Abstract

This paper presents the Bantu Relative Agreement (BRA) cycle, a scenario of recurrent morphosyntactic change that involves the emergence of relativisers, 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.

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. Meeussen 1971a; Nsuka-Nkutsi 1982; Demuth & Harford 1999; Zeller 2004; Henderson 2007; Diercks 2009; Van der Wal 2010; Atindogbé & Grollemund 2017; Guérois & Creissels 2020). Parameters of variation include, among others, the position of the subject in non-subject relative clauses; the presence or absence of a relativiser; the position of the relativiser; the relativiser’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 1st and 2nd person forms; and, finally, which element in the sentence controls agreement on the relative verb: its subject or the relativised NP.
This paper provides evidence for a recurrent scenario of morphosyntactic change in the Bantu languages - the Bantu Relative Agreement (BRA) cycle - 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 summarise and label the main possibilities as follows:

(1) Type SBJ: agreement with the subject only
    
    Type NP_{rel}-SBJ: agreement with the relativised NP and the subject
    
    Type NP_{rel}: agreement with the relativised NP only

These three possibilities can be found in constructions throughout the Bantu area, except for a notable gap in the distribution of Type NP_{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 relativised 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 relativised NP, i.e. Type NP_{rel}-NP_{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 typologise 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 NP_{rel} or Type SBJ and indirect relative for those of Type NP_{rel}-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 (to appear) 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 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 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 (Duranti 1977: 121)
   a. è-m-bwá y-à-ly’ ébítóòkè
      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’

The Orungu examples in (3) illustrate Type NPrel. 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 relativised NP, the class 6 noun ‘mangoes’. The relative verb form in (3b) does not index its subject ‘woman’.

(3) Orungu; Gabon (Van de Velde & Ambouroue 2017: 623)
   a. ótìwànt àgòlín ótìg ábà
      ótìw-ántò à-à-gòl-in-í 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 [mágòlìn ótìwànt ógà]
      á-bà má-à-gòl-in-í ótìw-ántò ó-gà
      6-mango IN₆-RPST-buy-APPL-REL.RPST 1-woman 1-chief
      ‘the mangoes that the woman bought for the chief’

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

(4) Kaonde; Zambia, DRC (Kawasha 2008: 46)

a. ba-njimi ba-sa-kú-lal-a mu-nzubo ayo
   2-9.farmer IN$_2$-FUT-INF-sleep-FV 18-9.house DEM$_9$
   ‘The farmers will sleep in this house.’

b. mu-nzubo ayo [mo-ba-sa-kú-lal-á ba-njimi]
   18-9.house DEM$_9$ preIN$_{18}$-IN$_2$-FUT-INF-sleep 2-9.farmer
   ‘the house where the farmers will sleep’

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. 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 (Horton 1949: 21, 177)

a. mu-tu w-a-mwangana a-mbata-nga ci-teli (…)
   1-person PPr$_1$-CON-chief IN$_1$.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-IN$_1$.IF$_2$.give-FV 3-master PPr$_2$-PPr$_{15}$.1PL.POSS
   ‘those (things) which the master will give to our fellows’

A further salient detail in the above example 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

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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.
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 schematised for non-subject relatives in (6-8). The representations in (6-8) are schematic and illustrative. They do not summarise all possible states of affairs at every stage. They also ignore any typological variation in the morphology of relative verbs that is not touched by the BRA cycle. As has been said, subjects can be preverbal or postverbal in non-subject relative clauses, depending on the language and on whether they are nominal or pronominal. The difference is relevant in Stage 2 (7) and will also be shown in the schematic representation of Stage 1 (6).

In Stage 1, an element emerges in between the relativised NP and the relative clause (6). This element can either be a pronoun that functions as a nominaliser, in the sense that it turns a modifying relative clause into a headless, independent relative clause, or it can emerge as a linker/relativiser. It is common in the Bantu languages for adnominal modifiers to be nominalised (i.e. turned into referring expressions) and put in apposition with the head noun (Van de Velde 2019a). The pronominal element that fulfils this function with relative clauses can be either a personal pronoun, a demonstrative or a so-called augment. Such apposed nominalised modifiers subsequently tend to become reintegrated into an integral NP, leading to the reinterpretation of the initial nominaliser as a linker, in this case a relativiser. Alternatively, the element that emerges in between the relativised noun and the relative clause can be a so-called connective relator, used to mark genitive relations (see Van de Velde 2013). Crucially, the emerging element tends to be an agreement target and when it is, it agrees with the relativised NP. It is represented as REL in the following schematic representations, and will henceforth be called relativiser.

(6) example of a pre-Stage 1 situation
   a. HEAD₁ [AGR₋-V SUBJECT₋ (…)]
   b. HEAD₁ [SUBJECT₋ AGR₋-V (…)]

Stage 1
   → HEAD₁ REL₁ [AGR₋-V SUBJECT₋ (…)]
   → HEAD₁ REL₁ [SUBJECT₋ AGR₋-V (…)]
Second, the relativiser is reinterpreted as part of the relative verb form and morphologically integrated to become a bound marker that indexes the head noun (7a). The result is Type NP_{rel-SBJ} agreement, i.e. agreement with both the relativised NP and the subject. This step is hampered when the relative verb has a nominal subject that is in preverbal position, in which case the relativiser tends to stay in between the head noun and the subject (but see Section 4). It can, but need not become prosodically integrated into the subject nominal (7b). Stage 2 is optional in the BRA cycle, in that constructions can either stay at Stage 1 or move directly to stage 3 through haplology (see example (44c) from Punu and its discussion for evidence).

(7) Stage 1 Stage 2

a. HEAD_{i} REL_{i} [AGR_{j-V} SUBJECT_{j} (...)] \rightarrow HEAD_{i} [AGR_{i-AGR_{j-V}} SUBJECT_{j} (...)]

b. HEAD_{i} REL_{i} [SUBJECT_{j} AGR_{j-V} (...)] \rightarrow HEAD_{i} [REL(-)SUBJECT_{j} AGR_{j-V} (...)]

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 (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_{i-AGR_{j-V}} SUBJECT_{j} (...)] \rightarrow HEAD_{i} [AGR_{i-V} SUBJECT_{j} (...)]

b. HEAD_{i} [AGR_{i-AGR_{j-V}} SUBJECT_{j} (...)] \rightarrow HEAD_{i} [AGR_{i-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 relativiser 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 relativiser. Finally, the three stages of the Relative Agreement Cycle are not discrete. It is often impossible to tell the difference between an independent relativiser (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. \( \text{IN} \) is short for Initial, \( \text{FO} \) for Formative, \( \text{IF} \) for Infix (the name of a prefix position, i.e. not an actual infix), \( \text{EXT} \) for Extension and \( \text{FIN} \) 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.

\[
(9) \quad \text{preIN-IN-postIN-FO-IF-root-EXT-FIN + postFIN} \\
\quad \text{(1) (1) (1) (n) (n) 1 (n) 1 (1)}
\]

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 relativised 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 relativised NP in relative verbs that agree with both their head noun
and their subject (Type NPrel-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 relativised 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 (Sanderson 1922: 75)
    ma-tete [ga-a-kana-ga-saka]
    6-reed  preIN6-IN2-NEG.PST-IF6-want
    ‘reeds which they did not want’

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

4 The abbreviation EPr is short for Enumerative prefix, chosen by Meeussen (1967 : 81) to avoid confusion
with the Nominal prefix.
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>
<thead>
<tr>
<th></th>
<th>NPr</th>
<th>EPr</th>
<th>PPr</th>
<th>VPr</th>
<th>OPr</th>
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<td>h-</td>
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<td>2SG</td>
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<td>ō-</td>
<td>kō-</td>
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<tr>
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<td>cl 1</td>
<td>mù-</td>
<td>(ȳ?)</td>
<td>jō-</td>
<td>ō-, ā-</td>
<td>mù-</td>
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<tr>
<td>cl 2</td>
<td>bā-</td>
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<tr>
<td>cl 3</td>
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<td>gū-</td>
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<tr>
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<tr>
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<td>dī-</td>
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<tr>
<td>cl 6</td>
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<td>gā-</td>
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</table>

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

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 language in his sample of slightly over 100 languages which paradigm it uses. He also specifies for each language whether the verb agrees with its subject or with the relativised 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 prefix\(^5\)

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

(12) If the Initial of a relative verb indexes the relativised 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) \(\text{a. the presence of an augment;}\)
    \(\text{b. the shape of the class 1 prefix;}\)
    \(\text{c. the absence of } 1^{\text{st}} \text{ and } 2^{\text{nd}} \text{ person forms;}\)
    \(\text{d. a tone difference between the prefixes of class 1 and 9 (sometimes also 4 or 6) and those of the other classes.}\)

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 relativisers, 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 recognised 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 schematised in (6-8). I will briefly discuss his criteria in what follows.

\(^5\) 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 analysed 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.
The term *augment* is used by Bantuists to refer to a bound form that precedes the class prefix of nouns and some adnominal or nominalised 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 (Hyman & Katamba 1993: 228-229)
   a. y-à-gúl-ír-à à-bá-ànà 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-ànà è-bí-tábó
      IN1-PST-buy-APPL-FV 2-child AUG-8-book
      ‘He bought THE CHILDREN books.’

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

(15) Nande; DRC (Valinande 1984: 642, 709, 714)
   a. ðmùkírá γwáyð ‘its tail’
   b. ð-γwáyð ‘his one’
   c. ðmòtí mùkúhí ‘the short tree’
   d. ð-mùkúhí ‘the short one’

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 our scenario, this augment can have different origins. It can be part of a relativiser that
originates in a demonstrative of the form ν-PPr (where ν is a vowel identical to that of the PPr), as appears to be the case in Lamba non-subject relatives (16b).

(16) Lamba; Zambia (Doke 1938: 119, 434)
   a. i-fi-ntu ifi
      AUG-8-thing 8.DE&M
      ‘these things’
   b. i-fi-ntu [ifi tw-abwēne]6
      AUG-8-thing preIN8 IN1PL-saw
      ‘the things we saw’

Alternatively, the augment can itself be (the reflex of) a relativiser.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 (13 b, d) 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 ā- and ū- in the VPr paradigm and ū- 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 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.

(17) Mabale; DRC (Motingea 1996: 233, 243)
   a. à-mò-bèng-í nà mbángù
      IN1-IF1-pursue-PST with haste

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6 Doke separates the relativiser / 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 relativiser is here used as a cover term for the element that appears between the relativised NP and the relative clause in Stage 1. This element often starts out as a pronoun that nominalises the relative clause.
‘She pursued him with haste.’

b. mò-tò [ò-wé-f]
   1-person IN1-die-PST
   ‘the person who died’

c. mò-tò ò-bô ‘this man’

These two criteria need to be applied with care and knowledge of the individual languages. On the one hand, reflexes of *jʊ and *ʊ have merged in many languages and some languages tend to have a class 1 Verbal prefix *a- in most verb forms, but *ʊ- 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 1st and 2nd 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 1st or 2nd person pronoun is the head of a relative clause construction in which the relativised 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, 1st and 2nd person relativised 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 relativiser of demonstrative origin. The absence of 1st and 2nd person forms is the most straightforward of Nsuka-Nkutsi’s criteria, but few grammatical

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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.
descriptions provide examples of relative clauses with a relativised NP of the 1st or 2nd person.

(18) Orungu; Gabon (Van de Velde & Ambouroue 2011: 125)

\[ \text{myé} / \text{àwé} / \text{àzwé} / \text{ànwé} \ [\text{y-á'myéní gó tängúńà}] \]

\[
\begin{array}{lllll}
1SG & 2SG & 1PL & 2PL & \text{IN\_can.REL LOC read} \\
\end{array}
\]

‘I / you(SG) / we / you(PL) who can read’

(19) Nkore-Kiga; Uganda (Taylor 1985: 23)

\[ \text{imwe} \ [\text{a-ba-tuura aha}], \text{mu-raire buhooro} \]

\[
\begin{array}{ll}
2PL & \text{preIN\_2-IN\_2-live here IN\_2PL-sleep well} \\
\end{array}
\]

‘You, who live here, how are you (lit. did you sleep well)?’

Kagulu has a dedicated agreement marker go- for 1st and 2nd 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 (Petzell 2008: 189)

\[ \text{aniye} \ [(\text{go-})ni-ku-kwenda] \]

\[
\begin{array}{ll}
1SG & \text{preIN\_1/2SG/PL-IN\_1SG-IN\_2PL-IF\_2SG-love} \\
\end{array}
\]

‘I who love you’

The possible existence of such subject relatives in which the relative verb agrees twice with the same 1st or 2nd person controller, once as the relativised NP (with a 3rd 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 summarised in (1) can be found as much in subject relatives as in non-subject relatives. An example with a 3rd person plural marker of class 2 in Pre-initial position is provided in (21).

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9 Petzell does not give examples of object relatives with 1st or 2nd 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.
To summarise: the prefix paradigm used to index the subject on relative verb forms in constructions of Type SBJ differs from that used to index the head NP in languages of Type NPreen. The latter is similar to the PPr paradigm of prefixes used to mark agreement with the head noun on certain adnominal modifiers, but often not fully identical to it. The BRA cycle explains why this is so: prefixes that index the head NP on relative verb forms originate in agreeing relativisers, or are the result of a merger between an original relativiser and a following subject prefix. The following three sections discuss the three stages of the BRA cycle.

3. Stage 1

The Bantu Relative Agreement Cycle starts with the emergence of a nominaliser or linker (here both called relativiser). The Bantu languages show impressive variation in the source of relativisers, but also in their initial syntactic status, position and function. As pointed out in great detail by Nsuka-Nkutsi (1982: 3–93), the three main sources of relativisers in the Bantu languages are demonstratives, personal pronouns (aka substitutives) and genitive (aka connective) relators, in decreasing order of frequency. I will illustrate Stage 1 with relativisers of demonstrative origin.

Note that Stage 1 is here used to refer to the emergence of a new relativiser. This can happen in every logically possible type of source construction. In other words, the BRA cycle does not have a stage zero. The left hand side of the schematic representation in (6), repeated below, is only one of very many alternative starting points.

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10 The shape of the class 2 Pre-initial in relative verb forms is unexpected, and arguably due to the fact that it is a reflex of a relativiser, rather than of a PB Pronominal prefix. Important here is that the same marker is used when the relativised NP is a noun of class 2.
(6) possible starting point

\[ \text{Stage 1} \]

\[ \text{a. HEAD}_i [\text{AGR}_j-V \ \text{SUBJECT}_j (\ldots)] \rightarrow \text{HEAD}_i, \text{REL}_i [\text{AGR}_j-V \ \text{SUBJECT}_j (\ldots)] \]

\[ \text{b. HEAD}_i [\text{SUBJECT}_j \ \text{AGR}_j-V (\ldots)] \rightarrow \text{HEAD}_i, \text{REL}_i [\text{SUBJECT}_j \ \text{AGR}_j-V (\ldots)] \]

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

Examples (22-25) show relative clauses introduced by means of a relativiser that is analysed 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 ʊn̩ʊndʊngʊ as its subject or as its head noun.\(^\text{11}\)

(22) Nyakyusa; Tanzania, Malawi (Persohn 2017: 39)

\[ ʊndʊngʊ \ u\ gʊkʊwɪsə \]

\[ u\-mʊ-lʊŋʊ\ [ʊ\-gʊ\ gʊ\-ku\-is\-a] \]

\[ \text{AUG}_3\text{-3-week} \ \text{AUG}_3\text{NDEM}_3 \ \text{IN}_3\text{-PRS-come-FV} \]

‘next week’ (lit. ‘the week that is coming’)

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 relativiser is separated from the relative verb by means of the lexical subject, which is in preverbal position. In the latter, the relativiser is adjacent to the verb. A construction such as that in (23a) cannot easily evolve into Stage 2, because the integration of the relativiser into the relative verb is hampered by the intervening subject. We will come back to this in Section 4.

(23) Haya; Tanzania (Duranti 1977: 121)

\[ ë\-bì\-tɔɔk’\ [ɛby’ ë\-m\-bwá ë\-á\-lyà] \]

\[ \text{AUG}_8\text{-8-banana} \ \text{DEM}_8 \ \text{AUG}_9\text{-9-dog} \ \text{IN}_9\text{-PST-eat} \]

‘the bananas that the dog has eaten’

\(^{11}\) Examples with a relativised 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.
b. ò-mw-áán’  [ówó n-à-bónà]  
\[\text{AUG}_1\text{-1-child DEM}_1 \text{ IN}_{150}\text{-PST-eat} \]  
‘the child that I have seen’

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 \(\text{NP}_{\text{rel-SBJ}}\), Stage 2) versus only subject agreement when its subject is lexical (Type \(\text{SBJ}\), 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 relativiser.

(24) Chokwe; DRC, Angola (Kawasha 2008: 50)  
\[\text{ly-onda} \quad [\text{lízé a-a-mbách-ile \ pwo}] \]  
5-egg REL\(_5\) IN\(_1\)-TNS-carry-RP 1.woman  
‘the egg which the woman carried’

The Nzadi example (25) shows that relativisers can be non-agreeing, e.g. when they consist of only the stem of a demonstrative. When such relativisers 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 relativised NP.

(25) Nzadi; DRC (Crane, Hyman & Nsielanga Tukumu 2011: 160)  
\[\text{fufú} \quad [\text{nà ò dzé múùr}] \]  
\text{fufu REL PST eat person}  
‘the fufu that the person ate’

Relativisers of demonstrative origin are very common in both subject and non-subject relatives. Among the languages that have a demonstrative relativiser 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 & Kuteva (2002: 115) assume that relativisers 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 relativised noun. Evidence comes from languages in which the relativiser can be placed before or after the relativised 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 (Van de Velde 2008: 347)

a. kòpí í-nà nól î=kpm


‘The coffee is green.’

b. í-kòpí í-nà nól î=kpm


‘green coffee’ (lit. ‘coffee that is green’)

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 relativiser. 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 nominalised and placed in apposition to the head noun, mentioned in the characterisation 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 relativiser 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 relativised noun and it carries a presupposition of existence. The non-augmented relative clause, in contrast, is used to qualify or classify the relativised noun.
(27) Nkore-Kiga; Uganda (Taylor 1985: 22)

a. a-ka-cumu  ku    w-aakozesa  
AUG-12-pen  preIN12  IN2SG-used
‘a pen that you used’

b. a-ka-cumu    a-ku    w-aakozesa  
AUG12-12-pen   AUG12-preIN12  IN2SG-used
‘the pen you used’

In examples such as (27), Taylor writes the relativiser 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 relativisers into the relative verb. If we assume like Nsuka-Nkutsi that the relativiser 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 recognise a Pre-preinitial slot. Another noteworthy aspect of these Nkore-Kiga examples is that the vowel of the relativiser ku is unexpected. In most classes, the relativiser 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 relativiser 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 relativiser 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 relativised NP and the Initial marker with the subject, corresponding to agreement of Type NPrel-SBJ, as in (28).
(28) Songye; DRC (Stappers 1964: 117)
è-fūbá dī-bá-báá-dīm-ì
5-field preIN5-IN3-RPT-cultivate-RPT
‘the field that they have just cultivated’

However, a relativiser 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 relativised 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 (Bokamba 1976) (cited via Demuth & Harford 1999: 52)
i-zi-bata [i-zi-eza-áki oPoso ba-butu loome]
AUG5-5-duck preIN5-IN5-give-IMPF [1]Poso 2-guest today
‘the duck that Poso gave the guests today’

Evidence for the fact that i- and zi- are distinct morphemes, rather than a simplex izi- prefix that developed from a CVC- shaped demonstrative comes from negative verb forms, in which the two are separated from each other by the negative prefix ta-.

The evolution from Stage 1 to Stage 2 involves the univerbation of a relativiser 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 relativisers 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 relativiser in front of an identical Initial in subject relatives (30). Crucially, when the relativiser is so reduced, it has the CV-shape of typical verbal prefixes.

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12 A reviewer wondered why I analyse the relative verb form in (29) as having double agreement with the relativised NP, instead of analysing 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 analysing it as a second agreement marker. Calling it an augment by no means explains why it is there.
Likewise, Nsuka-Nkutsi (1982: 24) lists four languages in which the tone patterns of demonstratives change when they are used as relativisers, 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 relativiser can be found in some of the Great Lakes Bantu languages, where relativisers seem to jump across a preverbal 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 (Walusimbi 1976: 24)

\[
\begin{align*}
o-	ext{mu-sajja} & \ [\text{Petero gwe a-labye}] \text{ musomesa} \\
\text{AUG}_1-1\text{-man} & \ [1]\text{Peter} \text{ REL}_1 \text{ IN}_1\text{-has.seen teacher} \\
& \text{ ‘The man that Peter has seen is a teacher.’}
\end{align*}
\]

The gradual change of the relativiser 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 relativiser 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 relativiser as forming one constituent with the relative verb. Interestingly, the relativiser 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 & Katamba 1990). An example of a construction where the relativiser has been morphologically integrated in the relative verb can be found in Ikalanga (32).
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 relativised NP can only be followed by a prefix that indexes the subject if the latter is of the 1st or 2nd person (33a, 34a). Third person subjects are expressed by a postverbal pronoun, which is sometimes analysed as free (33b), encliticised 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 (34).

(33) Mituku; DRC (Stappers 1973: 59)
   a. mu-ntu ū-tu-tůma
      1-person preIN1-IN1-send
      ‘the person we send’
   b. mu-ntu ū-tůma bô
      1-person IN1-send they
      ‘the person they send’

13 A reviewer objected to the glossing of this example as imprecise, because the gloss preIN7 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 relativisers 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.
(34) Luba; DRC (Meeussen 1946: 174)

a. Kabundi, [u-tu-aseki]
   1.Kabundi preIN1-IN1PL-mocked
   ‘Kabundi, whom we mocked’

b. ba-lumiana [ba-mbidi-yɛ]
   2-man IN2-address-3SG
   ‘the men he addressed’

(35) Lega; DRC (Meeussen 1971b: 28)

a. mā-zi [mā-tú-’ká-kúbólá]
   6-water preIN6-IN1PL-FUT-pour
   ‘water that we will pour’

b. mā-zi [mā-bá-’ká-kúbólá]
   6-water preIN6-IN2-FUT-pour
   ‘water that they will pour’

Constructions of the Luba type are therefore halfway in between Stage 2 and Stage 3: they are in Stage 2 when they have a 1st or 2nd 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 relativiser \# 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; Van de Velde & Idiatov 2016), or both, their prefixes are generally prosodically weak. The farther they are from the macro-stem, the more vulnerable they are to erosion.\(^\text{14}\) This is especially the case in the North-West

\(^{14}\) The macro-stem consists of the Infix (= object marker) and everything that follows it (= the stem). Tense-aspect prefixes that recently grammaticalised from auxiliaries may retain some of their prosodic strength.
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 realised 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 (Duranti 1977: 120)

a. e-ki-ntw’ é-ki-tá-li ki-hângo
   AU7-7-thing preIN7-IN7-NEG-COP 7-big
   ‘the thing that is not big’

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. omusấjí’ á-y-a-bon’ ómukázi ‘the man who saw the woman’ (man preIN7-IN7-PST-see woman).
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 1\textsuperscript{st} and 2\textsuperscript{nd} person forms and in the segmental shape of its class 1 prefix. However, it differs tonally from both the PP\textsubscript{r} 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 1\textsuperscript{st} person singular, and that it uses a class 1 prefix instead, with the rising tone of relative verb prefixes.

(37) Mongo; RDC (Hulstaert 1965: 477)

a. bò-támbá bò-fúk-à
   3-tree IN₃-move-PRS
   ‘The tree moves.’

b. bò-támbá [bò-fúk-á]
   3-tree IN₃-move-PRS.REL
   ‘the tree that moves’

c. èmí ő-kèl-ákí
   I IN₁-do-PST
   ‘I who have done it’

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)tíá- 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 (Hulstaert 1965: 310)

a. tò-tá-kèl-ákí
   \text{pre}\text{N}_{1\text{pl}}-\text{NEG}-\text{do-pst}
   \text{‘We didn’t do (it).’}

b. ntà-tó-kèl-ákí
   \text{NEG}-\text{pre}\text{N}_{1\text{pl}}-\text{do-pst}
   \text{‘We didn’t do (it).’}

The omnipresence of Type $NP_{\text{rel}}$ in the zone C languages of the Congo basin, which are surrounded by areas where Type $NP_{\text{rel}}-\text{SBJ}$ 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.\(^\text{16}\)

The reduction of the succession of a PPr that indexes the relativised 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 à-PPr, giving rise to the succession à-PPr-VPr- when this demonstrative relativiser is integrated into the relative verb form. In this succession, the PPr can go, leading to a paradigm of àVPr- Relative prefixes (38a) (Stage 3). Relative verbs formed with this prefix can again optionally be introduced by a PPr or à-PPr relativiser (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).\(^\text{17}\)

\(^{16}\) 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 nkì, 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
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 1st or 2nd 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 (Nsuka-Nkutsi 1982: 42, 222) these paradigms lack 1st and 2nd person forms. If no alternative way of expressing 1st or 2nd 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).

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 (l)a-. 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 relativised NP due to anticipatory assimilation. Another peculiarity of this Nguni construction is that the relativiser 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.
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 $\text{NP}_{\text{rel}}$-$\text{SBJ}$ when no lexical subject is present, also with third person subjects, but of Type $\text{NP}_{\text{rel}}$ in the presence of a lexical subject.

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 1st and 2nd person forms, so that a VPr indexing a subject of the 1st or 2nd 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 realised in Punu. The examples in (43) illustrate the three alternative constructions that can be used to relativise the object of (42).

(42) Punu; Gabon, Congo (Blanchon 1980: 115)

\[ \text{tú-tiği-g} \text{kíga bâ-nà} \]
\[ \text{IN}_{1p}^{-}\text{PST-gather 2-child} \]
\[ \text{‘We gathered the children.’} \]

The construction in (43a) shows no obvious traces of having gone through a BRA cycle, either partially or fully. It shows Type SBJ agreement and the relative clause is not introduced by means of a relativiser. The morphological differences between the relative verb form and its non-relative counterpart, realised 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. bâ-nà [tú-ści-gukíga]
\[ \text{2-child IN}_{1p}^{-}\text{PST-gather} \]
\[ \text{‘the children that we gathered’} \]

b. bâ-nà [bó tu-ści-gukíga]
\[ \text{2-child PRO}_{2}^{-}\text{IN}_{1p}^{-}\text{PST-gather} \]
\[ \text{‘the children that we gathered’} \]

c. bâ-nà [ába tu-ści-gukíga]
\[ \text{2-child DEM}_{2}^{-}\text{IN}_{1p}^{-}\text{PST-gather} \]
\[ \text{‘the children that we gathered’} \]
The relativiser 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 relativiser in (43c) is a demonstrative of the form á-PPr. Its final /a/ is realised as [ə], the normal realisation of /a/ in word-final position. This is a morphonological argument for assuming that the relativiser has not been morphologically integrated into the relative verb. A syntactic argument that leads to the same conclusion is that the relativiser 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 relativisers, rather than their current function.

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

(44) Punu; Gabon, Congo (Bl anchon 1980: 116)

a. bá-tu bá-tsi-rariga bi-kútù
   2-person IN₂-PST-sew 8-garment
   ‘The people sewed the garments.’

b. ba-tu [bó ba-tsi-ráriga bi-kútù]
   2-person PRO₂ IN₂-PST-sew 8-garment
   ‘the people who sewed the garments’

c. ba-tu [ába-tsi-ráriga bi-kútù]
   2-person IN₂-PST-sew 8-garment
   ‘the people who sewed the garments’

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 relativiser 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 relativiser 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 $\text{APPr}$ relativiser or the $\text{VPr}$. Consequently, the resulting agreement is ambiguous between Type $\text{SBJ}$ and Type $\text{NP}_{\text{rel}}$. From a phonological point of view, the result of the merger is a prefix rather than a morphologically independent relativiser, because its final /a/ is realised [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-fuelled constructional exuberance kicks in when the relativised NP of a subject relative belongs to class 1. There are five alternative ways to relativise the subject of (45).

(45) mú-tu á-tsí-rariga yikútu

1-person IN$_1$-PST-sew garment

‘Someone sewed the garment.’

The subject relative shown in (46a) is introduced by the same $\text{APPr}$ relativiser 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 $\text{NP}_{\text{rel}}$. 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 $\text{águ}$ is a prefix synchronically or an independent relativiser 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 (Blanchon 1980: 116)

a. mu-tu [águ(-)gu-tsi-ráriga yikútu]

1-person DEM$_1$(-)IN$_1$-PST-sew garment

‘someone who sewed the garment’

b. mu-tu [águ-tsi-ráriga yikútu]

1-person IN$_1$-PST-sew garment

‘someone who sewed the garment’

The alternative constructions illustrated in (47) involve the PPr-$o$ relativiser of pronominal origin. When the class 1 PPr $\text{gu}$- is prefixed to the pronominal stem $o$, the two merge to $\text{wo}$ or $o$. This relativiser 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 analysed as a Stage 2 construction, because here too there is no way to decide in a non-arbitrary way whether the original relativiser (w)o is a prefix, a proclitic or an independent relativiser. And again, an alternative construction exists in which this most recent cycle has reached its Stage 3 end point, the original relativiser having replaced the original Initial of the relative verb (47c).

(47) Punu; Gabon, Congo (Blanchon 1980: 116)
   a. mu-tu [(w)o(-)gu-tsi-ráriga yikútu]
      1-person PRO_{1}(-)IN_{1}-PST-sew garment
      ‘someone who sewed the garment’
   b. mu-tu [(w)o(-)a-tsi-ráriga yikútu]
      1-person PRO_{1}(-)IN_{1}-PST-sewed garment
      ‘someone who sewed the garment’
   c. mu-tu [(w)o-tsi-ráriga yikútu]
      1-person IN_{1}-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 & b). 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 relativisers in Stage 1, and that the evolution can be fast.
8. 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 (to appear), 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 relativised 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 nominaliser, i.e. a pronominal form that changes an adnominal relative clause into an independent one. In both cases, I have called it relativiser, for lack of a better cover term. This relativiser 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 relativiser and relative verb tend to merge, so that the relativiser is reinterpreted as an agreement marker indexing the relativised 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 relativiser 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 analysed as participles. This analysis has been taken up for Cuwabo non-subject relative verb forms by Guérois & 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 relativised NP are co-referential. The distinction is clearest with relativised NPs of the 1st and 2nd 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 relativiser. 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 relativised 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 $\text{NP}_{\text{rel}}\text{-SBJ}$ and $\text{NP}_{\text{rel}}$ 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 relativiser in the relative verb form is hampered by the intervening subject NP. As I showed, agreement Type $\text{NP}_{\text{rel}}\text{-SBJ}$ is attested in such constructions in a few languages. In contrast, I have so far found no examples with Type $\text{NP}_{\text{rel}}$ agreement in non-subject relatives with a preverbal lexical subject.

References


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