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The Bantu relative agreement cycle

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Abstract: This article presents the *Bantu relative agreement* (BRA) cycle, a scenario of recurrent morphosyntactic change that involves the emergence of relativizers, which are subsequently integrated into the relative verb form, where they can ultimately replace the original subject agreement prefix. All logical outcomes at every stage of the cycle are amply attested in the languages of the Bantu family. The BRA cycle makes sense of many of the puzzling characteristics of relative clause constructions in the Bantu languages, especially in the domain of agreement.

Keywords: agreement; Bantu; historical syntax; relative clauses

1 Introduction

Relative clause constructions in the Bantu languages differ from each other along a bewildering amount of parameters, some of which are correlated and typologically exceptional. This explains why they have received so much attention in the literature (e.g., Atindogbé and Grollemund 2017; Demuth and Harford 1999; Diercks 2009; Guérois and Creissels 2020; Henderson 2007; Meeussen 1971a; Nsuka-Nkutsi 1982; van der Wal 2010; Zeller 2004). Parameters of variation include, among others, the position of the subject in non-subject relative clauses; the presence or absence of a relativizer; the position of the relativizer; the relativizer's morphological status (word versus clitic versus affix); whether and how relative verb forms are morphologically different from non-relative verb forms; which paradigm of agreement markers is used in relative verb forms; whether this paradigm has first and second person forms; and, finally, which element in the sentence controls agreement on the relative verb: its subject or the relativized NP.

This paper provides evidence for a recurrent scenario of morphosyntactic change in the Bantu languages – the Bantu Relative Agreement (BRA) cycle –

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which accounts for much of the variation. It focuses on the last parameter of variation in the preceding enumeration, viz. the controller of agreement on the relative verb, which is arguably the most remarkable from a typological point of view. We can summarize and label the main possibilities as follows below.

- (1) Type $_{\text{SBJ}}$: agreement with the subject only
 Type $_{\text{NP}_{\text{rel}}\text{-SBJ}}$: agreement with the relativized NP and the subject
 Type $_{\text{NP}_{\text{rel}}}$: agreement with the relativized NP only

These three possibilities can be found in constructions throughout the Bantu area, except for a notable gap in the distribution of Type $_{\text{NP}_{\text{rel}}}$ in the North-East (see Nsuka-Nkutsi (1982) for an overview of the areal distribution). They have been regularly reported to exist for non-subject relatives in the literature, but I will show that the three exist in subject relatives as well, where the differences between the types are harder to notice, because the subject and the relativized NP are co-referential. Moreover, we will see that this typology of agreement types known from the Bantuist literature should be enriched with at least a fourth type: double agreement with the relativized NP, i.e., Type $_{\text{NP}_{\text{rel}}\text{-NP}_{\text{rel}}}$. For the sake of simplicity, I will not systematically mention it in what follows.

Many Bantuists have used the terms *direct* and *indirect* to typologize relative clause constructions. According to Zeller (2004: 76), the former term has been used for subject relatives and the latter for non-subject relatives since Doke (1954), but Doke himself rather uses it to distinguish between constructions on the basis of the paradigm of agreement markers they use. Since Meeussen (1967), the term *direct relative* has often alternatively been used to mean relative clause constructions of Type $_{\text{NP}_{\text{rel}}}$ or Type $_{\text{SBJ}}$ and *indirect relative* for those of Type $_{\text{NP}_{\text{rel}}\text{-SBJ}}$. I will avoid this terminology because its different interpretations by different authors are a source of confusion and because its binary nature makes it unsuitable for capturing the rich typological diversity that it is supposed to cover. See Van de Velde (forthc.) for arguments against reconstructing a direct and indirect relative clause construction in Proto-Bantu.

The Haya examples in (2) illustrate the typologically widespread agreement of Type $_{\text{SBJ}}$, in which the same verbal prefix is used to index the subject in main clauses (2a) and relative clauses (2b) alike. The relevant morpheme is glossed $_{\text{IN}}$, short for *Initial*, which refers to a position in the slot-filler template of the Bantu languages that will be presented in 2.1. Using this convention will allow us to keep

track of which kind of agreement marker occurs where across constructions belonging to different agreement types.¹

(2) Haya; Tanzania

- a. *è-m-bwá y-à-ly' ébitòòkè*
 AUG₉-9-dog IN₉-PST-eat AUG₈-8-banana
 'The dog has eaten the bananas.'
- b. *è-bì-tòòk' [éby' é-m-bwá y-á-lyà]*
 AUG₈-8-banana DEM₈ AUG₉-9-dog IN₉-PST-eat
 'the bananas that the dog has eaten'
 (Duranti 1977: 121)

The Orungu examples in (3) illustrate Type NP_{rel}. The verb in the main clause in (3a) begins with a prefix that indexes the subject. In contrast, the same position in the corresponding relative verb form in (3b) is used to index the relativized NP, the class 6 noun 'mangoes'. The relative verb form in (3b) does not index its subject 'woman'.

(3) Orungu; Gabon

- a. *ó[†]ηwánt àgòlín ó[†]g ábà*
ó[†]ηw-ántò à-à-gòl-in-ì ó-gà á-bà
 1-woman.DTP IN₁-RPST-buy-APPL-RPST 1-chief.DTP 6-mango.DTP
 'The woman bought the mangoes for the chief.'
- b. *ábà [mágòlín ó[†]ηwánt †ógà]*
á-bà má-à-gòl-in-ì ó[†]ηw-ántò ó-gà
 6-mango IN₆-RPST-buy-APPL-REL.RPST 1-woman 1-chief
 'the mangoes that the woman bought for the chief'
 (Van de Velde and Ambouroué 2017: 623)

Example (4b) illustrates agreement of Type NP_{rel}-SBJ in the Kaonde language: both the relativized NP and the subject are indexed on the relative verb.

(4) Kaonde; Zambia, DRC

- a. *ba-njimi ba-sa-kú-lal-a mu-nzubo ayo*
 2-9.farmer IN₂-FUT-INF-sleep-FV 18-9.house DEM₉
 'The farmers will sleep in this house.'

¹ I added glosses to examples from older sources that lack them. Glossing conventions and abbreviations are those of the Leipzig Glossing Rules. The glosses IN Initial, preIN Preinitial and IF Infix are labels for positions in the comparative Bantu verbal template; and PPr Pronominal prefix, VPr Verbal prefix and RPr Relative prefix are used to refer to paradigms of agreement markers, introduced in Section 2. Arabic numbers are used to refer to noun classes, except in combination with SG and PL, where they are used to refer to first or second person. Additional glosses: AUG Augment, DTP definite tone pattern, RPST Remote past, RPT Recent past.

- b. *mu-nzubo ayo [mo-ba-sa-kú-lal-á ba-njimi]*
 18-9.house DEM₉ preIN₁₈-IN₂-FUT-INF-sleep-FV 2-9.farmer
 ‘the house where the farmers will sleep’
 (Kawasha 2008: 46)

Another parameter of variation that can be observed in the preceding examples is the position of the NP that expresses the agent of the relative verb.² In (2b) the relative verb form is preceded by its subject, whereas the subject follows the verb in (3b) and (4b). This is no coincidence. There is a statistical correlation between preverbal subjects and Type *SBJ* agreement on the one hand and postverbal subjects and Types *NP_{rel}* and *NP_{rel}-SBJ* agreement on the other. A relatively rare example of a construction in which a postverbal subject coexists with Type *SBJ* agreement is (5b).

- (5) Luvale; Angola, Zambia
- a. *mu-tu w-a-mwangana a-mbata-nga ci-teli (...)*
 1-person PPR₁-CON-chief IN₁.PST-carry-PST 7-load
 ‘The chief’s person carried the load.’
- b. *vi-ze [mw-a-va-han-a mw-ata va-kw-etu]*
 8-DEM FUT-IN₁-IF₂-give-FV 3-master PPR₂-PPR₁₅-1PL.POSS
 ‘those (things) which the master will give to our fellows’³
 (Horton 1949: 21, 177)

A further salient detail in the above examples is that the agreement marker *mo-* at the beginning of the relative verb form in (4b) does not belong to one of the paradigms of agreement markers found on verbs or on other agreement targets. It belongs to a dedicated paradigm of relative agreement markers and originates in a pronominal form that historically consisted of an agreement marker of class 18 and the pronominal stem *o*.

The three agreement types, their random distribution over the Bantu area, the statistical correlation with word order and the unexpected shape of certain agreement markers are beautifully accounted for by a scenario of recurrent language change that is here called the Bantu Relative Agreement (BRA) cycle. The three major stages of the BRA cycle are schematized for non-subject relatives in Examples (6)–(8). The representations in Examples (6)–(8) are schematic and

² Whether the NP that expresses the agent of the relative verb fulfills the grammatical relation of subject depends on the construction and on the definition of subject one chooses to adopt. It is of no importance for the current topic and I will consistently call it *subject* for the sake of simplicity.

³ The class 1 agreement marker on the verb is due to semantic agreement, which is systematically triggered by human subject controllers in Luvale, whatever their morphological class marker.

Finally, the succession of two agreement prefixes at the beginning of the relative verb in (7a) is reduced. If the second prefix goes, we end up with Type NP_{rel} agreement in (8a). If the first prefix goes, the result is typologically well-behaved subject agreement, as if nothing has happened (8b).

- | | | | |
|-----|---------|--|--|
| (8) | Stage 2 | | Stage 3 |
| | a. | $HEAD_i [AGR_1-AGR_j-V SUBJECT_j (...)]$ | $\rightarrow HEAD_i [AGR_j-V SUBJECT_j (...)]$ |
| | b. | $HEAD_i [AGR_1-AGR_j-V SUBJECT_j (...)]$ | $\rightarrow HEAD_i [AGR_j-V SUBJECT_j (...)]$ |

The Bantu Relative Agreement cycle is permanently potentially active in the Bantu languages. It applies to constructions, rather than to entire languages. Depending on the language it can touch subject relatives, non-subject relatives, both or neither. When it touches both, it may play out differently in different constructions, for instance in having different origins of the relativizer in subject and non-subject relatives. There are also many examples of relative clause constructions that are in Stage 2 and Stage 1 at the same time, i.e., that have entered a new cycle while being halfway through a previous cycle. Such constructions have a relative verb form with double agreement preceded by a morphologically independent relativizer. Finally, the three stages of the Relative Agreement Cycle are not discrete. It is often impossible to tell the difference between an independent relativizer (Stage 1) and an agreement marker (Stage 2) in a non-arbitrary way. Likewise, the transition from Stage 2 to Stage 3 tends to be incremental, with successions of agreement markers surviving in some contexts whereas a merger has taken place in others (see the discussion of Luba type languages in Sections 4 and 5).

The following sections provide evidence for the BRA cycle. Section 2 looks at the shape of agreement prefixes in Bantu relative verb forms, which often differ from those found in non-relative verbs. Sections 3 to 5 illustrate the three stages of the Bantu Relative Agreement cycle, all of which are widely attested in contemporary Bantu languages. Section 6 adds to the evidence by showing how alternative relative clause constructions in a single language (Punu) are situated in the BRA cycle.

2 The agreement marker paradigm of the Initial

This section will look at the paradigms of agreement prefixes found in relative verb forms as an important indication towards explaining the variation in agreement controllers. I will first introduce the structure of the Bantu verb and then discuss the different paradigms of agreement prefixes. I will point out a striking correlation between the paradigm of agreement markers used in a relative verb form and the type of agreement it has.

2.1 The structure of the Bantu verb

Comparative and historical studies in Bantu linguistics often use a slot-filler model for the structure of the Bantu verb, introduced by Meeussen (1967). A simplified version is provided in (9). A number 1 in the second row means that maximally one morpheme can fill the position, whereas *n* stands for one or more. Brackets are used to mean that the position can be left empty, depending on the verb form. IN is short for *Initial*, FO for *Formative*, IF for *Infix* (the name of a prefix position, i.e., not an actual infix), EXT for *Extension* and FIN for *Final*. These are Bantu-specific names for positions in Meeussen's slot-filler model. The Initial position is typically filled by a form from the paradigm of so-called Verbal prefixes (VPr) and the infix position by an Object prefix (OPr). These prefix paradigms will be discussed in Section 2.2.

- (9) preIN-IN-postIN-FO-IF-root-EXT-FIN+postFIN
 (1) (1) (1) (n)(n)1 (n) 1 (1)

Verb forms are usually easy to segment into morphemes, but their meaning tends to be non-compositional. The Final morpheme, for instance, contributes to the expression of tense, aspect and/or mood, together with the Formative(s), but its shape can also depend on the presence of an Object index in the Infix position. The slots that are relevant for this study are the Initial and the Pre-initial, and to a lesser extent the Infix and the Post-final. The Initial slot is usually occupied by a prefix that indexes the subject of the verb. It tends to be glossed with a functional label such as SM (subject marker) or with a paradigmatic label such as VPR (Verbal prefix). Since we are interested in explaining why this morpheme is sometimes used to index the relativized NP and since in those cases it tends to be taken from another paradigm than that of the Verbal prefixes, the purely positional label *Initial* is very useful for our purposes. The Pre-initial, if present, is often filled by a negative marker or by a prefix indexing the relativized NP in relative verbs that agree with both their head noun and their subject (Type NP_{rel}-SBJ). The so-called *Infix* is the last of a series of prefix positions before the verb root. It hosts a reflexive marker and/or one or more prefixes indexing objects. Example (10) from Yao contains a relative verb form in which these three positions are filled. The Pre-initial indexes the class 6 relativized NP 'reeds'. It is followed by the class 2 subject index in Initial position. The tense/aspect/negation prefix *kaga-* in Formative position is followed by a class 6 Object index in Infix position, which agrees with the same controller as the Pre-initial morpheme.

- (10) Yao; Malawi, Mozambique, Tanzania
 ma-tete [ga-a-kana-ga-saka]
 6-reed $\text{pre}_{\text{IN}_6}\text{-IN}_2\text{-NEG.PST-IF}_6\text{-want}$
 ‘reeds which they did not want’
 (Sanderson 1922: 75)

2.2 Paradigms of class markers

The Bantu languages have several paradigms of class prefixes. Meeussen (1967) reconstructs five such paradigms in Proto-Bantu, provided in Table 1. The first paradigm is that of the Nominal prefixes (NPr), used as overt class markers on nouns and in some languages as noun class agreement markers on adjectives. The second are Numeral prefixes (EPr), used to mark agreement in noun class on lower adnominal cardinal numbers.⁴ The third are the so-called Pronominal prefixes (PPr), used to mark agreement in noun class on pronouns and adnominal modifiers such as demonstratives. The fourth and fifth are the verbal prefixes (VPr) and Object prefixes (OPr), used respectively to index subjects and objects on the verb. Contemporary languages can have a higher or lower number of distinct paradigms.

Table 1: The Proto-Bantu class marker paradigms (Meeussen 1967: 97) (abridged).

	NPr	EPr	PPr	VPr	OPr
1 _{SG}	–	–	–	ñ-	ñ-
2 _{SG}	–	–	–	ò-	kò-
1 _{PL}	–	–	–	tò-	tò-
2 _{PL}	–	–	–	mò-	mò-
cl 1	mò-	(ò?)	jò-	ó-, á-	mò-
cl 2	bà-	bá-	bá-	bá-	bá-
cl 3	mò-	(ó?)	gú-	gú-	gú-
cl 4	mì-	(ì-?)	gí-	gí-	gí-
cl 5	ì-	dí-	dí-	dí-	dí-
cl 6	mà-	(á-?)	gá-	gá-	gá-
cl 7	kì-	kí-	kí-	kí-	kí-
cl 8	bì-	bí-	bí-	bí-	bí-
cl 9	n-	(ì-)	jì-	jí-	jí-
cl 10	n-	í-	jí-	jí-	jí-
...

⁴ The abbreviation *EPr* is short for *Enumerative prefix*, chosen by Meeussen (1967: 81) to avoid confusion with the Nominal prefix.

As can be seen in Table 1, the formal differences between the reconstructed paradigms are minimal. The relevant distinction for this study is between the Pronominal prefixes (PPr) and the Verbal prefixes (VPr). First and foremost, the PPr paradigm differs from the VPr paradigm in its lack of first and second person forms. Second, in Meeussen's reconstruction the Pronominal prefixes have a low tone in class 1 and 9, where Verbal Prefixes are high. And third, there is a segmental difference in class 1.

2.3 Agreement markers in relative verb forms

It has been known since Meinhof (1948) that the Initial position of Bantu relative verb forms is often occupied by a Pronominal prefix, instead of the Verbal Prefix used in other verb forms. In his comparative study of the relative clause constructions of the Bantu languages, Nsuka-Nkutsi (1982) determines for each construction in his sample of slightly over 100 languages which paradigm it uses. He also specifies for each construction whether the verb agrees with its subject or with the relativized NP in non-subject relatives. When comparing these two parameters of variation in Nsuka's data, I found an implicational correlation that appears to be exceptionless:

- (11) If the Initial of a relative verb indexes the subject, it is occupied by a verbal prefix⁵

The inverse implication holds as well, but only as a (strong) tendency:

- (12) If the Initial of a relative verb indexes the relativized NP, it tends to be occupied by a Pronominal prefix

The remainder of this section discusses the four criteria that Nsuka-Nkutsi (1982: 114) used to determine whether the Initial or Pre-initial position of a relative verb form is occupied by a Pronominal prefix (PPr), namely:

- (13) a. the presence of an augment;
 b. the shape of the class 1 prefix;
 c. the absence of 1st and 2nd person forms;
 d. a tone difference between the prefixes of class 1 and 9 (sometimes also 4 or 6) and those of the other classes.

⁵ This Verbal prefix may be preceded by an invariable element, as in the Mbagani construction discussed and illustrated in Section 5, Example (38). Together, such a combination of a Verbal prefix and an invariable element can be analyzed as a dedicated Relative prefix. The implicational universals in (11)–(12) are based on Nsuka-Nkutsi's data and analyses, where Verbal prefixes are opposed to Pronominal prefixes and dedicated Relative prefixes are ignored.

Nsuka-Nkutsi encountered problems when applying his criteria. These are predicted by the BRA cycle, because they are due to the fact that the markers he identified as Pronominal prefixes are reflexes of agreeing relativizers, rather than direct reflexes of prefixes from a single Proto-Bantu PPr paradigm. Many of the paradigms he and others have identified as Pronominal prefixes should therefore be recognized as separate Relative prefix (RPr) paradigms. Once this is clear, the implicational universals in (11)–(12) are easily explained as a natural consequence of the BRA cycle schematized in (6)–(8). I will briefly discuss his criteria in what follows.

The term *augment* is used by Bantuists to refer to a bound form that precedes the class prefix of nouns and some adnominal or nominalized modifiers (de Blois 1970). Formally, the augment is typically either identical to the PPr or it consists of the vowel of the PPr. Meeussen (1967: 99) reconstructs it into Proto-Bantu as a weak demonstrative, but there is evidence for multiple occurrences of augment creation (from demonstratives) and loss in the Bantu languages (Van de Velde 2019b: 247–255). When prefixed to nouns, the function of the augment, if any, differs from language to language. Often, one can only list the conditions in which it does or does not appear, and the former tend to be far more numerous than the latter. In Ganda, for instance, nouns usually have an augment, but it is absent on an object noun after a negative verb form or when it is under focus as in (14b) (Hyman and Katamba 1993).

- (14) Ganda; Uganda
- a. y-à-gúl-ír-à à-bá-àná è-bí-tábó
 IN₁-PST-buy-APPL-FV AUG-2-child AUG-8-book
 ‘He bought the children books.’
- b. y-à-gúl-ír-á bá-àná è-bí-tábó
 IN₁-PST-buy-APPL-FV 2-child AUG-8-book
 ‘He bought **the children** books.’
 (Hyman and Katamba 1993: 228–229)

The augment does have a clear function when it is used as a nominalizer, typically one that changes an adnominal modifier into a referring expression, as in the Nande examples in (15b) and (15d), where the nominalizing augment is underlined.

- (15) Nande; DRC
- a. òmòkìrà ywá:yò ‘its tail’
- b. ɔ́-ywá:yò ‘his one’
- c. òmòtí mùkúhí ‘the short tree’
- d. ò-mùkúhí ‘the short one’
 (Valinande 1984: 642, 709, 714)

Nsuka-Nkutsi points out that the relative verb forms of several languages begin with an element that is formally identical to the augment. His somewhat circular reasoning is that, since a VPr cannot be preceded by an augment, the following (Pre-)Initial must be a PPr. In the BRA scenario, this augment can have different origins. It can be part of a relativizer that originates in a demonstrative of the form *v*-PPr (where *v* is a vowel identical to that of the PPr), as appears to be the case in Lamba non-subject relatives (16b).

- (16) Lamba; Zambia
- a. i-fi-ntu ifi
 AUG-8-thing 8.DEM
 ‘these things’
- b. i-fi-ntu [ifi tw-abwēne]⁶
 AUG-8-thing pre_{IN8} IN_{1PL}-saw
 ‘the things we saw’
 (Doke 1938: 119, 434)

Alternatively, the augment can itself be (the reflex of) a relativizer.⁷ It could have been added to a relative verb form in Stage 2 (with an initial PPr) or, contra Nsuka-Nkutsi, to a verb form in Stage 1, with an initial VPr.

Nsuka-Nkutsi’s second and fourth criteria (13b) and (13d) look at the segmental and tonal shape of the agreement markers. Segmentally, any differences between VPrs and PPrs are restricted to class 1, for which Meeussen reconstructs *á-* and *ó-* in the VPr paradigm and *jǒ-* in the PPr (see Nsuka-Nkutsi 1982: 118–121 for an overview table). Tonally, the differences are restricted to classes 1 and 9 (sometimes also to 4 and/or 6), where the VPr tends to have a reflex of a *H and the PPr a reflex of a *L. The Mabale examples in (17) show that the class 1 marker in initial position of the relative verb (17b) differs segmentally from that of the non-relative verb (17a), but is identical to the agreement prefix on the adnominal demonstrative (17c). The class 1 VPr and PPr both have a low tone in Mabale, so (17) does not illustrate the tonal difference that can be found in some Bantu languages.

⁶ Doke separates the relativizer/agreement marker from the rest of the verb. It is not clear whether this decision is based on independent evidence or whether it is simply an orthographic convention, but this is of little importance.

⁷ Remember that *relativizer* is here used as a cover term for the element that appears between the relativized NP and the relative clause in Stage 1. This element often starts out as a pronoun that nominalizes the relative clause.

- (17) Mabale; DRC
- a. à-mò-bèng-í nà mbángù
IN₁-IF₁-pursue-PST with haste
 ‘She pursued him with haste.’⁸
- b. mò-tò [ò-wé-í]
 1-person IN₁-die-PST
 ‘the person who died’
- c. mò-tò ò-bô ‘this man’
 (Motingea 1996: 233, 243)

These two criteria need to be applied with care and knowledge of the individual languages. On the one hand, reflexes of **jv* and **v* have merged in many languages and some languages tend to have a class 1 verbal prefix **a-* in most verb forms, but **v-* in others. On the other hand, many Bantu languages have tonal morphology, so that tonal differences between the Initial of a relative verb and a non-relative verb may be due to other factors than their membership of different paradigms. However, what counts for the tonal criterion is not so much the presence of a low tone here or a high tone there, but the existence of a tonal distinction between the markers of class 1 and 9 and those of the other classes in the PPr paradigm, versus the absence of such a distinction in the VPr paradigm.

Finally, Nsuka-Nkutsi used the absence of first and second person forms in a paradigm of agreement markers to identify that paradigm as the one used to mark agreement with nominal controllers on adnominal modifiers, i.e., as Pronominal prefixes. When a first or second person pronoun is the head of a relative clause construction in which the relativized NP is indexed by a PPr on the relative verb, it triggers so-called enforced agreement (Corbett 1991: 204), the details of which differ from language to language. In Orungu, for instance, first and second person relativized NPs trigger class 9 agreement (18), the default agreement pattern triggered by (pro)nominal controllers that lack a gender specification, such as proper names. Most often, enforced agreement is semantically motivated and results in a class 1 prefix for singular controllers and a class 2 prefix for plurals, as in the Nkore-Kiga example in (19), where the class 2 marker *a(-)ba-* could be a succession of augment and VPr or PPr, or a reflex of a V-PPr relativizer of demonstrative origin. The absence of first and

⁸ In line with the glossing conventions adopted in this paper for indexes in verb forms, the third person singular object marker in this example is glossed as IF₁, short for “Infix” of class 1, where *Infix* is the name of a prefix position in Meeussen’s slot-filler model of the Bantu verb.

second person forms is the most straightforward of Nsuka-Nkutsi's criteria, but few grammatical descriptions provide examples of relative clauses with a relativized NP of the first or second person.

- (18) Orungu; Gabon
 myé / àwé / àzwé / ànwé [y-á[†]myéni gó tángúnà]
 1SG 2SG 1PL 2PL IN₉-can.REL LOC read
 'I/you(SG)/we/you(PL) who can read'
 (Van de Velde and Ambouroue 2011: 125)

- (19) Nkore-Kiga; Uganda
 imwe [a-ba-tuura aha], mu-raire buhooro
 2PL preIN₂-IN₂-live here IN_{2PL}-sleep well
 'You, who live here, how are you (lit. did you sleep well)?'
 (Taylor 1985: 23)

Kagulu has a dedicated agreement marker *go-* for first and second person controllers, which is of unknown origin (20). In subject relatives, it is added in Pre-initial position to a VPr in Initial position, which marks subject agreement in person and number. As in subject relatives with third person controllers, the Pre-initial prefix marking agreement with the head NP is optional in Kagulu.⁹

- (20) Kagulu; Tanzania
 aniye [(go-)ni-ku-kwenda]
 1SG preIN_{1/2}/SG/PL-IN_{1SG}-IF_{2SG}-love
 'I who love you'
 (Petzell 2008: 189)

The possible existence of such subject relatives in which the relative verb agrees twice with the same first or second person controller, once as the relativized NP (with a third person form) and once as its subject, is perfectly predicted by the BRA cycle. They are a clear illustration of the fact that the three types of agreement summarized in (1) can be found as much in subject relatives as in non-subject relatives. An example with a third person plural marker of class 2 in Pre-initial position is provided in (21).

⁹ Petzell does not give examples of object relatives with first or second person heads. Note that nothing identifies (20) as a relative clause construction when the Pre-initial is left out. There are many examples in the Bantu languages of grammatical ambiguity between relative and non-relative clauses. It is not clear whether and in which languages intonational means can or must be used to disambiguate.

Alternatively, an extra relativizer can emerge in constructions that already have a relativizer, or in constructions where the relative verb indexes both the relativized NP and the subject, in constructions where the relative verb indexes the relativized NP, or in any combination of these.

Examples (22)–(25) show relative clauses introduced by means of a relativizer that is analyzed as a separate word in their sources, illustrating Stage 1. The Nyakyusa example is a subject relative introduced by a near demonstrative. In class 3, the paradigms of Verbal and Pronominal prefixes have identical forms, so this example does not show whether the relative verb agrees with *ɔndungu* as its subject or as its head noun.¹¹

- (22) Nyakyusa; Tanzania, Malawi
 ɔndungu uɔ uɔ gukwisa
 u-mu-lungu [u-gu gu-ku-is-a]
 AUG₃-3-week AUG₃-NDEM₃ IN₃-PRS-COME-FV
 ‘next week’ (lit. ‘the week that is coming’)
 (Persohn 2017: 39)

The Haya examples in (23) illustrate Stage 1 in non-subject relative clause constructions with a lexical (23a) and a pronominal (23b) subject. In the former, the relativizer is separated from the relative verb by means of the lexical subject, which is in preverbal position. In the latter, the relativizer is adjacent to the verb. A construction such as that in (23a) cannot easily evolve into Stage 2, because the integration of the relativizer into the relative verb is hampered by the intervening subject. We will come back to this in Section 4.

- (23) Haya; Tanzania
 a. è-bì-tòòk’ [éby’ é-m-bwá y-á-lyà]
 AUG₈-8-banana DEM₈ AUG₉-9-dog IN₉-PST-eat
 ‘the bananas that the dog has eaten’
 b. ò-mw-áán’ [ówó n-à-bónà]
 AUG₁-1-child DEM₁ IN_{1SG}-PST-eat
 ‘the child that I have seen’
 (Duranti 1977: 121)

The examples in (23) show that the BRA cycle has the theoretical potential of leading to languages in which the verb of a non-subject relative clause shows double agreement when its subject is pronominal (Type NP_{rel}-SBJ, Stage 2) versus

¹¹ Examples with a relativized noun of class 1, where the VPr and PPr paradigms are distinct, show that the relative verb has a VPr in Nyakyusa subject relatives, which consequently show no evidence of having gone through a BRA cycle before.

only subject agreement when its subject is lexical (Type *SBJ*, Stage 1). It is telling that according to Nsuka-Nkutsi's data this situation can be found in at least two languages, viz. Bubi and Kimbundu (1982: 217, 244).

Finally, Examples (24) and (25) show a non-subject relative clause that has a postverbal lexical subject and that is introduced by a morphologically independent relativizer.

- (24) Chokwe; DRC, Angola
 ly-onda [lízé a-a-mbách-ile pwo]
 5-egg REL₅ IN₁-TNS-carry-RP 1.woman
 'the egg which the woman carried'
 (Kawasha 2008: 50)

The Nzadi example (25) shows that relativizers can be non-agreeing, e.g., when they consist of only the stem of a demonstrative. When such relativizers are integrated into the relative verb, their merger with the following subject prefix can give rise to a rare dedicated paradigm of Relative prefixes used to mark subject agreement, but not to double agreement, or to agreement with the relativized NP.

- (25) Nzadi; DRC
 fùfú [nà ò dzé múùr]
 fufu REL PST eat person
 'the fufu that the person ate'
 (Crane et al. 2011: 160)

Relativizers of demonstrative origin are very common in both subject and non-subject relatives. Among the languages that have a demonstrative relativizer in Nsuka-Nkutsi's sample of 107 Bantu languages, 61% have them in subject and non-subject relatives, 27% only in non-subject relatives and 12% only in subject relatives. They can be either optional or obligatory and they can be taken from one, some or all types of demonstratives available in the language (e.g., near versus far, neutral versus emphatic, and so on).

In many cases, the same demonstrative forms can be used pronominally or adnominally. Heine and Kuteva (2002: 115) assume that relativizers of demonstrative origin evolve naturally out of demonstrative pronouns, but in at least some Bantu languages they must have begun their life as modifiers of the relativized noun. Evidence comes from languages in which the relativizer can be placed before or after the relativized noun (Nsuka-Nkutsi 1982: 23), an alternative word order that also exists for adnominal demonstratives in many Bantu languages (Van de Velde 2005). When relative clause constructions are marked by an obligatorily pronominal demonstrative modifier of the head noun, this demonstrative can become integrated into the head noun, resulting in a construct form of nouns,

i.e., a form of the noun used when it takes certain modifiers. This has happened in Eton (Van de Velde 2017).

(26) Eton; Cameroon

- a. kôpí í-nê nól î=kpễm
 [9]coffee IN₉-be [9]color CON₉=[9]cassava.leave
 ‘The coffee is green.’
- b. í-kôpí í-ně nól î=kpễm
 CSTR-[9]coffee IN₉-be.REL [9]color CON₉=[9]cassava.leave
 ‘green coffee’ (lit. ‘coffee that is green’)
- (Van de Velde 2008: 347)

Stage 1 is often reinitiated by adding an augment or another demonstrative form in front of a relative clause that is already marked by means of relativizer. Authors tend to point out that this adds emphasis, most probably meaning contrastive focus on the relative clause. These are examples of relative clauses being nominalized and placed in opposition to the head noun, mentioned in the characterization of Stage 1 in the introduction. The Nkore-Kiga examples in (27) differ in the presence or absence of an augment *a-* in front of the relativizer *ku*. Taylor (1985) describes the relative clause introduced by the augment in (27b) as a defining one, as opposed to the non-defining one in (27a). In Rijkhoff’s (2002: 173–212) terminology, the augmented relative clause is an anchoring modifier. It is used to enable the hearer to identify the correct reference of the relativized noun and it carries a presupposition of existence. The non-augmented relative clause, in contrast, is used to qualify or classify the relativized noun.

(27) Nkore-Kiga; Uganda

- a. a-ka-cumu ku w-aakozeza
 AUG-12-pen preIN₁₂ IN_{2SG}-used
 ‘a pen that you used’
- b. a-ka-cumu a-ku w-aakozeza
 AUG₁₂-12-pen AUG₁₂-preIN₁₂ IN_{2SG}-used
 ‘the pen you used’
- (Taylor 1985: 22)

In examples such as (27), Taylor writes the relativizer separately from the relative verb, whereas Nsuka-Nkutsi treats it as a Pre-initial PPr written together with the relative verb wherever he cites Nkore examples. Example (27) reflects Taylor’s analysis in the orthography and Nsuka-Nkutsi’s in the glosses. Criteria for wordhood famously tend not to converge (see, for instance, Haspelmath 2011) and the scenario of the BRA cycle predicts some degree of indeterminacy during the gradual morphological integration of erstwhile independent relativizers into

the relative verb. If we assume like Nsuka-Nkutsi that the relativizer has become prefixed to the verb, then the result is a verb-initial succession of three agreeing prefixes. I have glossed the first one as an augment in (27b), but a more coherent glossing in the slot-filler model used here would be to recognize a Pre-pre-initial slot. Another noteworthy aspect of these Nkore-Kiga examples is that the vowel of the relativizer *ku* is unexpected. In most classes, the relativizer is identical to the Pronominal prefix, but in the classes that have a vowel /a/ in the PPr (classes 2, 6, 12 and 16), the vowel of the relativizer is /u/. A similar phenomenon is found in Herero (Namibia, Botswana) and Mituku (DRC), which are geographically and genealogically far from Nkore-Kiga and from each other. I currently have no precise explanation for this phenomenon. The most likely hypothesis in view of the BRA cycle is that this unexpected vowel is a reflex of the demonstrative or pronominal stem of a relativizer that was reduced in the process of its morphological integration into the relative verb form.

4 Stage 2

Stage 2 constructions are those in which the relative verb has two agreeing prefixes, one in Pre-initial position and one in Initial position. Typically, the Pre-initial marker agrees with the relativized NP and the Initial marker with the subject, corresponding to agreement of Type NP_{rel} -SBJ, as in (28).

- (28) Songye; DRC
 è-fùbá dì-bá-báá-dím-ì
 5-field pre_{IN5}-IN₂-RPT-cultivate-RPT
 ‘the field that they have just cultivated’
 (Stappers 1964: 117)

However, a relativizer can also be integrated into a relative verb that had already gone through a BRA cycle, so that both the Pre-initial and the Initial agree with the relativized noun, as in the Dzamba example (29). This is the fourth agreement type mentioned in the introduction: Type NP_{rel} - NP_{rel} .

- (29) Dzamba; DRC
 i-zi-bata [i-zi-eza-áki oPoso ba-butu loome]
 AUG₅-5-duck pre_{IN5}-IN₅-give-IMPF [1]Poso 2-guest today
 ‘the duck that Poso gave the guests today’
 (Bokamba 1976) (cited in Demuth and Harford 1999: 52)

Evidence for the fact that *i-* and *zi-* are distinct morphemes, rather than a simplex *izi-* prefix that developed from a VCV- shaped demonstrative comes from

negative verb forms, in which the two are separated from each other by the negative prefix *ta-*.¹²

The evolution from Stage 1 to Stage 2 involves the univerbation of a relativizer and a following relative verb. The Bantu languages provide many examples of constructions in which this gradual process is only partially completed. One type of example involves relativizers of demonstrative origin that are optionally reduced, for instance due to haplology. Nsuka-Nkutsi provides examples from Swati, Tsonga and Ronga in which a demonstrative of the shape *la-V-PPr* (where *V* is the vowel of the PPr) is optionally shortened to *la-V* when used as a relativizer in front of an identical Initial in subject relatives (30). Crucially, when the relativizer is so reduced, it has the CV-shape of typical verbal prefixes.

- (30) Swati; Eswatini, South-Africa
 si-lwane [lesi si-ḃona-ko] OR si-lwane [le-si-ḃona-ko]
 7-animal REL₇ IN₇-see-REL 7-animal preIN₇-IN₇-see-REL
 ‘the (wild) animal that sees’
 (Nsuka-Nkutsi 1982: 14)

Likewise, Nsuka-Nkutsi (1982: 24) lists four languages in which the tone patterns of demonstratives change when they are used as relativizers, as compared to their adnominal or pronominal use, viz. Gusii, Fipa, Konzo and Bemba. In Konzo, this tone change is accompanied by vowel shortening. This too may be an indication for their prosodic integration into the verb, although that would have to be verified language by language.

A last example of ongoing reanalysis of the relativizer can be found in some of the Great Lakes Bantu languages, where relativizers seem to jump across a pre-verbal lexical subject in non-subject relative clauses. This can happen either optionally, as in Haya (Duranti 1977: 128), or obligatorily, as in Luganda (31).

- (31) Luganda; Uganda
 o-mu-sajja [Petero gwe a-labye] musomesa
 AUG₁-1-man [1]Peter REL₁ IN₁-has.seen teacher
 ‘The man that Peter has seen is a teacher.’
 (Walusimbi 1976: 24)

¹² A reviewer wondered why I analyze the relative verb form in (29) as having double agreement with the relativized NP, instead of analyzing the first prefix as the augment of the pronominal agreement in Initial position. I have no objection against calling this morpheme an augment, albeit an augment of the relative verb form, rather than of its Initial. However, I see no contradiction between using this term from comparative Bantu to name the prefix and analyzing it as a second agreement marker. Calling it an augment by no means explains why it is there.

The gradual change of the relativizer from pre-subject to pre-verbal position can be explained in terms of frequency: in languages that have preverbal nominal subjects in non-subject relative clauses, the relativizer is still adjacent to the verb in the great majority of cases, viz. whenever the subject is first or second person or a third person pronoun. Those cases can lead to the gradual reanalysis of the relativizer as forming one constituent with the relative verb. Interestingly, the relativizer in (31) has clearly been reinterpreted as being syntactically linked to the relative verb, but it has not (yet) been integrated into the verb phonologically. If it were, it would surface with a long vowel (Hyman and Katamba 1990). An example of a construction where the relativizer has been morphologically integrated in the relative verb can be found in Ikalanga (32).

- (32) Ikalanga; Botswana¹³
 isípá [Neo cha-á-ká-pá Nchídzi]
 7.soap 1a.Neo pre_{IN7-IN1-PST}-give 1a.Nchidzi
 ‘the soap that Neo gave Nchidzi’
 (Letsholo 2009: 139)

Finally, there is an interesting typological distinction between two types of constructions that are in Stage 2 of the BRA cycle. Meeussen (1971a) calls them the Luba type and the Lega type. In relative clause constructions of the Luba type, the prefix that indexes the relativized NP can only be followed by a prefix that indexes the subject if the latter is of the first or second person (33a), (34a). Third person subjects are expressed by a postverbal pronoun, which is sometimes analyzed as free (33b), encliticized or suffixed (34b). Languages with constructions of the Luba type are found in the Eastern half of the DRC and in Eastern Angola. Constructions of the Lega type, in contrast, have double agreement regardless of the person of the subject (35).

- (33) Mituku; DRC
 a. mʊ-ntʊ ú-tʊ-túma
 1-person pre_{IN1-IN1PL}-send
 ‘the person we send’

¹³ A reviewer objected to the glossing of this example as imprecise, because the gloss *pre_{IN7}* of the *cha-* prefix fails to show that it is “in fact” a connective (=genitive) marker. The choice for reflecting these morphemes’ positions in a slot-filler model of the Bantu verb in the glossing, versus their function or paradigm was justified in the introduction. As pointed out by Nsuka-Nkutsi and mentioned at the beginning of Section 3, genitive linkers are a common source of relativizers in what I have called Stage 1. Whether or not the etymology of *cha-* is a genitive linker, its position in the relative clause shows that it has evolved into an agreement marker, according to Letsholo (2009)’s analysis. The scenario of the BRA cycle explains why it is there and why it has the form it does.

- b. mʊ-ntʊ ú-[↓]túma bô
 1-person IN₁-send they
 ‘the person they send’
 (Stappers 1973: 59)

(34) Luba; DRC

- a. Kabundi, [u-tu-aseki]
 1.Kabundi preIN₁-IN_{1PL}-mocked
 ‘Kabundi, whom we mocked’
 b. ba-lumiana [ba-mbidi-ye]
 2-man IN₂-address-3SG
 ‘the men he addressed’
 (Meeussen 1946: 174)

(35) Lega; DRC

- a. mǎ-zì [mǎ-tó-[↓]ká-kúbòlá]
 6-water preIN₆-IN_{1PL}-FUT-pour
 ‘water that we will pour’
 b. mǎ-zì [mǎ-bá-[↓]ká-kúbòlá]
 6-water preIN₆-IN₂-FUT-pour
 ‘water that they will pour’
 (Meeussen 1971b: 28)

Constructions of the Luba type are therefore half way in between Stage 2 and Stage 3: they are in Stage 2 when they have a first or second person subject and in Stage 3 with a third person subject. We will briefly come back to this with a tentative explanation in the next section.

5 Stage 3

The passage to Stage 3 involves a reduction of the succession Pre-initial – Initial or relativizer # Initial to just Initial. There is indirect and direct evidence for the likeliness of such an evolution in the Bantu languages. Indirect evidence may be found in other examples of reduced successions of prefixes. Direct evidence comes from languages where the shape of the Initial of relative verbs points to a merger of two earlier prefixes.

Whether a Bantu language has prosodically prominent word or phrase penultimate syllables (Hyman 2013), stem-initial prominence (Hyman 1989; Idiatov and Van de Velde 2016), or both, their prefixes are generally prosodically weak.

The farther they are from the macro-stem, the more vulnerable they are to erosion.¹⁴ This is especially the case in the North-West of the Bantu domain, where strong stem-initial prominence can be linked to maximality constraints on stems as well as to the reduction and loss of prefixed material. In the verbal domain, the prosodic weakness of prefixes contributes to the erosion of Tense-Aspect prefixes, which survive as floating tones or disappear to be renewed out of auxiliary constructions (Nurse 2008: 48–49). In the nominal domain, the prosodic weakness of prefixes drives another type of recurrent change: the creation of CV-shaped augment prefixes out of weak prenominal demonstratives, the subsequent loss of their initial consonant and finally full segmental loss, leaving only a H tone and/or vowel alternations in preceding words that end in /a/ (Van de Velde 2019b). Likewise, in languages where a segmental augment is preserved, the augment is very often not realized when a locative prefix precedes the overt noun class marker (Grégoire 1975: 159–163). This might be because the retention of the augment in the presence of a locative prefix would lead to successions of three or four prefixes in a prosodically weak position.

Direct evidence for the evolution responsible for the passage from Stage 2 to Stage 3 can be found in languages that have a dedicated Relative prefix paradigm that can be shown to be the result of a merger of two prefixes. One case is where languages have V- prefixes in some classes (typically 1 and 9), versus CV- prefixes elsewhere, and where rules of vowel hiatus resolution reduce a VV succession to V. Haya subject relatives, for instance, have Initial *á-* for class 1 (36b) and *é-* for class 9, but a Pre-initial – Initial succession for the other classes, e.g., *á-bà-* (cl2), *ó-gù-* (cl3) and so on (Byarushengo 1977: 8) (36a). In other words, Haya subject relative clauses are in Stage 2, except in class 1 and 9, where they are in Stage 3, because the Pre-initial has merged with the Initial. Since it is the first vowel that goes in Haya vowel hiatus resolution, the segmental shape of the VPr *a-* survives in class 1, instead of the /o/ of the Augment.¹⁵

- (36) Haya; Tanzania
 a. e-ki-ntw' é-ki-tá-li ki-hânjo
 AU₇-7-thing preIN₇-IN₇-NEG-COP 7-big
 'the thing that is not big'

¹⁴ The macro-stem consists of the Infix (= object marker) and everything that follows it (= the stem). Tense-aspect prefixes that recently grammaticalized from auxiliaries may retain some of their prosodic strength.

¹⁵ Duranti notes the class 1 and 9 subject relative agreement prefixes with a short vowel, whereas their vowel is long in Byarushengo's overview table. When the TA marker in Formative position is vowel-initial, the subject relative agreement prefixes of class 1 and 9 are followed by a glide *y*, e.g., *omusháij' á-y-a-bon' ómukâzi* 'the man who saw the woman' (man preIN₁-IN₁-PST-see woman).

- b. o-mu-ntw' á-li mu-hânḡo
 AU₁-1-person IN₁-COP 1-big
 'the person who is big'
 (Duranti 1977: 120)

There is a sizeable area in the Congo Basin where almost all languages have agreement of Type NP_{rel}. Several of these languages, such as Mongo, Ntomba, Mabale and Bolia have a separate paradigm of Relative prefixes used both in subject and non-subject relative verb forms. This paradigm resembles the Pronominal prefix paradigm in lacking first and second person forms and in the segmental shape of its class 1 prefix. However, it differs tonally from both the PPr and the VPr paradigms in that its prefixes have a rising tone. The class 3 agreement prefix of the relative verb form in (37b) has a rising tone, whereas the verbal prefix of the corresponding non-relative verb form in (37a) is high. Example (37c) shows that the prefix paradigm of relative verb forms lacks a form for the first person singular, and that it uses a class 1 prefix instead, with the rising tone of relative verb prefixes.

- (37) Mongo; DRC
- a. bô-támbá bô-fúk-à
 3-tree IN₃-MOVE-PRS
 'The tree moves.'
- b. bô-támbá [bô-fúk-á]
 3-tree IN₃-MOVE-PRS.REL
 'the tree that moves'
- c. èmí ò-kèl-ákí
 I IN₁-DO-PST
 'I who have done it'
 (Hulstaert 1965: 477)

Another typological characteristic of the languages of this area is that successions of a Pre-initial and Initial prefix always have a rising tone scheme, whatever the lexical tone of the morphemes involved. This is especially clear in Mongo non-relative verb forms, where the order between the negative prefix (*n*)tá- and the verbal prefix that indexes the subject is pragmatically conditioned (38). Both prefixes have a lexical high tone, but their succession is low-high.

- (38) Mongo; DRC
- a. tò-tá-kèl-ákí
 preIN_{1PL}-NEG-DO-PST
 'We didn't do (it).'

- b. ntà-tó-kèl-ákí
 NEG-preIN_{1PL}-do-PST
 ‘We didn’t do (it).’
 (Hulstaert 1965: 310)

The omnipresence of Type NP_{rel} in the zone C languages of the Congo basin, which are surrounded by areas where Type NP_{rel}-SBJ is common, combined with the fact that these languages have an obligatory low-high rising tone pattern on Pre-initial-Initial successions makes it highly likely that their dedicated Relative prefix paradigms with a rising tone are a result of the merger of a succession of prefixes.¹⁶

The reduction of the succession of a PPr that indexes the relativized NP and a VPr that indexes the subject logically has the potential of leading to a single new prefix that functions as the continuation of the second, verbal prefix (VPr), especially in its function of indexing the subject. An example of this can be found in Mbagani (=Binji). Here, non-subject relative clauses are optionally introduced by a close demonstrative of the shape *â*-PPr, giving rise to the succession *â*-PPr-VPr when this demonstrative relativizer is integrated into the relative verb form. In this succession, the PPr can go, leading to a paradigm of *â*VPr- Relative prefixes (38a) (Stage 3). Relative verbs formed with this prefix can again optionally be introduced by a PPr or *â*-PPr relativizer (38b) (Stage 1). This is another rare pathway that leads to a paradigm of Relative prefixes used to index the subject, next to the one illustrated with a Nzadi example in (25).¹⁷

16 In Mongo and some other closely related languages, the only other agreement targets that have a prefix with a rising tone are possessive modifiers. There are reasons to assume that these possessive forms are based on a relative form of the copula. This is clearest in Bolia, where the stem of possessive pronouns consists of *nki*, the relative form of the copula, and a personal pronoun (Mamet 1960: 29). See also Nsuka-Nkutsi (1982: 57–67) for a discussion of the formal resemblances between connective (=genitive) and relative constructions in the Bantu languages.

17 The Nguni languages have a relative clause construction for non-subject relatives with a dedicated Relative prefix of the shape (*l*)*v*-VPr- (where *v* is a vowel determined by the quality of the vowel of the Verbal prefix) that indexes the subject of the relative clause. It looks as if this were an example of Type SBJ-SBJ- agreement, which is incompatible with the BRA-scenario. In reality, the quality of the first vowel of the Relative prefix is determined by anticipatory assimilation, as is clearly shown in relative verb forms with a first or second person subject. The Relative prefix here is most probably a Mbagani-style prefix of which the first vowel comes from the invariable demonstrative stem (*la*-). Alternatively, an originally complex prefix of the type found in Nguni subject relatives, illustrated with a Swati example in (30), could have lost its function of indexing the relativized NP due to anticipatory assimilation. Another peculiarity of this Nguni construction is that the relativizer has “jumped across” the lexical subject before becoming integrated in the relative verb form, as has happened in Luganda and Ikalanga. See Zeller (2004) and Nsuka-Nkutsi (1982: 13–18) for analyses of Nguni relative clause constructions that resemble the BRA scenario.

- (39) Mbagani/Binji; DRC
- a. di-kamá [abá-bátúlé·la]
 5-foot REL.IN₂-cut.off
- b. di-kamá [(a)di abá-bátúlé·la]
 5-foot REL₅ REL.IN₂-cut.off
 ‘the foot that they cut off’
 (Van Coillie 1948: 272)

A third type of possible outcome of the reduction of a PPr-VPr- succession (on top of a merger or the total loss of one of the two) is the situation in which either can be dropped and speakers have a free or conditioned choice between using a PPr- or a VPr-. Nsuka-Nkutsi (1982: 131–132) reports that such a free choice exists with a first or second person pronoun head in languages across the Bantu domain, viz. Duala, Sanga, Tabwa, Nyungwe, Sena and Zulu. Orungu and Punu have an unconditioned choice between an agreement prefix of the PPr- and the VPr- paradigm in subject relatives with a nominal head noun, which is only visible for controllers of class 1, the only class where the two paradigms are formally distinguished. A Punu example will be provided and discussed in Section 6.

Finally, the question remains why constructions of Meeussen’s Luba type have failed to reduce the PPr-VPr- succession in their relative verb forms to PPr- when the VPr- is a first or second person form (versus everywhere else). Languages with Luba type constructions normally use a specific paradigm of short postverbal or verb-final pronominal forms to express the subject in non-subject relatives. According to Nsuka-Nkutsi (1982: 42, 222) these paradigms lack first and second person forms. If no alternative way of expressing first or second person subjects is available, the original VPr has to remain in place. The inverse is not true: the availability of alternative pronominal subject markers is not a sufficient condition for Pre-initial – Initial successions to be reduced and we can find examples of pronominal subjects being expressed twice in relative clause constructions, e.g., (40).

- (40) Yao; Malawi, Mozambique, Tanzania
 cáákúlyá [cí-tú-kútéléká úwé] cákúnónja
 7.food preIN₇-IN_{1PL}-are.cooking we tasty
 ‘The food which we are cooking is tasty.’
 (Whiteley 1966: 139)

Independent evidence for this explanation of Luba type situations can be found in the languages where the marker that indexes the subject on relative verb forms is obligatorily or optionally omitted in the presence of a lexical subject. In Makhuwa non-subject relatives, for instance, the subject is expressed by means of a suffix

whose presence is obligatory in the absence of a lexical subject, but optional in the presence of a lexical subject (van der Wal 2010). Non-subject relatives in the Beya dialect of Lega have agreement of Type NP_{rel} - SBJ when no lexical subject is present, also with third person subjects, but of Type NP_{rel} in the presence of a lexical subject.

- (41) Lega (Beya dialect); DRC
- a. nnyama [zɪ-bá-tá-gɪk-é]
 9.meat pre_{IN₉}-IN₂-NEG-COOK-FV
 ‘the meat that they don’t cook’
 - b. i-dégá [lí-⁴kú-tágíl-ág-á Syaba mă-nzi mu-ly-ó]
 5-pot IN₂-CONT-draw-IPFV-FV Syaba 6-water 18-5-PRO
 ‘the pot that Syaba draws water in’
 (Botne 2003: 446)

From here, it is only a small step to Luba-type constructions, where an obligatory postverbal subject pronoun fulfills a role similar to that of the lexical subject in the Lega examples in (41) and where the paradigm of these postverbal subject pronouns lacks first and second person forms, so that a VPr indexing a subject of the first or second person cannot be omitted.

6 Punu: an example of a language with traces of multiple BRA cycles

As has been pointed out in the introduction, the BRA cycle applies to individual constructions, rather than to languages. Constructions found in contemporary Bantu languages can show no traces of having gone through it, or they can show traces of having gone through it partially or fully, either once or several times. The three previous sections have illustrated the different stages of the cycle – as well as different types of outcomes at every stage – by means of examples from the five hundred or so languages spoken throughout the Bantu domain. However, evidence for the BRA cycle can also be found in individual languages that have multiple alternative relative clause constructions. This section discusses the relative clause constructions of one such language, viz. Punu, spoken in the South of Gabon. Punu is one of the languages where the lexical subject remains in preverbal position in non-subject relative clauses. Since preverbal lexical subjects hamper the continuation of the BRA cycle beyond Stage 1, and since this obstacle is not present in subject relatives, the BRA cycle has the potential of creating more constructional variation in subject relatives than in non-subject relatives, depending, of course, on whether and how often Stage 1 is triggered in subject

relatives. This potential is realized in Punu. The examples in (43) illustrate the three alternative constructions that can be used to relativize the object of (42).

- (42) Punu; Gabon, Congo
 tú-tsi-gúkíga b̂á:nà
 IN_{1PL}-PST-gather 2-child
 ‘We gathered the children.’
 (Blanchon 1980: 115)

The construction in (43a) shows no obvious traces of having gone through a BRA cycle, either partially or fully. It shows Type S_{BJ} agreement and the relative clause is not introduced by means of a relativizer. The morphological differences between the relative verb form and its non-relative counterpart, realized tonally, are most probably not related to the BRA cycle. Examples (42b) and (42c) show two constructions that entered Stage 1 through different paths.

- (43) a. b̂á:nà [tú-tsi-gúkíga]
 2-child IN_{1PL}-PST-gather
 ‘the children that we gathered’
 b. b̂á:nà [b̂ó tu-tsi-gúkíga]
 2-child PRO₂ IN_{1PL}-PST-gather
 ‘the children that we gathered’
 c. b̂á:nà [ába tu-tsi-gúkíga]
 2-child DEM₂ IN_{1PL}-PST-gather
 ‘the children that we gathered’

The relativizer in (43b) originates in a pronoun of the shape PPr-*o*, where vowel hiatus resolution results in the elision of the vowel of the Pronominal prefix. The origin of the alternative relativizer in (43c) is a demonstrative of the form á-PPr. Its final /a/ is realized as [ə], the normal realization of /a/ in word-final position. This is a morphological argument for assuming that the relativizer has not been morphologically integrated into the relative verb. A syntactic argument that leads to the same conclusion is that the relativizer precedes any lexical subject (but remember from the discussion of Luganda that the two criteria do not necessarily coincide). The gloss in (43) represents the etymology of the relativizers, rather than their current function.

Turning to subject relatives, we find only two possible constructions when the relativized NP is a third person form that is not of class 1, illustrated in (44b)–(44c).

- (44) Punu; Gabon, Congo
 a. b̂á-tu b̂á-tsí-rariga bì-kũtu
 2-person IN₂-PST-sew 8-garment
 ‘The people sewed the garments.’

- b. ba-tu [bó ba-tsi-ráriga bi-kútu]
 2-person PRO₂ IN₂-PST-sew 8-garment
 ‘the people who sewed the garments’
- c. ba-tu [ába-tsi-ráriga bi-kútu]
 2-person IN₂-PST-sew 8-garment
 ‘the people who sewed the garments’
 (Blanchon 1980: 116)

The subject relative clause construction in (44b) is structurally identical to the non-subject relative clause construction in (43b): the relative verb agrees with its subject and the relative clause is introduced by a relativizer of pronominal origin. It is clearly at Stage 1. Things become more interesting in (44c), showing a construction that has the same origin as the non-subject relative clause construction illustrated in (43c): an *á*-PPr relativizer of demonstrative origin followed by a relative verb of agreement Type *SBJ*. However, the original succession *á*-PPr VPr has merged and simplified into an agreement marker of a new Relative prefix paradigm. Since Pronominal and Verbal prefixes are identical from class 2 upwards, it is impossible to decide which of the two survived the merger, the PPr part of the *á*-PPr relativizer or the VPr. Consequently, the resulting agreement is ambiguous between Type *SBJ* and Type *NP_{rel}*. From a phonological point of view, the result of the merger is a prefix rather than a morphologically independent relativizer, because its final /a/ is realized [a], rather than [ə]. We are at one of the possible outcomes of Stage 3 here, viz. the creation of a new paradigm of dedicated Relative prefixes (RPr), which was illustrated with a strikingly similar Mbagani example (39) in Section 5.

BRA-fueled constructional exuberance kicks in when the relativized NP of a subject relative belongs to class 1. There are five alternative ways to relativize the subject of (45).

- (45) mú-tu á-tsí-rariga yikútu
 1-person IN₁-PST-sew garment
 ‘Someone sewed the garment.’

The subject relative shown in (46a) is introduced by the same *á*-PPr relativizer as the non-subject relative in (43c). The Initial of the relative verb form is the Pronominal prefix of class 1, meaning that the verb has agreement of Type *NP_{rel}*. In other words, the construction exemplified by (46a) has gone through a BRA cycle at least once and has subsequently started another one. It is therefore either in Stage 1, or in Stage 2, as there are no principled criteria to determine whether *águ* is a prefix synchronically or an independent relativizer in (46a). Interestingly, the second

cycle has been completed in the alternative construction illustrated in (46b) in an evolution parallel to the one that led to the construction shown in (44c).

- (46) Punu; Gabon, Congo
- a. mu-tu [águ(-)gu-tsi-ráriga yikǔtu]
 1-person DEM₁(-)IN₁-PST-sew garment
 ‘someone who sewed the garment’
- b. mu-tu [águ-tsi-ráriga yikǔtu]
 1-person IN₁-PST-sew garment
 ‘someone who sewed the garment’
 (Blanchon 1980: 116)

The alternative constructions illustrated in (47) involve the PPr-*o* relativizer of pronominal origin. When the class 1 PPr *gu-* is prefixed to the pronominal stem *o*, the two merge to *wo* or *o*. This relativizer is followed by a verb form whose Initial can be either of the PPr paradigm (47a), or of the VPr paradigm (47b). Consequently, the relative verb in (47a) is of agreement Type NP_{rel} and that in (47b) of Type SBJ. Example (47a) illustrates another construction at Stage 3 that has entered Stage 1 of a new cycle. Alternatively, it can be analyzed as a Stage 2 construction, because here too there is no way to decide in a non-arbitrary way whether the original relativizer (*w*)*o* is a prefix, a proclitic or an independent relativizer. And again, an alternative construction exists in which this most recent cycle has reached its Stage 3 end point, the original relativizer having replaced the original Initial of the relative verb (47c).

- (47) Punu; Gabon, Congo
- a. mu-tu [(w)o(-)gu-tsi-ráriga yikǔtu]
 1-person PRO₁(-)IN₁-PST-sew garment
 ‘someone who sewed the garment’
- b. mu-tu [(w)o(-)a-tsi-ráriga yikǔtu]
 1-person PRO₁(-)IN₁-PST-sewed garment
 ‘someone who sewed the garment’
 (Blanchon 1980: 116)
- c. mu-tu [(w)o-tsi-ráriga yikǔtu]
 1-person IN₁-PST-sewed garment
 ‘someone who sewed the garment’

In the absence of written historical sources, it is impossible to know which evolution has led to the coexistence of the alternatives shown in (47a) and (47b). The most straightforward scenario in view of the BRA cycle is that they are alternative Stage 3 outcomes of a previous Stage 2 with a *gu-a-* succession. Alternatively, (47b) could be an older construction that remained in existence while a BRA cycle

created (47a). We just saw that the survival of older stages once newer stages have emerged is not unusual in Punu. Finally, the Pronominal prefix could have been the original prefix and the verbal prefix an innovation due to analogy with non-subject relative verb forms.

In conclusion, the Punu data show that the BRA cycle can be triggered several times in the same language, with different relativizers in Stage 1, and that the evolution can be fast.

7 Conclusions

A sizeable portion of the extensive typological variation found among relative clause constructions in the Bantu languages is straightforwardly explained by a scenario of recurrent morphosyntactic change that I call the Bantu Relative Agreement (BRA) cycle. As I argue in Van de Velde (forthc.), contra Meeussen's reconstruction of a "direct" and an "indirect" relative construction in Proto-Bantu, the first application of BRA in any given language must have started from a construction in which the relative verb agreed with its subject using a prefix from the VPr paradigm. There is ample evidence of constructions that have gone through several BRA cycles, either fully or partly. However, once subject agreement has been lost as a result of a BRA cycle, it cannot be brought back. From this point, subsequent BRA cycles can only renew agreement of type NP_{rel} .

At its first stage, Stage 1, the BRA cycle involves the emergence of an element in between the relativized NP (NP_{rel}) and the relative clause. This element tends to be an agreement target, and when it is, it agrees with NP_{rel} . Its original function is either that of a linker or of a nominalizer, i.e., a pronominal form that changes an adnominal relative clause into an independent one. In both cases, I have called it *relativizer*, for lack of a better cover term. This relativizer tends to originate in a demonstrative, a personal pronoun or a genitive linker. Because relative clauses are mostly verb-initial in the Bantu languages, the mutually adjacent relativizer and relative verb tend to merge, so that the relativizer is reinterpreted as an agreement marker indexing the relativized NP. This can lead to a succession of agreement markers, one that indexes NP_{rel} and one that indexes the subject of the relative verb (Stage 2). Alternatively, or subsequently, the succession of the original relativizer and the original subject prefix can be simplified by means of a merger or of the deletion of one of them, usually the subject marker (Stage 3). This simplification can be conditioned by the shape of the agreement prefixes involved, or by the person of the subject prefix.

Perhaps the most rewarding aspect of the BRA scenario is that it not only makes sense of many of the major typological characteristics of Bantu relative

clause constructions, but also of many minute and otherwise puzzling details in the grammars of individual languages. Among the former is van der Wal's (2010) observation that the verbs of non-subject relative clause constructions in Makhuwa (Type NP_{rel}) are best analyzed as participles. This analysis has been taken up for Cwabo non-subject relative verb forms by Guérois and Creissels (2020), who furthermore point out that these participles assign a specific grammatical role to the agent of the relative verb, one that differs from that of the subject of non-relative verbs and from that of an adnominal possessor. The BRA cycle shows that the participial nature of such relative verbs is due to the integration of an adnominal modifier into the verb, where it becomes an agreement marker that tends to wipe out the original subject agreement marker. The latter's obligatory presence in other verb forms is a defining criterion for the recognition of a subject role in the Bantu languages. The participial nature of relative verb forms has been noted for non-subject relative clause constructions, but nothing in the BRA excludes subject relatives to become participial by the exact same mechanism, and examples predictably abound throughout the Bantu family. If this has not been noticed before, it is probably due to the fact that the distinction between verbal subject-predicate agreement and participial noun-modifier agreement is harder to notice if the subject and the relativized NP are co-referential. The distinction is clearest with relativized NPs of the first and second person, where adnominal/participial agreement markers are necessarily third person forms.

Another result of the BRA mechanism that has gone largely unnoticed in the comparative and descriptive literature on Bantu relative verb constructions is that many languages have a dedicated paradigm of Relative prefixes. These are typically identified as Pronominal prefixes in Nsuka-Nkutsi (1982), who consequently had many difficulties in determining the paradigm of agreement markers. The BRA cycle explains the emergence of dedicated Relative prefix paradigms as being due to the merger of a succession of prefixes, the first of which most recently developed out of a relativizer. Examples include the fact that, in Nsuka-Nkutsi's terms (1982: 102), relative verb forms in Nyoro, Ganda, Haya, Kerebe, Kete and Bemba can have a verbal prefix when agreeing with a class 1 controller but a Pronominal prefix elsewhere (see the discussion of Haya subject relatives in Section 5). In the same vein, BRA provides a strong hypothesis for explaining the rising tone on agreement prefixes of relative verb forms in Mongo and other languages spoken in the Congo Basin.

Finally, the different logically possible outcomes at every stage of the cycle are amply attested in constructions throughout the Bantu domain, sometimes in alternative constructions in individual languages. The BRA scenario can theoretically give rise to relative verbs agreeing twice with the relativized NP, and such

constructions are indeed attested in the contemporary Bantu languages. In contrast, it provides no path leading to relative verbs agreeing twice with their subject, and to my knowledge such relative verb forms are not attested. The BRA scenario also makes statistical predictions. Although agreement of Types NP_{rel} -SBJ and NP_{rel} in non-subject relative clause constructions with a preverbal lexical subject are compatible with the BRA scenario, they are predicted to be rare, because the integration of a relativizer in the relative verb form is hampered by the intervening subject NP. As I showed, agreement Type NP_{rel} -SBJ is attested in such constructions in a few languages. In contrast, I have so far found no examples with Type NP_{rel} agreement in non-subject relatives with a preverbal lexical subject.

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