The exceptional properties of the 1sg and reflexive object markers in Bantu:
syntax, phonology, or both?

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1. Introduction

This talk focuses on three phenomena in Bantu languages where the 1sg OP behaves differently from other OPs:

- **(i)** **Reduplication**
- **(ii)** **OP combinatorics**
- **(iii)** **Allomorphy of the final vowel in the imperative**

1.1 Reduplication.

(1) In Saamia, CV- prefixes are not generally overcopied in the reduplication of C-initial stems. (Botne et al. 2006, Marlo 2002, 2004)
   a. óxu[temá][tém-á]   βa[lumá][lúm-án-á]
       INF[RED][chop-FV]   3PL[RED][bite-rec-FV]
       'to cut into pieces'   'they are biting each other continually'

   b. Prefixes, including OPs, are not copied with V-initial stems.
       óxw[iimbá][ímb-á]   y[ootá][ót-á]
       INF[RED][sing-FV]   3SG [RED][warm-FV]
       'to sing repeatedly'   'he is warming himself repeatedly'

       Ø-mw[íimbá][ímb-ír-ááng-á]   y[eexálá][íxál-á] (/-ixal-/)
       1SG-3PL[RED][sing-APPL-HAB-FV] 3SG[RED][sit-FV]
       'I am always singing for him' 'he is sitting down repeatedly'

   c. However, the nasal 1sg OP is overcopied in reduplication.
       á-n[imbírá][n-ímb-ír-á] (/-imb-/)
       3SG-1SG[RED][1SG-sing-APPL-FV]
       'he is singing for me continuously'

       y-aá-n[aangíré][n-ááng-íré] (/-laang-/)
       3SG-PST-1SG[RED][1SG-call-FV]
       'he called me repeatedly'

1.2 OP combinatorics.

(2) In Khayo, 1sg **N-** can co-occur with a second OP (Marlo 2009: 92).
   a. a-múu-m[bon-ér-á] (/-βon-/)
       3SG-3SG-1SG[see-APPL-FV]
       'he sees him for me'

   b. Other combinations of OPs are ungrammatical.
       *...mú-βa[...   *...mw-í[...
        ...3SG-3PL[...   ...3SG-REFL[...

1.3 Allomorphy of the final vowel in the imperative.

(3) Rundi exhibits a common pattern of final vowel allomorphy in the imperative in which the 1sg behaves differently from other OPs (Ndayiragije 2003: 183-185).
   a. Bare imperatives in end in **-a**.
       [vun-**a**] amagúfa   'break the bone!'

   b. Verbs with an OP end in **-e**.
       tu[vun-**e**]   'break us!'
       i[vun-**e**]   'break yourself!'

   c. However, verbs with the 1sg OP end in **-a**.
       m[peb-**a**] (/N[heb-a]/)   'abandon me!'

(4) There are different factors that could be responsible for the divergent behavior of the 1sg OP compared to other OPs.
   a. Phonological
       Most OPs have a CV- shape, but 1sg has monophone N-.

b. Syntactic
The 1sg OP is often required to surface closest to the verb stem (Polak 1983: 297) and may be in a different morpho-syntactic positions from other OPs (Buell 2005, Muriungi 2008).

In the rest of this talk, I present micro-typological surveys on overcopying of prefixes in reduplication, the number of OPs that are allowed, and the allomorphy of the final vowel in the imperative, and argue that <u>both morpho-syntactic and morpho-phonological factors are responsible for the unique behavior of the 1sg OP</u>.

2. Background on OPs

OPs sit in a position immediately preceding the stem (or reduplicated stem). The OPs and the (reduplicated) stem form the 'macrostem'.

(5) Inflectional prefixes ₘₐᶜʳₒₛₜₑₘ{OP [RED] ₛₜₑₘ[Root-Extensions-**FV**]}

'OP' is used here in a theory-neutral way here to indicate the object-indexing morphemes that precede the verb stem.[1] I also set aside post-stem object marking.[2]

2.1. Phonological properties of OPs. OPs generally have an CV- shape in Bantu verbs.

(6) Two common exceptions
a. 1sg, reconstructed as *ǹ- (Meeussen 1967: 98, 1986: 373-374)
b. reflexive *í- (Polak 1983).

(7) OPs of Nyaturu (Olson 1964, Schadeberg 1979)

reflexive	i-		
1sg	N-	1pl	qú-
2sg	qò-	2pl	mú-
3sg	mò-	3pl	vá-

cl. 3	wú-	cl. 4	mì-
cl. 5	rí-	cl. 6	yá-
cl. 7	qí-	cl. 8	ví-
cl. 9	wú-	cl. 10	yí-
cl. 11	wú-	cl. 12	qá-
cl. 15	qò-	cl. 14	wú-

1sg *ǹ- assimilates in place of articulation to the following consonant and triggers cross-linguistically common NC effects (Hyman 2001, 2003, Odden to appear).

Other OPs are generally not known to trigger similar effects, though reflexive **i-** does trigger mutations of the following stem-initial segment in Tswana (Dickens 1984, Mmusi 1992: 34-35).

2.2. The number of OPs. Some Bantu languages in the northwest have no OPs, and a large number of other languages are reported to limit the number of OPs to just one.

(8) Only a single OP is allowed in Swahili, representing the beneficiary (Marten & Kula 2012: 244).
a. ni-li-<u>m</u>[p-a]
1SG-PST-<u>3SG</u>[give-FV]
'I gave him (it)'

b. It is ungrammatical to mark both objects with OPs.
*ni-li-<u>i</u>-<u>m</u>[p-a] *ni-li-<u>m</u>-<u>i</u>[p-a]
1SG-PST-<u>9</u>-<u>3SG</u>[give-FV] 1SG-PST-<u>3SG</u>-<u>9</u>[give-FV]
Int.: 'I gave him it' Int.: 'I gave him it'

(9) Languages that allow only one OP
Bende (Abe 2006: 179-180)
Chewa (Bresnan & Mchombo 1987: 743, Marten et al. 2007: 263)
Herero (Marten et al. 2007: 263, Möhlig & Kavari 2008: 169-170)
Kagulu (Petzell 2008: 102-103)
Kalanga (Rose Letsholo, p.c.)
Kete (Kamba Muzenga 1980: 130-132)
Kwezo (Forges 1983: 260-261)
Langi (Nurse 2007)
Beya Lega (Botne 2003: 440, 445)
Maore Comorian (Alnet 2009: 269)

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[1] I set aside the question of whether these morphemes are affixes ('infixes' or 'prefixes'), clitics, pronouns, or agreement markers (aka 'concords'; see Adams 2010, Baker 2008, Bax & Diercks 2012, Bearth 2003, Bresnan & Mchombo 1987, Buell 2005, Byarushengo et al. 1976, Demuth & Johnson 1990, Diercks & Sikuku 2011, Duranti & Byarushengo 1977, Henderson 2006, Mchombo 2004, Riedel 2009, van der Spuy 1993, Woolford 1999, 2000, 2001, Zeller 2012, Zerbian 2006).

[2] See Beaudoin-Lietz et al. (2004) and Marlo (2013).

Mbala (Ndolo 1972: 25)
Mbonge (Friesen 2002: 107-117)
Meru (Hodges 1977: 111)
Mwani (Nurse 2007)
Phuthi (Donnelly 2009: 352)
Sotho (Morolong & Hyman 1977: 210)
Swahili (Marten et al. 2007: 263)
Swati (De Guzman 1987: 312)
Tonga (Nkolola 2004: 181)
Tura (Marlo 2008: 163)
Zulu (Adams 2010: 24, Zeller 2012: 219-220)

Among languages that allow multiple OPs, there is considerable diversity in the exact number of OPs that are allowed.

Some freely allow two, three, four, up to a maximum of five or even six OPs (Bearth 2003: 124-125, Kearns 2008, Marlo 2013, Marten et al. 2007, Marten & Kula 2012).

(10) Five OPs in Kuria (Rodrigo Ranero p.c.)
n-aa-chi-mo-ge-ge-ba[haa-yey-e]
1SG-PST-10-1-9-9-2[give-CAUS.INST.BEN-FV]
'I made them (the girls) give it (the money) to it (Pomona) using it (M-Pesa) on behalf of him (Mokami).'

(11) Six OPs in Rwanda (Kimenyi 2002: 20)
umugoré   a-ra-na-ha-ki-zi-ba-ku-n   [som-eesh-eesh-er-er-ez-a]
woman   3SG-PRES-also-16-7-10-3PL-2SG-1SG
[read-CAUS-CAUS-APPL-APPL-APPL-FV]
'the woman is also making them read it$_7$ (book) with them$_{10}$ (glasses) to you for me there$_{16}$ (in the house)'

(12) Languages that allow four or more OPs
Haya (Duranti 1979: 39)
Kuria (Rodrigo Ranero p.c.)
Rwanda (Beaudoin-Lietz et al 2004: 183, Kimenyi 2002: 20)
Vunjo dialect of Chaga (Moshi 1998: 144-145)

Some languages allow only two or three OPs, sometimes only in restricted contexts.

2.3. The order of OPs. In some Bantu languages, the order of OPs is determined by syntactic relations or thematic roles, often a mirror image of the order of postverbal NPs (Bearth 2003), as in Tswana (Creissels 2002: 391).

(13) In Sambaa, the order of the OPs follows from their grammatical roles, the indirect object (goal) being closest to the stem (Riedel 2009: 140).
a.   a-za-ku-ni[ony-esh-a]   b.   a-za-ni-ku[ony-esh-a]
3SG-PERF-2SG-1SG[see-CAUS-FV]   3SG-PERF-1SG-2SG[see-CAUS-FV]
's/he pointed you out to me'   's/he pointed me out to you'

In languages that allow more than one OP, the 1sg and reflexive prefixes are often required to surface finally, in a position linearly adjacent to the stem (Polak 1983: 297).

(14) In Ruri, syntactic relations normally determine the order of multiple OPs, as in Sambaa. However, the 1sg OP must always appear closest to the stem, irrespective of its grammatical role (Massamba 1982: 52).

It has been claimed for some Bantu languages that the inner placement of the 1sg OP (as well as the reflexive) reflects the influence of animacy-topicality and person-number hierarchies on the order of the OPs (Alsina 1994, Contini-Morava 1983, Duranti 1979, Rugemalira 1993).

1sg vs. reflexive
Meeussen (1967: 110) reconstructs the reflexive for Proto-Bantu as being the innermost OP.

The reflexive always "immediately precedes the stem, regardless of which argument it saturates (Buell 2005: 41)".

(15) 1sg-reflexive order
a.   Bukusu (Jastino Sikuku, p.c.)
Wekesa   a-a-nj-i[siim-isy-a]
Wekesa   3SG-PST-1SG-REFL[like-CAUS-FV]
'Wekesa made me like myself'

b.   Rundi (Juvenal Ndayiragije, p.c.)
a-á-ra-n-i[heb-ir-ye]
3SG-TNS-DISJ-1SG-REFL[abandon-APPL-FV]
'he sacrificed himself for me'

c. Kerewe (David Odden, p.c.)
d. Nyala-West (Ebarb et al. in prep)
e. Wanga (Marlo field notes)

However, this is not universally true: in some languages, the 1sg OP follows the reflexive.

(16) Reflexive-1sg order
a. Kikuyu (Barlow 1951: 122)
w-ĩĩ-n[garũr-ĩr-e]
2SG-REFL-1SG[turn-APPL-FV]
'turn (yourself) toward me'

b. Tharaka (Muriungi 2008: 122)
a-gû-î-n[kum-îr-i-a]
3SG-TNS-REFL-1SG[be.proud-APPL-CAUS-FV]
's/he has been proud to the detriment of me'

c. Tswana (Cole 1955: 234, cf. Chebanne 1992)
go-i-m[pola-ɛl-a]
INF-REFL-1SG[kill-APPL-FV]
'to kill himself for me'

Muriungi (2008: 121-122) takes the reflexive-1sg order in Tharaka as evidence that the 1sg OP occupies a lower structural position than the reflexive, which itself is lower than other OPs.

(17) Reflexive î-, 1sg N-, and other OPs in Tharaka (adapted from Muriungi 2008: 121-122)
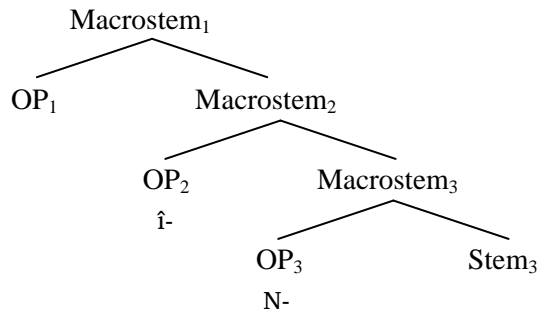
An additional variant is found in Tiriki, in which either order of 1sg and reflexive is possible, without a concomitant change in meaning.

(18) Variable order of reflexive and 1sg OP in Tiriki (Marlo in prep.)
a. à-l-ìí-m[bàlìts-ìr-à]   à-làá-nz-ì[vàlìts-ìr-à]
3SG-FUT-REFL-1SG[count-APPL-FV]   3SG-FUT-1SG-REFL[count-APPL-FV]
'he will count himself for me'   'he will count himself for me'

b. à-l-ìí-m[bèk-èr-à]   à-làá-nz-ì[vèk-èr-à]
3SG-FUT-REFL-1SG[shave-APPL-FV]   3SG-FUT-1SG-REFL[shave-APPL-FV]
'he will shave himself for me'   'he will shave himself for me'

3. Reduplication

Verb reduplication is a common phenomenon in Bantu languages, typically involving the doubling of the stem.[3] OPs are generally not reduplicated.

It is clear that the overcopying of 1sg N- in reduplication has a phonological explanation.

(19) In addition to the 1sg OP N-, the 1sg subject prefix N- is overcopied in Saamia when it immediately precedes the stem.
n[umá][n-úm-á] (/-lum-/)   n[omá][nóm-á] (/-lom-/)
1SG[RED][1SG-bite-FV]   1SG[RED][1SG-talk-FV]
'I am biting all over'   'I am talking'

(20) In Hehe verb reduplication, prefixes and OPs normally do not copy in reduplication (Odden & Odden 1985).
a. No OP
kú[ceengela][ceeng-él-a]   tu[gulite][gúl-ite]
INF[RED][build-APPL-FV]   1PL[RED][buy-FV]
'to build for a bit'   'we shopped a bit'

b. CV- OP
kú-fi[gula][gúl-a]
INF-8[RED][buy-FV]
'to buy a bit of them8'

[3] See Downing 1994, 1999a, b, 2000, 2004, 2006, 2009, Hyman 2009, Hyman et al. 2008, Matondo 2003, Odden 1996, Odden & Odden 1985, Poletto 1998.

c. However, the 1sg OP ɲ- is copied.
va-kúu-<u>n</u>[doongaa][<u>n</u>-doóng-a]
3PL-PRES-<u>1SG</u>[RED][<u>1SG</u>-nag-FV]
'they nag me' (/-loong-/ 'nag')

d. The 1sg SP ɲ- also overcopies when it immediately precedes the stem.
n[dímilee][**n**-dim-íl-e]
1SG[RED][**1SG**-cultivate-APPL-FV]
'cultivate for me!' (/-lim-/ 'cultivate')

e. Any CV-shaped prefix, including OPs and other types of inflectional prefixes, is overcopied in the reduplication of V-initial verbs.

kw[íita][**kw**-iít-a]   kú-<u>lw</u>[iita][<u>lw</u>-iít-a]
INF[RED][**INF**-pour-FV]   INF-<u>11</u>[RED][<u>11</u>-pour-FV]
'to pour a bit'   'to pour it11 a bit'

(21) Downing (1998)
   a. The overcopying of nasal prefixes from outside the stem in reduplication is the result of the shared place features across across the prefix-reduplicant boundary. The assimilated nasal is brought into the reduplicant, and the nasal is backcopied to the base due to base-reduplicant identity.
   b. Principles of syllabification are responsible for the overcopying of CV- prefixes with V-initial stems, due to a requirement that stems begin with an onset consonant.

3.1. Minimality-driven overcopying. Prefixes can also be overcopied in Bantu reduplication when a minimality requirement is imposed on the base or reduplicant.

(22) In several Bantu languages, OPs can be recruited into an otherwise subminimal reduplicative stem to meet the minimality requirement.
Bukusu (Mutonyi 2000: 111)
Lungu (Bickmore 2007: 317)
Ndebele (Hyman et al. 2008, Sibanda 2004: 304-307)
Nkore (Poletto 1998: 177)
Sukuma (Matondo 2003)
Tharaka (Muriungi 2008: 110)

(23) One strategy to augment a monosyllabic stem to meet the disyllabic minimality condition in Ndebele is to incorporate an OP (**zi-**) into the stem and copy it.

	Non-reduplicated	Reduplicated	
a.	uku-<u>zi</u>[thum-a]	uku-<u>zi</u>[thuma][thum-a]	'to send them'
		*uku-<u>zi</u>[thu][<u>zi</u>-thum-a]	'to send them'
b.	uku-<u>zi</u>[dl-a]	uku-<u>zi</u>[dla][<u>zi</u>-dl-a]	'to eat them'

(24) The reflexive can be overcopied in reduplication is Tharaka when it co-occurs with a monosyllabic stem, satisfying a minimality requirement (Muriungi 2008: 110).
î[pa][î-p-e]
REFL[RED][REFL-give-FV]
'give yourself quickly'

The fact that the reflexive generally does not overcopy in reduplication is not surprising since *í- is syllabified in a syllable separate from the stem-initial consonant.

3.2. Cross-Bantu variation in overcopying.

(25) There are differences among Bantu languages in the contexts in which overcopying is found.
   a. Like Hehe, Kamba has overcopying in both CV+V and nasal prefix contexts in verbal reduplication (Angelina Kioko, p.c.).
   b. Kerewe (Odden 1996) and Nande (Mutaka & Hyman 1990) also have reduplication CV+V and nasal prefix contexts, but in nominal, not verbal, reduplication.
   c. Sukuma has optional overcopying of cl. 9 **N-** in nominal and adjectival reduplication (Matondo 2003).
   d. Nzadi has obligatory reduplication of 1sg **N-** in verbal reduplication marking the future tense (Hyman 2011: 33-35).
   e. CV- prefixes overcopy in combination with a V-initial verb stem in Ndebele (Sibanda 2004: 310) and Sukuma, which has optional overcopying in verbal, nominal, and adjectival reduplication (Matondo 2003).

(26) Lungu has the reverse pattern compared to Saamia. (Bickmore 2007: 318)

    a. A CV- object prefix optionally overcopies in combination with a V-initial stem.

      yá-kú-<u>m</u>[úúmá][<u>m</u>-úúm-à]

      ~ yá-kú-<u>m</u>[úúmá][úúm-à]

      3PL-PRES-<u>3SG</u>[RED][3SG/Ø-beat-FV]

      'they are beating him repeatedly'

    b. However, the 1sg OP N- cannot overcopy.

      yá-kúú-<u>ndʒ</u>[ímbá][imb-à]

      *yá-kúú-<u>ndʒ</u>[ímbá][<u>ndʒ</u>-ímb-à]

      3PL-PRES-<u>1SG</u>[RED][Ø/1SG-dig.up-FV]

      'they are digging me up repeatedly'

Bantu languages also differ in the types of prefixes that overcopy.

(27) Some languages allow <u>any type of prefix</u> to be overcopied.

    a. Hehe: an OP, infinitival prefix, SP, etc.

    b. Saamia: 1sg SP N- or 1sg OP N-.

(28) Other languages restrict the prefixes that may overcopy to <u>OPs only</u>.

    a. Only OPs overcopy with V-initial stems in Lungu.

    b. Only OPs overcopy with monosyllabic stems.

        Lungu (Bickmore 2007: 317-318)

        Ndebele (Sibanda 2004)

        Nkore (Poletto 1998: 202-211)

        Tharaka (Muriungi 2008: 110)

Muriungi (2008) takes the fact that only the OPs and reflexive can overcopy as evidence that these morphemes occupy a different structural position from other prefixes. Thus, although the motivations for overcopying in reduplication are phonological, the effects are constrained by morpho-syntactic considerations.

4. OP combinations

Many Bantu languages restrict the number of OPs to just one or two (Bearth 2003: 124-125, Marlo 2013, Marten & Kula 2012, Marten et al. 2007). There is quite a lot of variation across languages in the specific patterns that occur.

4.1. Micro-typological patterns.

(29) In Nyaturu, two CV- OPs are generally not allowed (Hualde 1989: 183-185, Olson 1964, Polak 1986, Schlindwein 1986).

    *w-a-<u>va</u>-ku[tʊm-ɪ-aa]   *ʊ̀-<u>vá</u>-mú[tʊ́m-í-à]

    3SG-PST-<u>3PL</u>-<u>2SG</u>[send-APPL-FV]   INF-<u>3PL</u>-<u>3SG</u>[send-APPL-FV]

    'he sent them to you'   'to send him to them,

                                  to send them to him'

    *n-a-<u>u</u>-<u>va</u>[rʊɣ-ɪ-aa]   *ʊ̀-<u>kì</u>-<u>mʊ̀</u>[pá-à]

    1SG-PST-14-3PL[cook-APPL-FV]   INF-7-3SG[give-FV]

    'I cooked it₁₄ for them'   'to give it₇ to him'

(30) However, two OPs are possible when one is the 1sg OP.

    w-a-<u>u</u>-<u>n</u>[dʊɣ-ɪ-aa]   ʊ̀-<u>vá</u>-<u>n</u>[tʊ́m-í-à]

    3SG-PST-<u>14</u>-<u>1SG</u>[cook-APPL-FV]   INF-<u>3PL</u>-<u>1SG</u>[send-APPL-FV]

    'he cooked it₁₄ for me'   'to send them to me,

                                  to send me to them'

    w-ú-<u>ndʒ</u>[àrùm-è]   ùtàkò   ʊ̀-<u>kì</u>-<u>m</u>[pá-à]

    2SG-14-1SG[lend-FV]   14.bow   INF-7-1SG[give-FV]

    'you should lend me your bow'   'to give it₇ to me'

(31) Or when one is the reflexive.

    à-<u>mw</u>-<u>ì</u>[ràfìɩy-à]

    3SG-3SG-REFL[swear-FV]

    'he has sworn himself to him'

(32) Several other Bantu languages normally allow only a single OP but allow a total of two OPs just in case one is 1sg N- or reflexive i-.

    Fuliiru (Van Otterloo 2011: 40-41)

    Kamba (Angelina Kioko, p.c.)

    Marachi (Marlo 2007)

    Nyala-West (Marlo 2007)

    Nyaturu (Hualde 1989: 183-185, Olson 1964, Polak 1986, Schlindwein 1986)

    Shi (Polak-Bynon 1975: 210-212)

    Wanga (Marlo field notes)

(33) Fuliiru allows two OPs with 1sg N- and reflexive yi- (Van Otterloo 2011: 40-41).
  a. w-à-bì-m[bééréz-â]
     3SG-PST-8-1SG[give-FV]
     'he's the one who gave them$_8$ to me'

  b. ú-w-áàlí   kìzí   lù-yí[làsh-á]mwò
     3SG-1-PST   REP   11-REFL[throw-FV]18
     'the one who threw himself in it$_{11}$'

The Fuliiru reflexive yi- has a CV- shape, which is unlike many other languages that have a V-shaped reflexive.

Sometimes the 1sg OP or the reflexive but not the other licenses an additional OP.

(34) In Bukusu, two OPs are generally not allowed (Diercks & Sikuku 2011, Sikuku 2012).
  a. *Wamalwa   a-a-mu-ba[siim-isy-a]
      Wamalwa   3SG-PST-3SG-3PL[cook-CAUS-FV]
      'Wamalwa made him like them'

  b. Reflexive i- can co-occur with a second OP.
     Wekesa   a-a-mu-i[siim-isy-a]
     Wekesa   3SG-PST-3PL-REFL[like-CAUS-FV]
     'Wekesa made him like himself'

  c. 1sg n- cannot.
     *Wekesa   a-a-si-m[b-a]
      Wekesa   3SG-PST-7-1SG[give-FV]
      'Wekesa gave me it$_7$'

  d. It is also possible for there to be two instances of the reflexive, where each instance of the reflexive represents a distinct thematic role Bukusu (Sikuku 2012).
     Khalayi   a-a-i-i[siim-isy-a]
     Khalayi   3SG-PST-REFL-REFL[like-CAUS-FV]
     'Khalayi made herself like herself'

(35) Another language that allows multiple instances of the reflexive, each indexing a distinct thematic role, is Ruwund (Nash 1992: 571).

kw-ii-yii[kis-ish]
INF-REFL-REFL[dirty-CAUS]
'to cause oneself to dirty oneself'

In a number of other languages, either the 1sg OP or the reflexive licenses an additional OP, but we cannot at present be certain that the other prefix does not license a second OP.

(36) Languages that allow two OPs only if one is 1sg N-
     Libinza (Polak 1986: 404)
     Luba-Kasai (Kuperus & Mpunga wa Ilunga 1990: 34)
     Lulua (Polak 1986: 404)
     Ndengese (Polak 1986: 404)
     Punu (Polak 1986: 404)
     Suku (Nurse 2007, Polak 1986: 404)
     Yaka (Kidima 1987: 186)

(37) Languages that allow two OPs only if one is the reflexive
     Bakweri (Hawkinson 1986: 151-152)
     Bukusu (Diercks & Sikuku 2011, Sikuku 2012)
     Havu (Polak 1986: 404)
     Kikuyu (Barlow 1951: 266)
     Lozi (Polak 1986: 404)
     Tharaka (Muriungi 2008: 90, 121-122)

(38) Languages that allow three OPs only if one is the reflexive
     Rundi (Meeussen 1959: 102)
     Ruwund (Nash 1992: 571)

There are a handful of cases where the 1sg OP N- licenses an additional OP but limited additional combinations of OPs that make it clear that the correct generalizations concerning the combinatorial possibilities of OPs involve non-phonological properties such as person and animacy.

(39) Lungu allows two OPs iff one is 1st person (Bickmore 2007: 30).
  a. 1sg n- may co-occur with a second OP.
     yá-kú-múú-n[dém-él-à]
     3PL-PRES-3SG-1SG[grab-APPL-FV]
     'they are grabbing him for me'

b. 1pl **tú-** also licenses a second OP.
   yá-kú-ꜜtú-múꜜ[léém-él-à]
   3PL-PRES-1PL-3SG[grab-APPL-FV]
   'they are bringing him for us'

c. The 1st person OP must represent the indirect object (goal/beneficiary).
d. There are ordering restrictions: 1pl **tú-** must be ordered first, and 1sg **n-** must be ordered second.
e. Other combinations of OPs are "very marginal or completely ungrammatical".

(40) Two OPs are generally allowed in Nyambo; three are allowed iff one is 1st person (Rugemalira 1991: 203, 1993a: 229, 1997: 210, 2005: 89-90).

   a. OP + OP + 1sg **n-**
   a-ka-ga-mu-m[pé-er-a]   a-ka-ga-mú-n[siij-ir-a]
   3SG-PST-6-3SG-1SG[give-APPL-FV]   3SG-PST-6-3SG-1SG[smear-APPL-FV]
   'he gave it$_6$ to him for me'   'she smeared it$_6$ on him for me'

   b. OP + OP + 1pl **tu-**
   a-ka-ga-mu-tu[nywé-ís-ez-a]
   3SG-PST-6-3SG-1PL[give-CAUS-APPL-FV]
   'he made her drink it$_6$ for us'

   c. The 1st person OP must be the rightmost OP.

(41) In Bemba, most combinations of OPs are disallowed (Marten & Kula 2012: 245)

   a. *n-àlíí-mù-yà[péél-à]   *n-àlíí-yà-mù[péél-à]
     1SG-PST-3SG-6[give-FV]   1SG-PST-3SG-6[give-FV]
     'I gave him it$_6$'   'I gave him it$_6$'

   b. Two OPs are allowed if both are animate.
   mù-kà-bá-mú[éb-él-á]kó
   2PL-FUT-3PL-3SG[tell-APPL-FV]17
   'you will tell them for him'

c. 1sg **N-** can co-occur with an inanimate OP.
   à-chí-m[péél-é]
   3SG-7-1SG[give-APPL-FV]
   'he should give it7 to me'

d. 1sg **N-** can even co-occur with two OPs, if one is animate.
   mú-ká-cí-mù-n[twààl-íl-é]ꜜkó
   2PL-FUT-7-3SG-1SG[return-APPL-FV]17
   'you should return it$_7$ to him/her for me'

4.2. Towards a morphosyntactic analysis. If there is a general analysis of the restrictions on combinations of OPs, it is clear from the data in Lungu, Nyambo, and Bemba that morpho-syntactic properties such as person and number features are responsible for the surface patterns.

Following Buell (2005) on Zulu, Muriungi (2008) on Tharaka, and Sikuku (2012) on Bukusu, I propose that there are multiple structural positions for OPs in these languages.

There is an inner morpho-syntactic position for an additional OP which is highly restricted in the features of the OPs that can appear in it.

(42) Restrictions on multiple OPs
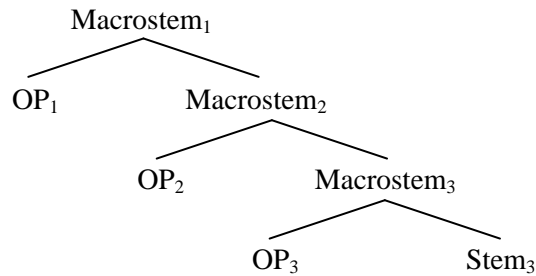   a. Languages that normally allow one OP: OP$_2$ is highly restricted
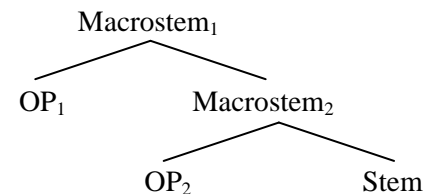
   Khayo restricts OP$_2$ to 1sg only.
   Bukusu restricts OP$_2$ to reflexive only.
   Nyaturu restricts OP$_2$ to 1sg or reflexive.
   Lungu restricts OP$_2$ to first person.

b. Languages that normally allow two OPs: OP_3 is highly restricted

```
                Macrostem₁
               /          \
          OP₁          Macrostem₂
                      /          \
                 OP₂          Macrostem₃
                             /          \
                        OP₃          Stem₃
```

Nyambo restricts OP_3 to first person.

(43) Analytical challenges
   a. Bemba's restrictions are more complex and appear to require simultaneous reference to multiple OP slots.
   b. In Tharaka, there is evidence for a three-way structural division of OPs (Muriungi 2008: 121-122), but a maximum of two OPs, one of which must be 1sg or reflexive, is allowed at any one time.

4.3. A morpho-phonological account?

(44) Polak (1986)
   a. In CV-N- OP combinations with 1sg *ǹ- and in CV-V- OP combinations with reflexive *í-, the two OPs are together only a single syllable in size, just as when there is only a single CV- OP.
   b. When two CV- OPs co-occur, the OPs together are two syllables in size.
   c. One could potentially implement this insight as a monosyllabic template on the OPs, which prevents CV-CV- combinations but allows CV-N- and CV-V-.
   d. However, a phonological analysis along these lines could not handle the facts of Fuliiru, Lungu, Nyambo, and Bemba, since OP combinations like **-lu-yi-**, **-tú-mú-**, **-ga-mu-tu-**, and **-bá-mú-** are clearly larger than a single syllable.

5. Allomorphy of the FV in the imperative

(45) Many other modern day Bantu languages have the Rundi pattern of FV allomorphy in the imperative, which Meeussen (1962: 74, 1967: 112) reconstructs to Proto-Bantu.
   Bajuni (Nurse n.d.: 23)
   Fuliiru (Van Otterloo 2011: 40-41)
   Ganda (Ashton et al. 1954: 29-31, 36, 65-66, 70, 93-96, 220-226)
   Gweno (Marlo field notes)
   Ha (Harjula 2004: 88-89)
   Haya (Hyman & Byarushengo 1984)
   Ila (Yukawa 1987c: 242)
   Jita (Downing 1996: 35)
   Kikuyu (Barlow 1951: 67, 70)
   Marachi (Marlo 2007)
   Mwimbi
   Nyaturu (Olson 1964: 178-180, Schadeberg 1979, Yukawa 1989d: 473-474)
   Nyiha (Yukawa 1989e: 507-509)
   Rundi (Meeussen 1959: 112, Ndayiragije 2003: 183-185)
   Shi (Polak-Bynon 1975: 222-223)
   some varieties of Swahili (Haddon 1955: 81)
   Tiriki
   Tsootso (Dalgish 1974: 85-88)
   Tswana (Cole 1955: 241, Hyman 2001: 157, 162, Mmusi 1992)

(46) In Kamba (Angelina Kioko, p.c.) and Mwera (Harries 1950: 87, cited in Devos & Van Olmen 2013) there is variation in the form of the imperative verb with the 1sg OP N-: the FV is optionally **-a** or **-e**.

(47) Some other languages have generalized the pattern of CV- OPs such that all OPs trigger final **-e**.
   a. 1sg **ni-**
      Mwenyi (Yukawa 1987b: 64)
      Sukuma (Yukawa 1989b: 387-388)
      Swahili

   b. 1sg **ngu-**
      Luvale (Yukawa 1987a: 64)
      Makonde (Yukawa 1989f: 551-552)

   c. 1sg **ndi-**
      Chewa (Ndayiragije 2003: 183)

   d. 1sg **ngi-**
      Zulu (Engelbrecht 1957)

e.   1sg **n̩-**
   Nilamba (Yukawa 1989c: 439-440)

f.   1sg **N-**
   Khayo (Marlo 2009)
   Lungu (Bickmore 2007: 307)
   eastern Tswana (Cole 1955: 241)
   Tura (Marlo 2008)

(48)   Imperative FV allomorphy in Khayo (Marlo 2009: 111)
   [liingaal-**á**]   'watch!'
   mu[líingaal-**é**]   'watch him!'
   n[íingaal-**é**]   'watch me!'

There are a number of other languages that show interesting variations on the Rundi pattern of FV allomorphy in the imperative.

(49)   Tharaka has the usual pattern of FV allomorphy (Muriungi 2008: 118-123)
   a.   Bare stems condition the FV **-a**.
      [ring-**a**]   'hit!'
      [ring-ith-i-**a**] John rû-thingo   'coerce John to hit the wall!'

   b.   1sg **N-** triggers final **-a**.
      n[tem-**a**]   'cut me!'

   c.   Other OPs, including the reflexive, trigger final **-e**.
      mî[ring-**e**]   'hit it$_9$!'
      tû[tem-**e**]   'cut us!'
      mû[tem-**e**]   'cut him!'
      î[ring-**e**]   'hit yourself!'

Tharaka possesses an additional type of imperative form with an 'expletive' prefix **î-**, which "appears to be semantically vacuous" and occurs only in imperatives (Muriungi 2008: 119). Forms with expletive **î-** end with the FV **-a**, and expletive **î-** does not co-occur with an OP.

(50)   Expletive **î-** in Tharaka (Muriungi 2008: 119, 122)
   a.   î[tem-**a**]   'cut!'
   b.   *î-n[tem-**a**]   'hit me!'   *î-n[tem-**e**]   'hit me!'

(51)   Bukusu has a unique pattern of FV allomorphy in the imperative (Maurice Sifuna, p.c., Justine Sikuku, p.c., Sikuku 2012).
   a.   Bare stems end in **-a**.
      [bek-**a**]   'shave!'

   b.   Forms with a CV- OP end in **-e**.
      mu[bek-**e**]   'shave him!'

   c.   The 1sg OP **n-** also triggers final **-e**.
      m[bek-**e**]   'shave me!'

   d.   Strikingly, the reflexive takes the FV **-a**.
      i[bek-**a**]   'shave yourself!'
      *i[bek-**e**]   'shave yourself!'
      (Recall that reflexive **i-** is also unique in Bukusu in exceptionally licensing a second OP.)

(52)   Digo is another example of the familiar pattern of FV allomorphy in the imperative (Kisseberth 1981: 95-97, 1984: 158).
   a.   Bare stems take the FV **-a**.
      [tʃeketʃer-**a**]   'sift for!'   [tsukur-**a**]   'carry!'

   b.   Forms with other OPs take the FV **-e**.
      a[tʃékétʃer-**e**]   'sift for them!'   a[tsukûr-**e**]   'carry them!'

   c.   Stems with the 1sg OP take the FV -a. Unlike the other examples we have seen, the 1sg OP **ni-** has a CV- shape.
      ni[tʃeketʃer-**a**]   'sift for me!'   ni[tsukur-**a**]   'carry me!'

(53)   There are several other languages with the Digo pattern of FV allomorphy in the imperative, where 1sg **ni-** triggers the FV **-a** in the imperative.
   Chimwiini (Kisseberth & Abasheikh 2004)
   Giryama (Lax 1996: 267, 293-294, 301)
   Mbaga Pare (Kagaya 1989: 142-145)
   Mtang'ata Swahili (Whiteley 1956: 32, 33, cited in Devos & Van Olmen 2013: 20)

(54) A similar pattern is found in Machame Chaga (Yukawa 1989a: 324-326).
  a. Bare stems end in **-a**.
     [kab-**á**]   'beat!'   [ruúy-**â**]   'look for!'

  b. Most OPs including 3sg **ṇ-** and 3pl **va-** take the FV **-e**.
     <u>n</u>[kab-**ê**]   'beat him!'   <u>n</u>[ruúy-**ê**]   'look for him!'
     <u>va</u>[káb-**ê**]   'beat them!'   <u>va</u>[rúúy-**ê**] 'look for them!'

  c. The 1sg OP **ʃi-** takes **-a**.
     <u>ʃi</u>[kab-**â**]   'beat me!'   <u>ʃi</u>[ruúy-**â**] 'look for me!'

(55) A further important variation on the most common pattern of exceptional allomorphy is found in Ndebele (Sibanda 2004: 29, 112-114).
  a. Bare stems end in **-a**.
     [that-**a**]   'take!'
     [ph-an-**a**] ~ yi[ph-**a**]   'give!'

  b. Most OPs, including the reflexive, require the FV **-e**,
     <u>ba</u>[thath-**e**]   'take them!'
     <u>ba</u>[ph-**e**]   'give them!'
     <u>zi</u>[tshay-**e**]   'hit yourself!
     <u>zi</u>[ph-**e**]   'give yourself!'

  d. 1st person OPs (sg. and pl.) optionally take final **-a** or **-e**.
     <u>ngi</u>[tshay-**a**] ~ <u>ngi</u>[tshay-**e**]   'hit me!'
   <u>si</u>[ph-**a**] ~ <u>si</u>[ph-**e**]   'give us!'

5.1. A morpho-syntactic analysis. I largely adopt Muriungi's (2008) morpho-syntactic analysis of the imperative allomorphy patterns in Tharaka and adapt it to account for a broader range of data across Bantu.

(56) Muriungi (2008)
  a. 1sg **N-** and expletive **î-** in Tharaka trigger different FVs from other OPs because these morphemes occupy a lower structural position than other OPs.
  b. The FV **-a** is treated as the 'default', and final **-e** "is inserted in some specific environments ... [such as] when there are prefixes higher than (and including) reflexive in the clausal hierarchy in imperatives (Muriungi 2008: 123)."

Muriungi's analysis straightforwardly extends to languages like Digo and Machame Chaga, which have 1sg OPs with a CV- shape.

(57) 1sg below other OPs (Digo, Machame Chaga)

$$\text{Macrostem}_1$$

OP$_1$ ——— Macrostem$_2$

OP$_2$ ——— Stem

ni- (Digo)
ʃi- (Machame Chaga)
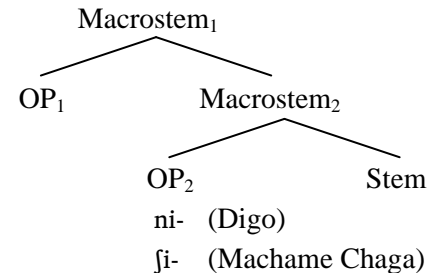
Muriungi's analysis also extends to Bukusu. In Bukusu the reflexive is the structurally lowest OP (Sifuna 2012). Two consequences of the lower position of the reflexive are that (i) the reflexive licenses a second OP and (ii) it triggers final **-a** in the imperative. Thus, the rule that inserts final **-e** in Bukusu applies when there are prefixes higher in the tree than the reflexive.

(58) Reflexive below other OPs (Bukusu)

$$\text{Macrostem}_1$$

OP$_1$ ——— Macrostem$_2$

OP$_2$ ——— Stem

i-
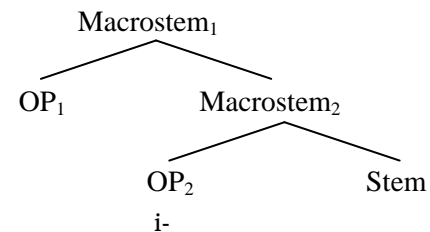
I propose that the 1st person OPs of Ndebele are structurally lower than other OPs. The rule inserting **-e** is variable in the level of the tree that it is sensitive to, varying in including or excluding the 1st person OPs.

(59) 1st person below other OPs (Ndebele)

$$\text{Macrostem}_1$$

OP$_1$ ——— Macrostem$_2$

OP$_2$ ——— Stem

ngi- (1sg)
si-   (1pl)
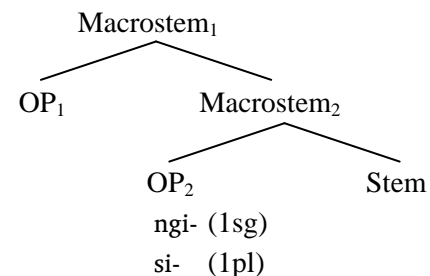
(60) Khayo
   a. 1sg OP **N-** triggers the FV **-e** in the imperative.
   b. Two OPs are allowed only with 1sg **N-**.
   c. 1sg **N-** may still be structurally lower than other OPs.
   d. The rule that inserts final **-e** is not sensitive to the structural difference between 1sg and other OPs—any structure larger than the verb stem yields final **-e**.

5.2. Rundi. Rundi has the same general patterns of allomorphy as Tharaka, but the surface order of 1sg and reflexive is reversed: reflexive **i-** follows 1sg **N-** (see (15b)), by Baker's (1985) Mirror Principle, should therefore be structurally lower than 1sg.

A direct translation of Muriungi's (2008) analysis to Rundi predicts that the FV would be **-a** with the reflexive and with bare verb forms, but **-e** with 1sg **N-** and other OPs.

One possibility is to propose that at a certain point in the syntactic derivation, Rundi has the same structure as Tharaka, with the 1sg OP lower than reflexive. It is this structure that regulates the choice of FV. After the choice of FV has been determined, a later reordering of these prefixes subsequently takes place, such that the reflexive is pronounced closer to the stem.

5.3. A morpho-phonological analysis?

(61) Ndayiragije (2003): The allomorphy patterns of the final vowel are phonologically determined.
   a. The final vowel is **-e** when there is a syllable before the stem, i.e. with CV- OPs.
   b. Else the final vowel is **-a**.

(62) It is clear from Bukusu, Digo, Machame Chaga, and Ndebele that there is no phonologically based analysis that can account for all of the Bantu patterns.

6. Conclusion

Overcopying in reduplication, however, has a phonological motivation, as proposed in several papers by Laura Downing.

I have argued that the exceptional patterns of OP combinations and allomorphy of the FV in the imperative are the result of the lower structural position of these morphemes, closer to the stem, as proposed by Buell (2005), Muriungi (2008), and Sikuku (2012) for their analyses of individual Bantu languages.

Although more work is required to provide fully fleshed out formal analyses of all relevant object marking data in all of the languages mentioned here, I hope to have helped brings us some distance forward in clarifying how the components of grammar interact to produce analytically challenging exceptional behavior of the 1sg and reflexive OPs in Bantu languages.

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