[(96)b.] \texttt{N+i+ifank+i+a+ifita sy n+i+amp+i+araha izahay.}
\begin{footnotesize}
\texttt{PAST+REC+ACT+see and PAST+REC+ACT+greet WE.EXCL}
\end{footnotesize}
\begin{flushright}
'We saw each other and greeted each other.'
\end{flushright}
\end{enumerate}

The two conjuncts in (96a) are P2s; those in (96b) P1s, as are those in (97c), so in all these cases coordination is acceptable. On the \textit{if-} = Affix view the verbs in (97b) have different categories (P2 and P1, respectively) and so cannot coordinate. But on the \textit{if-} = Anaphor view, what blocks deriving (97b) from (97a)?

Coordination of transitive verbs is common in Malagasy, and, as (97c) shows, reciprocal and nonreciprocal verbs of nondistinct categories do coordinate.

\begin{enumerate}
\item[(97)a.] \texttt{[[Nahita sy niaraha+b] if-] izahay.}
\begin{footnotesize}
\texttt{Saw and greeted REC WE.EXCL}
\end{footnotesize}
\begin{flushright}
'We saw and greeted each other.'
\end{flushright}
\item[(97)b.] \texttt{*Nifankaha+ita sy niaraha+b [e] izahay.}
\begin{flushright}
'Ve saw and greeted each other.'
\end{flushright}
\item[(97)c.] \texttt{Nijoro+teto sy niampitantantara vaovao ireo tovolahy ireo.}
\begin{flushright}
'Stood here and told each other news those young men those'
\end{flushright}
\end{enumerate}

Other prefixing processes with coordinations in their scope may just affect the first conjunct. For example, the accusative marker \textit{an-} is not repeated across conjuncts:

\begin{enumerate}
\item[(98)] \texttt{Nahita \textit{an'i} Soa sy i Vao aho. *... an'i Soa sy an'i Vao ...}
\begin{footnotesize}
\texttt{Saw ACC ART Soa and ART Vao I}
\end{footnotesize}
\begin{flushright}
'I saw both Soa and Vao.'
\end{flushright}
\end{enumerate}

Equally, possessive morphology, as in (99), does not distribute across conjuncts:
(99) ny tranon-dRabe sy Rasoa
the house+poss-Rabe and Rasoa
‘the house of Rabe and Rasoa’

*... n-dRabe sy+n-dRasoa

It seems, then, that to block \(\text{id}\)- from prefixing to the first conjunct of (97a), the \(\text{id}\)- Anaphora view needs a stipulation not needed on the \(\text{id}\)- Affix view. We might have hoped that a general constraint requiring landing sites of movement to c-command their launch sites would block (97b), because classically neither conjunct of a coordinate structure c-commands out of it. But on the Binary Branching hypothesis (Kayne 1994), coordination is represented as [A [\& B]], so A might be accessible to \(\text{id}\)- prefixation, as it is to aN- prefixation.

Similarly, it is unclear how to block movement out of leftmost conjuncts of coordinate structures, deriving (100b) below from (100a).

(100) a. [N+i+arahaba [\(\text{id}\)- sy ny vadiny]] Rabe sy Rakoto.
    past+act+greet e.o and the spouse+3gen Rabe and Rakoto

b. *N+i+famp+i+arahaba [\(\text{id}\)- sy ny vadiny] Rabe sy Rakoto.
    past+rec+act+greet [\(\text{id}\)- and the spouse+3gen Rabe and Rakoto

‘Rabe and Rakoto greeted each other and their spouses.’

Blocking (99b), on the \(\text{id}\)- Affix view, follows from the definition of REC. The derived predicate takes just one (plural) argument, Rabe sy Rakoto in (100b), whence nothing licenses the additional presence of “[\(\text{id}\)- sy ny vadiny].”

Seventh, only on the \(\text{id}\)- Anaphor view must we stipulate the attachment site for \(\text{id}\). For example, if \(\text{id}\)- may occur as a possessor (then raise to object and incorporate into the verb, as in [43c]), why couldn’t \(\text{id}\)- just prefix to the head of the possessive, volo ‘hair’? Similarly, if causatives are treated as biclausal, as is common (DMP and, in the spirit of the \(\text{id}\)- Anaphor hypothesis, then “Rabe and Rakoto make e.o. dance” would be represented as in (101), with \(\text{id}\)- as external argument of intransitive mandihy ‘dances’. What prevents it from prefixing to its immediately preceding verb, yielding the ungrammatical and senseless *mifandihy?

(101) [amp- [[[an+dihy] i]] [Rabe sy Rakoto]
    [cause [[act+dance] rec]] [Rabe and Rakoko]

In sum, the \(\text{id}\)- Anaphor view leads to many unenlightening stipulations in the grammar and does not seem to support any interesting generalizations about Malagasy. We conclude that reciprocals in Malagasy are better treated by the valency reduction approach we have taken here. The only novelty it entails is that some derivational morphology is phrasal and thus recursive.20

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20. Lidz (2001) argues against a valency reduction approach to reflexives in Kannada, which do present a verbal affix kalokoND that includes reflexive among its functions. His most convincing argument to our mind is that kalokoND may cooccur with a case-marked NP reflexive, so the accusative argument is not fully missing. Nishiguchi (1992) cites one instance in Japanese with a verbal-affix reciprocal cooccurring with an NP reciprocal. However, in Malagasy, Chichewa, and Nillendwa, there are no NP reciprocals, so this evidence against the argument absorption of the reciprocal affix is not present in these languages.
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