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Two Types of Resumptive Pronouns in Swahili

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In this article, I demonstrate that Swahili distinguishes two types of resumptive pronouns: (a) lower Ā-movement copies and (b) base-generated bound pronouns. These two types of resumptive pronouns are morphologically distinct: the presence of (local) person features reflects a base-generated derivation, and the absence of person features reflects Ā-movement. Crucial evidence comes from local person pronominal clefts derived from islands (bound pronoun context) and parasitic gaps (movement copy context). Inspired by Van Urk 2018, I analyze this pattern using Landau's (2006) theory of chain reduction in which only movement copies create chains and are then subject to an algorithm that deletes person features.

Keywords: resumption, pronouns, person features, movement, copy deletion

1 Introduction

In a long-distance dependency such as a relative clause, a phrasal element is related to at least two positions in the sentence, which are in some sense "dependent" on each other. It is typical for the element to be fully pronounced in one position only, with the other positions appearing as silent "gaps." However, resumptive pronouns—instead of gaps—have been observed in a wide range of long-distance dependencies in languages from Irish (McCloskey 1990, 2006) to Vata (Kru) (Koopman 1984). One analysis of resumptive pronouns is that they are syntactically bound pronouns that are not related to the head of the dependency via movement (McCloskey 2006). However, some resumptive pronouns seem to be sensitive to movement restrictions (Koopman 1984, Engdahl 1985), evidence that in some cases, resumptive pronouns are lower copies of an Ā-movement chain. Sichel (2014) shows for Hebrew that both bound resumptive pronouns and movement resumptive pronouns can coexist in a single language.

Until now, scholars have yet to find a language in which the two types of resumptive pronouns are morphologically distinct. In this article, I present novel data from adjunct islands and parasitic gaps showing that two distinct resumptive pronoun forms are used in Swahili,[1] reflecting the

I would like to first thank my three Swahili language consultants, Habiba Kiongoli, Iddi Nurudin, and Bahati Kiongoli, who graciously gave me the Swahili judgments. I also thank two anonymous *LI* reviewers for their helpful contributions. For additional comments, encouragement, and other support on this project, I am grateful to Peter Jenks, Line Mikkelsen, Boris Harizanov, Nico Baier, Ivy Sichel, Emily Drummond, and audiences at UC Berkeley, LSA 92, ACAL 49, and Stanford.

[1] Given the immense amount of variation in Swahili (with 47 million speakers in Tanzania alone; Eberhard, Simons, and Fennig 2020), there is bound to be disagreement on the well-formedness of some of the constructions presented here. I make no claims about grammaticality across all Swahili dialects; I simply show that for the three native Swahili speakers consulted for this project, the patterns are robust and deserve an analysis.

Three native Swahili speakers living in Tanzania were consulted for the judgments given in this article. Speaker 1 is a 40-year-old woman living in Kibiti, Tanzania. Speaker 2 is a 49-year-old woman living in Ikwiriri, Tanzania. Speaker 3 is a 40-year-old man living in Mloka, Tanzania. All data not cited are from these three speakers, and all interspeaker

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presence or absence of movement in the derivation. Ngonyani (2006b) notes that resumption in Swahili is only found in PPs, patterning similarly to Hebrew. In local person pronominal clefts out of PPs (to be refined), bound resumptive pronouns obligatorily surface with local person features, while movement resumptive pronouns obligatorily surface as pronouns without person features. The two types of resumptive pronouns match in noun class, reflected in the glosses with numbers 1–10, 14–18; noun classes 1 and 2 are the singular and plural animate noun classes, respectively. While in simple relative clauses resumptive pronouns may optionally surface with person features, as shown in (1), the adjunct island in (2) shows that bound resumptive pronouns obligatorily surface with person features. The parasitic gap construction in (3) shows that movement resumptive pronouns obligatorily surface without person features.[2]

(1) Mimi ndi-ye amba-ye Bahati a-li-kutana na-mi/-ye.
1SG COP-1 AMBA-1 Bahati 1-PST-meet with-1SG/-1
'It's me who Bahati met with.'

(2) *Bound pronoun*
Mimi ndi-ye amba-ye u-li-ondoka kwa sababu u-li-cheza na-**mi**/*-ye.
1SG COP-1 AMBA-1 2SG-PST-leave for reason 1-PST-dance with-**1SG**/*-1
'It's me who you left because you danced with (me).'

(3) *Movement copy*
Mimi ndi-ye amba-ye u-li-enda na-**ye**/*-mi$_t$ kabla ya ku-cheza na-ye$_p$.
1SG COP-1 AMBA-1 2SG-PST-go with-**1**/*-1SG before of 15-dance with-1
'It's me who you went with ___$_t$ before dancing with ___$_p$.'

I argue that this pattern is predicted by the copy theory of movement taken together with a theory of chain reduction whose goal is to delete or reduce all copies except one in a movement chain. Under these theories, in a canonical situation, movement copies will be deleted fully. Landau (2006) argues for a chain reduction algorithm that partially pronounces copies that are associated with a phonological requirement that bans full deletion. Van Urk (2018) shows how this can be applied to Ā-movement in Dinka Bor; the result is copied pronouns at the edge of vP that obligatorily surface as the 3rd person pronoun, nearly identical to the pattern in (3). The chain reduction algorithm analysis accounts for this pattern if 3rd person pronouns are partially pronounced versions of local person pronouns.

The different distributions of person-matching and personless pronouns in (2) and (3) in Swahili are easily captured by the fact that the chain reduction algorithm applies to movement copies but not bound pronouns, resulting in reduced movement resumptive pronouns and nonreduced bound resumptive pronouns. The Swahili data add to our understanding of the typology

variation is discussed. All speakers learned Swahili in the home and are Swahili-dominant in daily life, although they may be fluent in other local languages.

[2] Abbreviations used in glossing Swahili are 1SG/1PL = 1st person singular/plural, 2SG/2PL = 2nd person singular/plural, 1,2,3, etc. = noun classes, CON = connective, COP = copula, DEM = demonstrative, FV = final vowel, LOC = locative, PASS = passive, PERF = perfect, PL = plural, POSS = possessive, PRS = present, PST = past, RECP = reciprocal, REL = relativizer.

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of resumptive pronouns: namely, (a) a language can have movement resumptive pronouns that are morphologically distinct from bound resumptive pronouns; and (b) if a language has both types and they are morphologically distinct, the movement resumptive pronouns will be a reduced version of the bound resumptive pronouns.

The article is organized as follows. Section 2 reviews the typology and literature on resumptive pronouns. Section 3 gives an overview on the structure and form of Swahili relative clauses and clefts, highlighting the discrepancies between previous analyses of their structure and derivation. Section 4 presents novel data from adjunct islands and parasitic gap constructions supporting the conclusion that Swahili employs both bound resumptive pronouns and movement resumptive pronouns. Section 5 develops an analysis of the Swahili resumption pattern, drawing on chain reduction at PF and the structure of Bantu DPs. Section 6 concludes.

2 Resumption Background

As Asudeh (2004:3) points out, it is difficult to give a unified definition of resumptive pronouns. The informal definition in (4) will do for present purposes.

(4) *Resumptive pronoun*
A resumptive pronoun is a pronoun in a long-distance dependency construction (i.e., *wh*-question, relative clause, etc.) that is not the head of the dependency.

Ā-movement was originally thought to leave behind a trace ("gap") that was phonologically null but indicated that something had moved from that position. Asudeh's (2004:4) Definition 1 (later revised) states, "A resumptive pronoun is a pronoun that occurs where a gap might otherwise occur." It was noticed that resumptive pronouns are only used in English when movement would violate a restriction particular to movement, such as Subjacency. Thus, resumption was seen as a "last resort device" (Aoun 2000) that was used to save an otherwise ungrammatical sentence by inserting a pronoun instead of employing Ā-movement. This generalization was strengthened by the observation that resumption and gaps in other languages show the same distinct distribution. For example, in Palestinian Arabic, gaps and resumptive pronouns are in complete complementary distribution (Shlonsky 1992). McCloskey (1990, 2002, 2006) showed that for Irish, a gap corresponds to a movement trace and a resumptive pronoun is a syntactically bound pronoun. This is partially shown for Irish in (5), where the resumptive pronoun is in a *wh*-island.[3]

(5) **na hamhráin** sin nach bhfuil fhios cé a chum **iad**
the songs DEMON NEG C is knowledge who C composed **them**
'those songs that we don't know who composed them'
(McCloskey 2006:99)

Two developments, one theoretical and one empirical, challenged the movement vs. resumption dichotomy. The first was the birth of the copy theory of movement (Chomsky 1993). Under this theory, when a head or phrase undergoes movement, instead of leaving behind a trace (or

[3] All data from external sources contain original glosses unless noted.

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traces), each iteration of movement leaves behind a full copy of the moved element. The copies are then subject to a different mechanism that dictates which copies and how much of those copies get pronounced. The copy theory of movement accounts for reconstruction phenomena because lower, unpronounced copies can still be interpreted fully at LF. Further supporting the copy theory of movement, independent empirical evidence emerged from verb copying (e.g., Kandybowicz 2007, 2008) and resumptive pronouns in Ā-constructions that are sensitive to restrictions on movement.

The second development that challenged the movement vs. resumption dichotomy was empirical evidence supporting the prediction that resumptive pronouns in long-distance dependencies *can* have the distribution of gaps. Koopman (1984) showed for the Kru languages Vata and Gbadi, and Engdahl (1985) for Swedish, that resumptive pronouns can be sensitive to movement restrictions, in essence behaving like movement "traces." Engdahl (1985) showed that resumptive pronouns in Swedish license parasitic gaps, give rise to weak crossover effects, and worsen island violations, further supporting the idea that resumptive pronouns can be movement copies. The prediction follows that a single language can have both types of resumptive pronouns: movement copies and bound pronouns.

Sichel (2014) has shown that this prediction is borne out in Hebrew. There are two types of resumption in Hebrew: optional and obligatory. Resumption is optional for direct objects, but it is obligatory within PPs and NPs. When resumption is optional, a resumptive pronoun has the distribution of a bound pronoun and a gap is a movement trace. This is evident from the ungrammaticality of the direct object gap in the weak crossover construction in (6). The resumptive pronoun *oto* is used to make the sentence acceptable.

(6) Ze [ha-yeled]$_1$ še-ima šelo$_1$ ohevet oto$_1$ / *t$_1$.
he [the-boy]$_1$ that-mother his$_1$ loves him$_1$ / *t$_1$
'This is the boy who his mother loves him.'
(Sichel 2014:666)

However, unlike resumptive pronouns that alternate with gaps, obligatory resumptive pronouns always display movement properties. Resumptive pronouns in PPs, for example, show reconstruction properties and generally have the distribution of movement copies. When the object of the preposition in the idiom in (7) is relativized, the idiomatic interpretation still holds, indicating that the object *ec* 'tree' has undergone movement from its base position as object of the preposition *al* 'on'. The resumptive pronoun in this example shows that resumptives can be used to spell out a movement copy.

(7) ha-**ec**$_1$ še-hu tipes al**av**$_1$
the-**tree** that-he climbed on.**it**
'the high position he took'
(Sichel 2014:661)

It is clear at this point that the term *resumption* represents a heterogeneous group of phenomena. The presence of a resumptive pronoun does not automatically indicate the underlying structure. We also know that both movement and bound resumptive pronouns can coexist in a single

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language. Swahili adds to this typology by giving evidence that the two types of resumptive pronouns can coexist and be morphologically distinct. The Swahili data are of particular interest in that the movement resumptive is more (featurally) reduced than the bound resumptive. This is predicted from two theoretical perspectives: (a) the copy theory of movement (Chomsky 1993) and (b) the idea that movement copies are subject to a chain reduction algorithm at PF (Landau 2006). Taken together, these theories predict that crosslinguistically, movement resumptives will be more reduced than bound resumptives. Swahili shows that this prediction is borne out within a single language.

3 Swahili Relative Clauses

3.1 Amba *Relative Clauses*

There are three ways to form relative clauses in Swahili; for an overview of the three types and their differences, see Keach 1980, Schadeberg 1989, Demuth and Harford 1999, Buell 2002, and Ngonyani 2006a. This article is concerned only with the type that uses the overt complementizer *amba*, which is related to the verb *ku-amba* 'say'. Following Gould and Scott (2019), I will refer to the overt-complementizer relative clauses as "*amba*-RCs." The head of the *amba*-RC appears before the complementizer, which appears before the relative clause itself.

Amba always appears with a suffix that agrees with the head of the relative clause in noun class. This can be seen in (9), where the head of the relative clause is of noun class 8, evident from the *vi*-prefix, and the suffix on *amba* takes the agreeing form *-vyo.*

(8) U-li-vi-menya vi-azi.
2SG-PST-8-peel 8-potato
'You peeled the potatoes.'

(9) Ni-li-kula vi-azi [amba-vyo u-li-vi-menya ___].
1SG-PST-eat 8-potato [AMBA-8 2SG-PST-8-peel *e*]
'I ate the potatoes that you peeled.'

Example (9) shows that object *amba*-RCs leave a gap in the embedded clause. This is also the case for subject *amba*-RCs. In addition, subject and object marking is obligatory on the verb in the embedded clause. Swahili does not show antiagreement effects for subject or object extraction, unlike other Bantu languages such as Kinande (Schneider-Zioga 2000) and Bemba (Cheng 2006). Subject and object agreement on the verb always reflect full ϕ-features of the subject and object, respectively; this is shown for the former in (11) by the subject prefix *a*, which cross-references the subject *mtoto.*

(10) M-toto a-na-deka.
1-child 1-PRS-whine
'The child is whining.'

(11) M-toto [amba-ye ___ a-na-deka] a-na-it-wa Hadija.
1-child [AMBA-1 *e* 1-PRS-whine] 1-PRS-call-PASS Hadija
'The child who is whining is called Hadija.'

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I assume that *amba* clefts are formed by the same mechanism as *amba*-RCs. *Amba* clefts appear almost identical to *amba*-RCs, with one extra piece: an emphatic copula that takes the same suffix as *amba.*

(12) M-toto huyu ndi-ye amba-ye a-na-deka.
1-child DEM.1 COP-1 AMBA-1 1-PRS-whine
'It's this child who is whining.'

As (12) shows, the clefted constituent precedes the emphatic copula *ndi-ye*, followed by *amba* and the main verb. It is worth noting that in clefts like (12), a construction that is often preferred lacks *amba* and instead the relative agreement marker appears in the verbal complex; I limit the scope of the analysis to *amba*-RCs. Clefts will be the main source of Swahili relative clause data presented here.

3.2 Previous Analyses of Swahili amba-*RCs*

Swahili *amba*-RCs have been analyzed in potentially opposing ways: they have been claimed to be derived through base-generation and binding (Keach 1980, 2004) as well as through movement (Ngonyani 2001, 2006a). I will discuss each analysis in turn and conclude that *amba*-RCs can be formed either through pronoun binding or through movement.

Keach (1980:72) analyzes *amba*-RCs as static dependencies derived through base-generation of the relative clause head and binding of a null pronoun in the embedded clause. Evidence for the nonmovement strategy comes from the grammaticality of extraction out of relative clause islands, shown in (13). However, we will see that this argument relies on the assumption that relative clauses are islands for movement in Swahili, an assumption that will be rejected here.

(13) M-tu amba-ye ni-li-wa-ona wa-toto amba-o a-na-wa-penda . . .
1-person AMBA-1 1SG-PST-2-see 2-child AMBA-2 1-PRS-2-like
'Person who I saw the children who (she/he) likes (them) . . . '
(Keach 1980:71; gloss added)

Ngonyani (2001, 2006a) argues that *amba*-RCs are derived via raising of the relative clause head NP. The main piece of evidence in favor of the movement analysis is reconstruction effects. The objects of verbs in idiomatic constructions can be relativized using *amba* and retain the idiomatic interpretation. In (14), the idiom *kupiga maji* 'to hit water' means 'to drink alcohol in excess'. The object *maji* 'water' is the head of the relative clause and is separated from the verb *piga* 'hit'. The idiomatic interpretation still holds, suggesting that the object is being interpreted as a reconstructed constituent with the verb, further suggesting that the head of the relative clause has moved.

(14) *Idiom reconstruction*
Ma-ji amba-yo komba a-li-pig-a ya-li-ku-w-a ma-kali.
6-water AMBA-6.REL 1.bushbaby 1-PST-hit-FV 6-PST-15-be-FV 6-strong
'The beer that the bushbaby drank was very strong.'
(Ngonyani 2001:68)

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Gould and Scott (2019) point out that the two conflicting analyses described above are based on different data sets. To attempt to resolve the movement vs. nonmovement debate, they constructed a hybrid data piece: extraction of a quantified noun phrase from a relative clause island. They found that in the sentence in (15), the following inverse scope reading is possible: 'For each doctor, there are two unique patients who are treated by that doctor and I called each pair of patients'.

(15) Ni-li-wa-ita *[wa-gonjwa wa-wili]*$_2$ amba-o duka la dawa hili li-li-m-pa
1SG-PST-2-call [2-patients 2-two] amba-2 5.store of medicine 5.DEM 5-PST-1-give
vi-donge **[kila daktari]**$_1$ amba-ye [**t**$_1$ a-li-wa-pima t_2].
8-pills [every doctor] amba-1 [**t**$_1$ 1-PST-2-examine t_2]
'I called the two patients that this pharmacy gave pills to every doctor that treated (them).'

(16) [. . . $\boxed{2_2}$ [$_{REL}$ . . . this pharmacy . . . $\boxed{\forall_1}$ [$_{REL}$ **t**$_1$ . . . **t**$_2$] ✓∀ > 2

Gould and Scott take the inverse scope interpretation to indicate that Swahili *amba*-RCs are (a) not islands for movement and (b) derived by movement. If *amba*-RCs are not islands for movement, then Keach's conclusion no longer stands; grammatical relative clause island data do not indicate a nonmovement derivation. The lack of relative clause island effects is explained by the fact that relative clauses are not islands; therefore, it is perfectly fine to derive them through movement.

In this article, I will present data showing that only a subset of resumptive pronouns are allowed in adjunct islands, which do act as islands for movement in Swahili. From this, I argue that some resumptive pronouns arise through movement and some arise through base-generation and binding. Thus, *amba*-RCs can be derived through base-generation and binding in addition to movement. The availability of both relativization strategies makes sense of Keach's island data and Ngonyani's reconstruction data: if both strategies for relativization are available, we expect both island immunity *and* reconstruction effects.

3.3 Resumption

Subject and object extraction do not trigger resumption in Swahili.[4] This can be seen in (17) and (18), where neither a full (*yeye*/*wao*) nor a reduced (*ye*/*o*) pronoun can fill the subject or object position in the relative clause. While pronouns are ungrammatical as resumptives in relative clauses, subject and object marking are obligatory.

(17) M-toto amba-ye **(*yeye/*ye)** a-na-deka a-an-it-wa Hadija.
1-child AMBA-1 **(*1.PRO)** 1-PRS-whine 1-PRS-call-PASS Hadija
'The child who is whining is called Hadija.'

[4] I thank an anonymous reviewer for highlighting that whether object agreement functions like resumption remains an open question. This is an interesting and complex question; for discussion of Swahili and, more broadly, Bantu object marking, see Allen 1983, Seidl and Dimitriadis 1997, and Riedel 2009. As I focus here on objects of prepositions, a deeper discussion of object marking is outside the scope of this article.

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(18) Wa-tu amba-o ni-na-wa-penda **(*wao/*o)** ni wa-aminifu.
2-people AMBA-2 1SG-PRS-2-like **(*2.PRO)** PRS.be 2-honest
'The people who I like are honest.'

Unlike relativization of subjects and direct objects, relativization of objects of monosyllabic prepositions always results in a resumptive pronoun, as shown in (19). (20) shows that pied-piping of the pronoun is ungrammatical.[5]

(19) a. Ni-li-mw-ona mwanafunzi amba-ye u-li-on-ana na-*(ye).
1SG-PRS-1-see 1.student AMBA-1 2SG-PST-see-RECP with-*(1)
'I saw the student who you met with.'
b. Ni-li-vi-nunua vi-kombe amba-vyo u-li-safiri na-*(vyo).
1SG-PST-8-buy 8-cup AMBA-8 2SG-PST-travel with-*(8)
'I bought the cups that you traveled with.'

(20) *M-kurugenzi amba-na-ye ni-li-kutana a-li-staafu kazi.
1-director AMBA-to-1 1SG-PST-meet 1-PST-retire 9.work
Intended: 'The director with whom I met retired from work.'

The preposition *na* covers a large semantic territory, yielding the translations 'with' (19b), 'to', and 'by'. The form *na* also functions as a coordinator, though that will not play a role in what follows.

Resumption in Swahili is not triggered by the preposition because of its category, P^0. It is possible that resumption is a special property of prepositions in some languages; however, this is not the case in Swahili. First, resumption is obligatory on monosyllabic "connectives," which are used in possessive constructions across Bantu (Van de Velde 2013). When the noun *kiti* 'seat' is extracted from object position of the agreeing connective *mwa*, the monosyllabic connective cannot be stranded; it takes the suffix *-ke*, creating the possessive pronoun *mwake*.[6]

(21) a. Nadya a-na-kaa uvungu-ni mw-a ki-ti.
Nadya 1-PRS-sit under-LOC 18-CON 7-seat
'Nadya is sitting under a chair.'
b. Ni-na-taka ku-safisha ki-ti amba-cho Nadya a-na-kaa uvungu-ni
1SG-PRS-want 15-clean 7-seat AMBA-7 Nadya 1-PRS-sit under-LOC

[5] Baker (2008:191–194) analyzes the agreeing suffix on *na* as agreement, not as a resumptive pronoun. Under his analysis, P cannot agree with NP when NP is its complement; NP must move to a position that c-commands P. It is clear that the form of these morphemes is directly related to the emphatic pronouns, and for this reason I do not entertain the idea that the resumptive pronouns are actually agreement.

[6] I follow Van de Velde (2013) in treating *a* as a connective morpheme that is related to the possessive form present in constructions like (ia–b). I thank an anonymous reviewer for bringing to my attention the fact that this is an assumption.

(i) a. nyumba y-a Habiba
9.house 9-CON Habiba
'Habiba's house'
b. nyumba y-a-ke
9.house 9-CON-POSS
'her house'

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mw-a-*(ke).
18-CON-*(3SG.POSS)
'I want to clean the chair that Nadya is sitting under.'

The *mw-a-ke* form, while showing that resumption is not limited to prepositions, also shows that resumption is not limited to the particular form of the pronoun. Instead, resumption is triggered when a monosyllabic word (*ya*, *na*, *mwa*, etc.) would otherwise be stranded. The evidence suggests that the motivation for resumption in Swahili is a strict phonological Minimality requirement (Park 1995, Scott 2015). Park (1995) argues for a disyllabic Minimality requirement for Swahili words, with evidence from reduplication in pronouns. In Scott 2015, I argue for a bimoraic Minimality requirement, with evidence from vowel lengthening in loanwords. Both accounts posit a two-unit minimal word, which would be violated in monosyllabic (and simultaneously monomoraic) preposition stranding. In Swahili, stress is assigned to the penultimate syllable of a word, providing a probable motivation for a two-unit minimal word.[7] All monosyllabic prepositions and connectives appear with resumptive pronouns, supporting the claim that it is their small phonological shape that triggers resumption.

Further evidence supporting the phonological motivation for resumption comes from the fact that multisyllabic prepositions do not show resumption. Instead, when the object of a multisyllabic preposition is relativized, either the preposition is dropped or locative relative agreement is used. In (22), the preposition *katika* is trisyllabic; when its object, *kazi* 'work', is extracted, the preposition is dropped as in (23). (23) also shows that resumption with the trisyllabic preposition is ungrammatical.

(22) A-me-weka pingamizi katika kazi y-ake.
1-PERF-put conditions on 9.work 9-POSS
'She/He put conditions on her/his work.'

(23) Kazi amba-yo a-li-weka pingamizi (*katika/*katika-yo) i-na-endelea.
9.work AMBA-9 1-PST-put conditions (*on/*on-9) 9-PRS-continue
'The work that she/he put conditions on continues.'

Katika 'on' is not the only trisyllabic word with a prepositional meaning. Words like *uvunguni* 'underneath' (21), *chini* 'below', and *kando* 'beside' are all translated as English prepositions. However, in Swahili these words are noun-like: they must be followed by a (monosyllabic) connective like the construction in (21). *Katika* is not followed by a connective and thus behaves more like the true preposition *na.* However, due to its large phonological size, resumption is not observed.

To summarize the distribution of resumptive pronouns in Swahili: Resumption in Swahili is phonologically motivated. The minimal word size in Swahili is two units, and leaving a gap

[7] The notion of "word" used here is "phonological word," which I take to be the phonological constituent size of a monosyllabic preposition and its complement together, hence larger than a "grammatical word." Barrett-Keach (1986) argues that the subject agreement and tense on the Swahili verb (a unit smaller than a "grammatical word") seem to attract stress in a penultimate pattern as well.

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in relative clauses with monosyllabic prepositions violates the minimal word size by stranding the monosyllabic preposition. To repair the Minimality violation, resumptive pronouns are used, creating disyllabic words. Further evidence for a phonological motivation comes from the fact that multisyllabic prepositions do not show resumption.[8]

3.4 Features of Resumptive Pronouns

Having established the distribution of resumptive pronouns, I now turn to the pronouns' form and features. First, there are two options for resumptive pronouns in simple clefts: (a) person-matching resumptives[9] and (b) personless resumptives, shown by the options *mi* and *ye* in the 1st person cleft in (24) and *we* and *ye* in the 2nd person cleft in (25).

(24) Mimi ndi-ye amba-ye Bahati a-li-pika na-mi/ye.
1SG COP-1 AMBA-1 Bahati 1-PST-cook with-1SG/1
'It's me who Bahati cooked with.'

(25) Wewe ndi-ye amba-ye Bahati a-li-pika na-we/ye.
2SG COP-1 AMBA-1 Bahati 1-PST-cook with-2SG/1
'It's you who Bahati cooked with.'

To understand why the different pronouns are available in (24) and (25), we must first establish the inventory of pronouns in Swahili and what features they express. Comparing the pronouns in (26) and (27) shows that resumptive pronouns in Swahili look morphologically identical to regular pronouns.

(26) Ni-li-kutana na-**ye**.
1SG-PST-meet with-**1**
'I met with her.'

(27) M-walimu amba-ye ni-li-kutana na-**ye** . . .
1-teacher AMBA-1 1SG-PST-meet with-**1**
'The teacher that I met with (her) . . . '

The isomorphic relationship between regular pronouns and resumptive pronouns holds across the entire person and number paradigm. Table 1 gives the full form of the personal pronouns. The relationship to the resumptive pronouns in table 2 is obvious. In fact, the forms given in table 2 also constitute the prepositional pronouns in matrix clauses, like the one in (26).

I adopt Carstens's (1991) analysis of noun class in Bantu as the expression of number specified for gender. Table 3 illustrates that different number and gender combinations constitute different noun classes. This table shows noun classes 1–10 only. There are up to 18 noun classes

[8] A phonological analysis of resumption in Swahili predicts that stranding multisyllabic prepositions should be grammatical, but (23) shows that it is not. Why this is the case could have to do with the status of these words as prepositions, but further analysis is beyond the scope of this article.

[9] Speaker 1 routinely does not accept the person-matching resumptive pronouns in simple extraction cases, though this speaker does accept them in island contexts. I take this to indicate that for Speaker 1, when movement is available, it is obligatory.

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Table 1
Full form personal pronouns

	Singular	Plural
1st	mimi	sisi
2nd	wewe	nyinyi
3rd	yeye	wao

Table 2
Resumptive personal pronouns

	Singular	Plural
1st	-mi	-si
2sg	-we	-nyi
3rd	-ye	-o

Table 3
Noun class expresses number and gender (RP = resumptive pronoun)

	Singular	Singular RP	Plural	Plural RP
Gender A	Noun class 1	-ye	Noun class 2	-o
Gender B	Noun class 3	-o	Noun class 4	-yo
Gender C	Noun class 5	-lo	Noun class 6	-yo
Gender D	Noun class 7	-cho	Noun class 8	-vyo
Gender E	Noun class 9	-yo	Noun class 10	-zo

in any Bantu language, with Swahili having 1–10 and 14–18 (not shown). The resumptive pronouns for noun classes 1–10 in Swahili are also given in table 3.

Important for the current analysis is that the 3rd person resumptive pronouns from table 2 are also the pronouns for gender A singular and plural (noun classes 1 and 2) from table 3. Using a Distributed Morphology framework (Halle and Marantz 1993), I analyze *-ye* and *-o* as the "default" in the personal pronoun paradigm. Specifically, *-ye* and *-o* do not expone person features; they expone only animacy (all nouns in noun classes 1 and 2 are animate) and number. (28) lists the Vocabulary items for Swahili resumptive pronouns.

(28) *Vocabulary insertion rules*
[PERS: 1, GEN: ANIM, NUM: SG] ↔ /-mi/
[PERS: 1, GEN: ANIM, NUM: PL] ↔ /-si/
[PERS: 2, GEN: ANIM, NUM: SG] ↔ /-we/
[PERS: 2, GEN: ANIM, NUM: PL] ↔ /-nyi/
[GEN: ANIM, NUM: SG] ↔ /-ye/
[GEN: ANIM, NUM: PL] ↔ /-o/

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While resumptive pronouns in personal pronoun clefts optionally surface as personless animate pronouns, resumptive pronouns always match in number (shown in (29)) and gender (shown in (30)).[10]

(29) a. Mimi ndi-ye amba-ye Hadija a-li-kutana na-mi/ye/***si**/***o**.
1SG COP-1 AMBA-1 Hadija 1-PST-meet with-1SG/1/***1PL**/***2**
'It's me who Hadija met with.'
b. Wewe ndi-ye amba-ye Hadija a-li-kutana na-we/ye/***nyi**/***o**.
2SG COP-1 AMBA-1 Hadija 1-PST-meet with-2SG/1/***2PL**/***2**
'It's you who Hadija met with.'

(30) a. Hivi ndi-vyo amba-vyo Hadija a-li-safiri na-vyo/***o**/***zo**.
8.DEM COP-8 AMBA-8 Hadija 1-PST-travel with-8/***2**/***10**
'It's these that Hadija traveled with.'
b. Hili ndi-lo amba-lo Hadija a-li-safiri na-lo/***ye**/***zo**.
5.DEM COP-5 AMBA-5 Hadija 1-PST-travel with-5/***1**/***10**
'It's this that Hadija traveled with.'

To summarize resumption in Swahili: (a) resumptive pronouns are only found as objects of monosyllabic prepositions, (b) resumptive pronouns look identical to ordinary pronouns, (c) *ye* and *o* are the pronouns unspecified for person features, (d) resumptive pronouns in personal pronoun clefts optionally surface as the personless animate pronouns, and (e) resumptive pronouns obligatorily match the extractee in number and gender. The optional person features of resumptive pronouns in Swahili motivate an investigation into whether the two options for resumption in the examples above truly have the same distribution. Since we know that languages can employ resumption for different underlying structures, it is valuable to test whether the availability of a personless resumptive pronoun can give deeper insights into the structure of relative clauses in Swahili.

4 Two Types of Resumptive Pronouns

4.1 Islands vs. Parasitic Gaps

From the crosslinguistic characterization of resumptive pronouns into two types (movement and base-generated), the prediction follows that each option for resumption in Swahili corresponds to one of the two types. I will provide evidence from adjunct islands and parasitic gap constructions that the personless resumptives like *ye* are movement resumptives. The prediction that one type of resumptive is a movement copy and the other is a bound pronoun can be tested by using typical movement diagnostics. Since Ross 1967 and Chomsky 1977, island constructions have been known to block movement of an XP in the island to outside the island. In many languages, it has

[10] Free variation is not always observed for 1st and 2nd person plural clefts. Speakers give much weaker judgments and disagree as to whether the person-matching or personless pronoun is the grammatical form, if any alternation exists at all. I take this to reflect differences in the availability of movement vs. base-generation in the simple extraction cases.

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been claimed that while leaving a gap in an island is ungrammatical, using a resumptive pronoun is acceptable. This is explained by saying that the pronoun is related to the head of the dependency via binding—not movement—whereas a gap represents a true movement trace (McCloskey 2002, 2006). Thus, islands provide a good testing ground for movement.

Because relativization never leaves a gap after a preposition in Swahili, it is not the presence or absence of a resumptive pronoun that we are looking for, but whether the choice between *-mi* and *-ye* still exists. In adjunct islands, shown in (31)–(33), the choice of resumptive pronoun is limited to the pronoun that matches in person features: 2nd person *we* in (31) and 1st person *mi* in (32) and (33). The personless pronoun *ye* is unacceptable in these constructions.

(31) *'Because' island*
Wewe ndi-ye amba-ye ni-li-hama kwa sababu ni-li-ach-ana na-we/***ye**.
2SG COP-1 AMBA-1 1SG-PST-move for reason 1SG-PST-leave-RECP with-2SG/***1**
'It's you who I moved because I left you.'

(32) *'When' island*
Mimi ndi-ye amba-ye Nadya a-li-anguka a-li-po-cheza na-mi/***ye**.
1SG COP-1 AMBA-1 Nadya 1-PST-fall 1-PST-16-play with-1SG/***1**
'It's me who Nadya fell when she played with me.'

(33) *'While' island*
Mimi ndi-ye amba-ye u-li-tabasamu wakati u-na-fanya kazi na-mi/***ye**.
1SG COP-1 AMBA-1 2SG-PST-smile while 2SG-PST-do work with-1SG/***1**
'It's me who you smiled while working with me.'

Resumptive pronouns in adjunct islands obligatorily match in person features. If movement is blocked from adjunct islands, then the grammaticality of (31)–(33) suggests that the resumptive pronoun is a bound pronoun, not a movement copy. Further, it shows that the personless pronoun cannot act as a bound pronoun; only the person-matching pronoun can be bound.[11]

We can isolate movement constructions in Swahili using parasitic gaps. In a parasitic gap construction, the "parasitic gap" is licensed for movement only if the other gap is a "true gap" (Engdahl 1985). I interpret "true gap" from Engdahl 1985 to mean "true movement site" even if that movement site is not phonologically null. (34) is an example of a parasitic gap construction in English.

(34) Which articles did John file $\_\__t$ without reading $\_\__p$?
(Engdahl 1983:5)

The claim made for parasitic gap constructions like (34) is that the gap labeled *p* (for *parasitic gap*) is only a licit movement site if the gap labeled *t* (for *true gap*) is also a movement site. To test the behavior of the different pronouns in Swahili, we want to find a parasitic gap construction

[11] Extraction from relative clauses was rejected or found to be degraded and confusing by all speakers. This result may point to the restriction on extraction from relative clauses as something separate from general island restrictions.

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where the two "gaps" represent resumptive pronominal objects of monosyllabic prepositions, as shown in (35).

(35) Habiba ndi-ye amba-ye ni-li-kaa na-**ye**$_t$ baada ya ku-kutana na-ye$_p$.
Habiba COP-1 AMBA-1 1SG-PST-stay with-1 after of 15-meet with-1
'It's Habiba who I stayed with ___$_t$ after meeting with ___$_p$.'

For Swahili parasitic gap constructions, the difference between "gap" and "pronoun" is the difference between the pronouns *ye* and *mi*, respectively. We predict that *ye* in the parasitic position forces *ye* to appear in the true gap position. This is exactly what we find. The movement pronoun *ye* is licensed only if the true gap position is also *ye*, as shown in (36). The parasitic pronoun *ye* is not licit if the other pronoun is a bound pronoun, *mi*, as shown in (37).

(36) Mimi ndi-ye amba-ye u-li-pika na-**ye**$_t$ kabla ya ku-ondoka na-ye$_p$.
1SG COP-1 AMBA-1 2SG-PST-cook with-**1** before of 15-leave with-1
'It's me who you cooked with ___$_t$ before leaving with ___$_p$.'

(37) Mimi ndi-ye amba-ye u-li-pika na-**mi**$_t$ kabla ya ku-cheza na-ye$_p$.
1SG COP-1 AMBA-1 2SG-PST-cook with-**1SG** before of 15-dance with-1
#'It's me who you cooked with <u>me</u>$_t$ before dancing with <u>me</u>$_p$.' Meaning: 'It's me who you cooked with <u>me</u>$_t$ before dancing with <u>her</u>$_p$.'

Sentence (37) does not convey the same meaning as (36). The pronoun *ye* must be interpreted as 3rd person; crucially, it cannot refer to the speaker, indicating that it is not a parasitic gap construction, but a single extraction context. The other logically possible combinations, (*ye . . . mi*) and (*mi . . . mi*), turn out to be judged differently by different speakers. However, the variation is compatible with the analysis of *ye* as a movement copy and *mi* as a bound pronoun.

4.2 Supporting Evidence from Interspeaker Variation

The parasitic gap construction offers clear predictions regarding whether the "parasitic gap" can be a movement site or not. The predictions regarding whether that position can be a bound pronoun are less clear, and this is indeed where we see interspeaker variation. The variation for all possible pronoun combinations in parasitic gaps is given in table 4. Rows 1 and 2 show that the main prediction regarding parasitic gaps holds for all speakers: ye_t . . . ye_p is grammatical while mi_t . . . ye_p is not.

Speaker 1 shows an extremely limited set of felicitous options: both pronouns must be *ye*. While the unacceptability of mi_t . . . mi_p and ye_t . . . mi_p is not directly predicted, it can be explained by the following constraint: for Speaker 1, only movement is allowed in parasitic gap constructions. This is unsurprising, as this speaker also only tolerates movement copy pronouns (*ye*) in simple extraction cases. For Speaker 1, bound pronouns are only grammatical in islands, constructions from which movement is prohibited. Where movement is licit, it is required.

Perhaps the most obvious prediction is that all combinations except mi_t . . . ye_p should be felicitous. This is indeed the pattern that Speaker 2 shows. The generalization for Speaker 2 is

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Table 4
Parasitic gap interspeaker variation

	___t . . . ___p	Form	Speaker 1	Speaker 2	Speaker 3
1	Move . . . move	ye . . . ye	✓	✓	✓
2	Pronoun . . . move	mi . . . ye	*	*	*
3	Pronoun . . . pronoun	mi . . . mi	*	✓	✓
4	Move . . . pronoun	ye . . . mi	*	✓	*

that if the true gap is a movement site, the parasitic gap must also be a movement site; however, if the "true gap" site is a pronoun, the "parasitic gap" site is free to be a movement site or a bound pronoun.

Speaker 3 presents a third pattern, in which both sites must match in form (only $ye_t \ldots ye_p$ and $mi_t \ldots mi_p$ are felicitous). For Speaker 3, the two pronoun positions are closely related; only a movement site licenses a movement site (classic parasitic gap generalization) and only a bound pronoun licenses a bound pronoun.

One prediction that the current analysis makes is that a bound pronoun (like *mi*) might be able to alternate with a phonologically full pronoun (*mimi*). Movement copies should not be able to alternate with full pronouns because they are only pronounced to fulfill a disyllabic phonological requirement. This is indeed the pattern we see with Speaker 3: *mi* can alternate with *mimi* (38), but *ye* crucially cannot alternate with *yeye* (39).

(38) Mimi ndi-ye amba-ye u-li-pika na-mi/**mimi**$_t$ kabla ya ku-cheza na-mi/**mimi**$_p$.
1SG COP-1 AMBA-1 2SG-PST-cook with-1SG before of 15-play with-1
'It's me who you cooked with ___$_t$ before playing with ___$_p$.'

(39) Mimi ndi-ye amba-ye u-li-pika na-ye/***yeye**$_t$ kabla ya ku-cheza na-ye/***yeye**$_p$.
1SG COP-1 AMBA-1 2SG-PST-cook with-1SG before of 15-play with-1
'It's me who you cooked with ___$_t$ before playing with ___$_p$.'

I conclude that there are two types of resumptive pronouns in Swahili. Resumptive pronouns with person features are syntactically bound pronouns; resumptive pronouns without person features are the tails of movement chains. This conclusion supports Sichel's (2014) claim that the tails of relative clause movement chains are realized as the least specified form available. The conclusion presented here is also the first case to show that not only can both types of resumptive pronouns cooccur in a single language—they can also be morphologically distinct.

5 Analysis

An analysis of the two types of resumptive pronouns presented here must capture three main empirical facts: (a) bound resumptives express person features and movement resumptives do not, (b) all resumptives express gender and number features, and (c) resumption is found only on monosyllabic prepositions. In this section, I develop an analysis of Swahili resumptive pronouns that captures these three facts.

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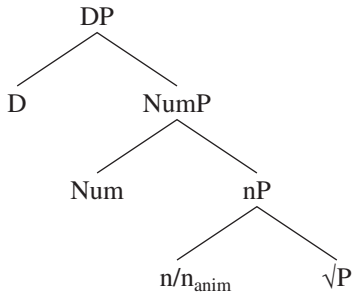
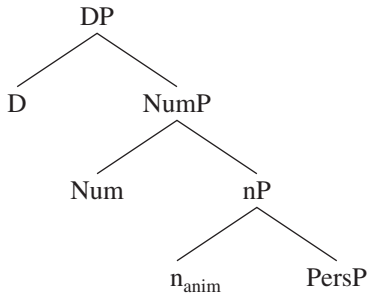
5.1 The Structure of DPs

I adopt the view that the structure of pronouns differs minimally from that of lexical DPs. The only difference is the sister of n: PersonP for pronouns and √P for lexical DPs (Moskal 2015, Van Urk 2018).

(40) *Lexical DP structure*

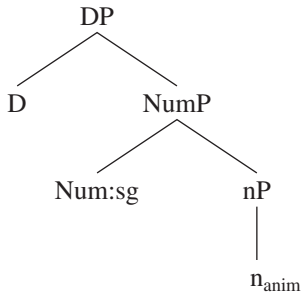


(41) *Pronoun structure*



As I showed in section 3, the pronoun *ye* does not express person features, suggesting the lack of a Person projection. Thus, the structure in (41) represents local person pronouns only. (42) shows the structure for the pronoun *ye*, while (44) represents the structure for local person pronouns, exemplified by the 1st person singular pronoun *mi.*

(42) *Noun class 1 pronoun:* ye



(43) $[\text{sg} + \text{n}_{\text{anim}}] \leftrightarrow$ /-ye/

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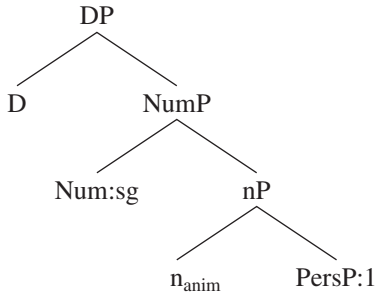
(44) *1sg pronoun:* mi



(45) $[sg + n_{anim} + 1] \leftrightarrow$ /-mi/

In addition to assuming that Person has its own projection in the DP, which is very low (see also Harbour 2016), I follow Kramer (2015) and Fuchs and Van der Wal (2018) by assuming that gender features are located on n. For Bantu languages, gender and number are always expressed together. The Bantu portmanteau morphemes are a result of the adjacency between Num and n.[12] For example, the noun class 7 pronoun /-cho/ is spelled out from Num and n_D (n specified for gender D). The spell-out rule is $[sg + n_D] \leftrightarrow$ /-cho/.[13] Following Fuchs and Van der Wal, I assume that the various inanimate noun classes are represented by various flavors of n specified for different genders.[14]

5.2 Chain Reduction

Under the copy theory of movement, both the head pronouns and the resumptive pronouns in the clefted examples in (36) are simply separate copies of the same pronoun. Because each instance is a copy, the two copies are expected to be identical. Recall that the lower movement copies in Swahili *amba*-RCs never surface with person features and thus are not identical to the higher copies when pronouns are local person pronouns. For the movement-derived resumptives that lack person features, some mechanism must be responsible for the removal of the lower copy's person features. In this section, I will develop an analysis whereby person features are removed via deletion of the constituent within pronouns that houses person features. The deletion analysis calls on Landau's (2006) chain reduction as the mechanism that motivates deletion of movement copies at PF and MaxElide as the mechanism that decides how much of a given copy is deleted.

[12] I assume that a Distributed Morphology–style morphological operation such as fusion occurs between Num and n, resulting in portmanteau noun class marking. The analysis presented here does not rely on this particular implementation. When any n is in the context of a root, it is spelled out as a noun class nominal prefix as opposed to a pronoun.

[13] I assume that D^0 is spelled out as null in Swahili. This follows from the fact that Swahili does not have augment vowels, unlike other Bantu languages in which the augment is typically analyzed as a D^0 (Fuchs and Van der Wal 2018).

[14] I propose that all animate nouns have an n specified for animacy. The n_{anim} can cooccur with instances of n specified for other genders. This configuration results in animate nouns that (a) take inanimate noun class prefixes but (b) show animate agreement on the verb (see Carstens 1991 for more on Animacy Override). See Fuchs and Van der Wal 2018 for arguments for different flavors of n as well as selectional requirements. See Kramer 2015 for arguments that when one n stacks on top of another, agreement can only see the highest n.

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Under the structural deletion analysis, an XP moves cyclically through the derivation; it leaves copies at each landing site, resulting in a chain of copies of the same XP. Landau (2006) argues that a chain reduction algorithm calculates which copies of a chain will be pronounced and which will be deleted. The algorithm invokes the Economy of Pronunciation principle, which tries to delete as many copies as possible. This competes with the Phonological Recoverability principle, which requires elements associated with phonetic content to be pronounced, resulting in pronunciation of the highest copy and possibly pronunciation of intermediate copies that are in positions with specific phonological requirements.

When a position is specified with a phonological requirement, the role of Economy of Pronunciation shifts from "Delete all chain copies" to "Delete content within a chain copy" in order to leave *some* content to be pronounced. Further, I propose that deletion *within* a chain copy is *not* limited to phases (as proposed in Van Urk 2018) but instead follows a principle of deletion, MaxElide, which deletes the largest constituent such that what remains is able to be spelled out (this is similar to a principle of spelling out as little as possible proposed in Harizanov and Mikkelsen 2018). MaxElide constrains Economy of Pronunciation and Phonological Recoverability by stating, "Elide the biggest deletable constituent" (Merchant 2001, 2008, Takahashi 2006). MaxElide will result in deletion of different constituents depending on the language- and construction-specific vocabulary available. The output of MaxElide will be phonological material of the most structurally reduced form.

5.3 Chain Reduction in Swahili Resumptive Pronouns

Recall that the difference between the realization of the pronouns *ye* and *mi* lies in the size of the structure they realize.

When the 1st person singular pronoun undergoes Ā-movement, it leaves an identical copy in its base position. As a movement copy, it is subject to the chain deletion algorithm. In Swahili, subject and object positions do not have a phonological requirement and the lower copies are fully deleted as dictated by Economy of Pronunciation. Objects of monosyllabic prepositions *do* have a phonological requirement, namely, that they cannot be deleted due to a minimal word requirement. Instead of full deletion, objects of such prepositions undergo partial deletion. MaxElide applies, and the largest possible constituent is deleted.

As we have seen, in Swahili Num and n are spelled out together as noun class morphology. Therefore, MaxElide cannot delete nP because there is no Vocabulary item to spell out Num alone. PersP can be deleted because there is a Vocabulary item, /-ye/, that spells out [sg + n_{anim}]. Since PersP can be deleted, it is deleted and /-ye/ is inserted.

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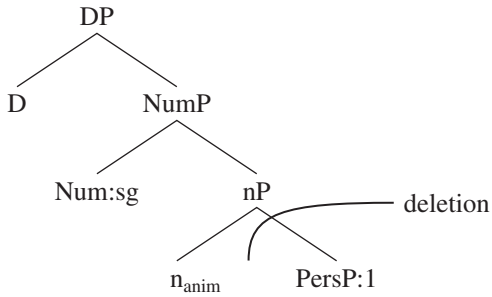
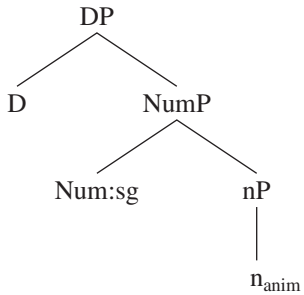
(46) *Step 1: Deletion of PersP*



(47) *Step 2: PF object*



(48) *Step 3: Spell-Out*

$[sg + n_{anim}] \leftrightarrow$ /-ye/

Bound pronouns are not subject to the chain reduction algorithm because the resumptive pronoun is not a copy of the pronoun that is the head of the relative clause. Because an identity relationship does not hold between the two pronouns, the algorithm is blind to bound pronouns. Thus, the morphological distinction between movement and bound pronouns in Swahili is captured by the fact that movement copies undergo reduction from full person pronouns to animate pronouns while bound pronouns do not undergo reduction and are spelled out with person features.

6 Conclusion

In this article, I have shown that resumptive pronouns in Swahili can be either movement copies or bound pronouns. Evidence for movement copy pronouns comes from resumptive pronouns in parasitic gap constructions; evidence for bound pronouns comes from resumptive pronouns in adjunct islands. The Swahili island data support the view that islands are a syntactic phenomenon, not just a phonological one. It is not the case that replacing a gap with an overt pronoun ameliorates the island effect. Both the grammatical and ungrammatical constructions have phonologically overt resumptive pronouns, showing that the island effect is not due to a phonological requirement to have any pronoun, but is due to a syntactic constraint on movement.

This constraint can be observed in Swahili because the two types of resumptive pronouns are morphologically distinct. Movement resumptives obligatorily surface without person features;

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bound resumptives obligatorily match the head of the relative clause in person features. Further, resumption only occurs with objects of monosyllabic prepositions, revealing that the motivation for resumptive pronouns in general is phonological in nature.

The pattern of resumption in Swahili is captured by appealing to a chain reduction algorithm that applies to movement copies at PF (Landau 2006). The reduction algorithm operates according to a principle of Economy that deletes as many chain copies as possible. A principle of Phonological Recoverability imposes the requirement that material cannot be fully deleted when in a position specified with a phonological requirement. Phonological Recoverability may result in partial deletion, which is constrained by MaxElide. Partial deletion has been shown to be the case for Swahili movement resumptives, applying to the innermost constituent of the pronoun, PersP. The result is that movement resumptives express number and gender, but never person.

The chain reduction mechanism described above accounts for several crosslinguistic patterns about copied pronouns, one being that if the copied pronouns match in person, they also match in number. This follows from the constituent deletion analysis: Num is structurally higher than Pers. I have shown that featurally reduced pronouns in movement dependencies undergo constituent deletion before Spell-Out, accounting for the phonological form of movement resumptives. A remaining question is how the bound pronouns acquire person features. If bound pronouns are simply variables, then presumably when they enter the derivation, they are featureless. If this is the case, there needs to be an account of why bound variables obligatorily acquire person features. Regardless of the analysis, the resumption pattern in Swahili shows that resumptives can be movement copies as well as bound pronouns, and that this distinction can influence the morphological shape of the pronouns.

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