The Internal Structure of the Zulu DP

MA Thesis
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March 2008

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1. Introduction[1][2]

In 1994 *The Antisymmetry of Syntax* by Richard Kayne was published. In this book Kayne proposed that the X-bar theory had to be restricted and that the underlying word order is the same for every language in the world. This meant that several phenomena had to be analyzed in a different way. For example, in English objects follow the verb, and in Japanese they precede the verb. According to Kayne, they both have the same underlying word order, despite the difference in surface order. This difference in surface order is accomplished by assuming that in Japanese the object moves to a position preceding the verb, whereas the object stays in situ in English.

In this thesis I will research if Kayne's theory can account for the internal structure of DP's in Zulu.

I will first discuss the internal structure of Zulu nouns in chapter 2. Zulu noun stems of some noun classes are preceded by a noun class prefix. I will discuss what this means for the internal structure of the noun class. I will also discuss more complex nouns in chapter 2.

In chapter 3 I will discuss the augment. This is a morpheme that consists of a single vowel that precedes the noun in most cases, but it fails to do so other cases. I will argue that it is a determiner.

In chapter 4 I will discuss demonstratives. A Zulu demonstrative can either follow the noun or precede it, and I will discuss the difference in structure of the post-nominal and pre-nominal demonstrative.

Zulu has post-nominal relative clauses as well as post-nominal adjectives. I will argue in chapter 5 that the adjectives and relative clauses have the same structure. I will also discuss the difference in structure of subject relatives and non-subject relatives.

In a Zulu possessive construction the possessor usually follows the possessee, and the possessor is usually preceded by a prefix that agrees with the possessee. I will discuss the possessive construction in chapter 6.

In Zulu a locative adverb can be formed from a noun. There are several ways to do this and I will discuss these ways, as well as their distribution in chapter 7.

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1 I will use the following glosses: AUG=augment, FUT= future, FV=final vowel, INF = infinitive, LOC= locative, NEG= negative, NPX= noun prefix, OA=object agreement, PA=participial subject agreement, PAA=predicate adjective agreement, PN=pronoun, POSS= possessive agreement, PP=possessive pronominal stem, PST= past RPST= recent past, RA=relative subject agreement, RELA= relative *a,* SA=normal subject agreement*,* S=singular, P= plural. numbers refer to noun class unless they are followed by an S for singular or P for plural, when they denote person.

2   If my data does not come from the articles cited, it comes from the on-line news papers Ilanga http://www.ilanganews.co.za/ and Isolezwe http://www.isolezwe.co.za/, exams from the Gauteng Department of Education www.education.gpg.gov.za/ matricinfo/, and elicited data from Meritta Xaba,

1.1 Language Background

Zulu is a language spoken by approximately 10 million people. Most speakers of Zulu live in the South-African province of KwaZulu-Natal, but the Zulu language is also the biggest language in the south of Mpumalanga and in Gauteng. Since Guthrie (1948) the Bantu languages are divided in several areas that are given a letter code. Zulu belongs to group S, like all South-African Bantu languages. These areal groups do not always represent genetic groups, but in the case of group S they do. There are several groups within group S. Zulu belongs to the Nguni languages. Other major Nguni languages are Xhosa, Swati and Ndebele. The Nguni languages are very closely related and could be regarded as dialects of one language.

The normal word order in Zulu is Subject Verb Object, but that may vary and post-verbal subjects are very common in Zulu.

Like the vast majority of Bantu languages Zulu has a system of noun classes. Every noun belongs to a noun class. There are 16 noun classes in Zulu, 10 for singular nouns and 6 for plural nouns. I will discuss noun classes in more detail in chapter 2.

Zulu verbs can be conjugated in 5 different tenses (remote past, recent past, present, immediate future and remote future) as well as for various aspects and moods. The verb usually agrees with the subject and sometimes with the object in person and number and in 3rd person for noun class as well. To account for this a Zulu verb form can consist of many morphemes. A few examples are shown in (1).

1. a.   a-   ngi-   yi-   bon-   i
         NEG-   SA1s- OA9- see-   NEG
         "I don't see it"

   b   i-   zo-   li-   bon-   a
        SA9-   FUT-   OA5- see-   FV
        "it will see it"

Although we are concerned here only with syntax and morphosyntax, there is one thing about the phonology that needs to be explained. In Zulu, a vowel cannot follow another vowel. If two vowels are expected to be adjacent to each other, the first vowel disappears, changes into a glide or the two vowels coalesce to a new vowel. A few examples are given in (2).

2   a   nendoda
          na-   i-   ndoda
          with- AUG-   9.man
          "with a man"

     b.   kobaba

          ku-   o-   baba

          LOC-   AUG- 2a.father

          " for the fathers"

     c.   yenzile

          i-   enz- ile

          SA4   make-RPST

          "they made it"

1.2 Theoretical Background

1.2.1 Kayne

In 1994 Kayne published his work the *Antisymmetry of Syntax*. In this monograph he modified X-bar theory. In the traditional X-bar theory there were phrase structure rules that defined which structures were legal. These phrase structure rules were as follows:

    3.   XP => (YP), XP
    4.   XP=> (YP), X′
    5.   X′=>(YP), X′
    6.   X′=>(YP), X
    7.   X=>(Y), X

The YP in rule (3) is called an adjunct, the YP in rule (4) is called a specifier, the YP in rule (5) is called a modifier, the YP in rule (6) is called a complement and the Y in rule (7) is called a head adjunct. The comma means that the order is can be either way. A tree structure of an XP according to the traditional X bar theory is given in (8)

8.

```
                    XP
        ┌───────────┴───────────┐
   YP(adjunct               XP
                    ┌────────┴────────┐
              ZP(specifier)        X′
                          ┌────────┴────────┐
                    UP(modifier)          X′
                                  ┌────────┴────────┐
                                 X            WP(complement)
                          ┌──────┴──────┐
                   S(head adjunct)    X(head)
```
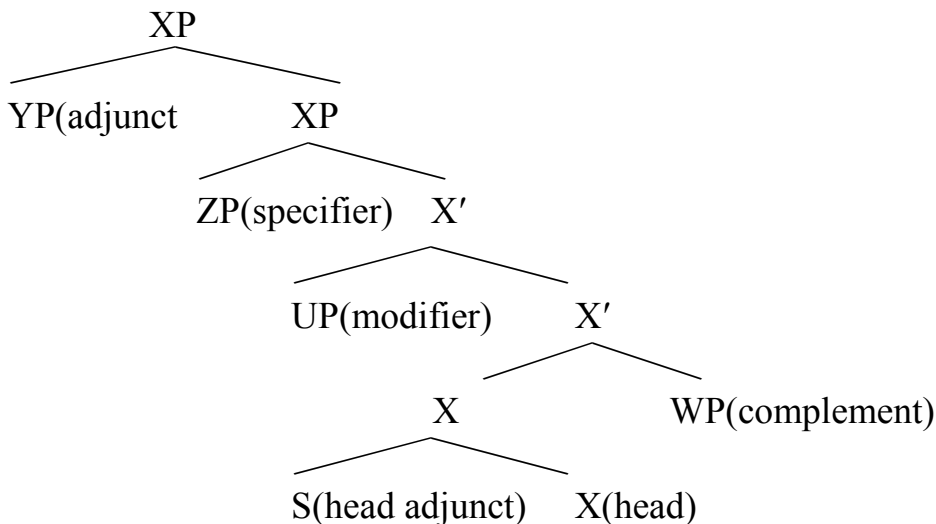
As said, the order of the constituents of the right hand side of the phrase structure rules (3-7) is not determined by these rules. In traditional X bar theory the order varies from language to language, and it may also vary within a particular language depending on what X is. In Kayne's framework the order is the same for all languages and for all heads. He proposes the Linear Correspondence Axiom (LCA) that can be formulated as in (9)

9.   If X asymmetrically c-commands Y, it precedes Y.

C-command is defined by Kayne as follows:

10.   X c-commands Y iff X and Y are categories and X excludes Y and every category that dominates X dominates Y.

A category can be a single node, but if two nodes have both the label XP or the label X they form a single category. Only structures where an order can be established are legal.

Let's see how the LCA deals with the traditional phrase structure rules. Structure (11) is a structure that shows how LCA deals with those rules.

11.

```
                ZP
        ┌────────┴────────┐
        Z                 XP
                   ┌──────┴──────┐
                  YP             XP
                   │       ┌─────┴─────┐
                   Y       X          WP
                      ┌────┴────┐      │
                      U         X      W
```
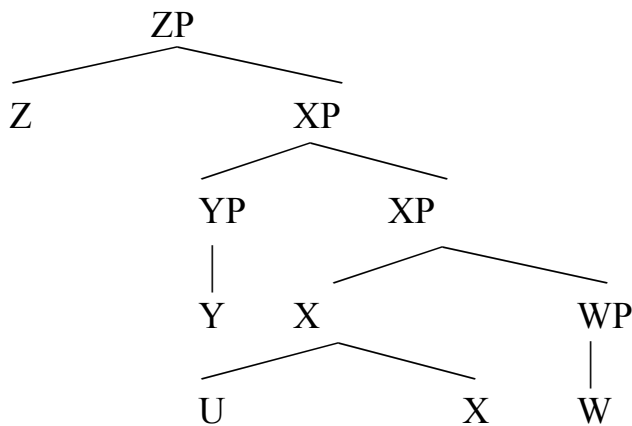
   The YP, an adjunct, asymmetrically c-commands the U, WP, W, XP and X. The only category that dominates it is the ZP. The ZP dominates the U, WP, W, XP and X, so the YP c-commands them. U, WP , W and X are all dominated by the XP as well. This XP does not dominate the YP because not the whole category dominates YP, so U, WP, W and X do not c-command the YP. The XP does not c-command the YP because it does not exclude the YP. The conclusion is that in Kayne's framework the adjunct always precedes the head and its complement and head adjunct.
   X is a head and it asymmetrically c-commands W. X is dominated by XP and ZP. XP and ZP also dominate W and WP. WP and X c-command each other, because they are both dominated by the same categories. W, however, does not c-command X because it is dominated by WP which does not dominate X.
   Z is a head as well and asymmetrically c-commands X, U, W, WP and Y. It is dominated by ZP and ZP dominates X, U, W, WP, and Y. X, U, W and WP are dominated by XP which does not dominate Z and Y is dominated by YP which does not dominate Z. From these two examples we can conclude that according to Kayne a complement follows its head.
   Finally, U, a head adjunct, asymmetrically c-commands its head X. XP and ZP are the categories that dominate U. These categories also dominate X. X does not c-command U because it does not exclude U. This leads us to the conclusion that in Kayne's framework, a head adjunct always precedes its head.
   In structure (11) there are no specifiers or modifiers. These are illegal according to Kayne. Let's consider (12) and (13), a structure with a specifier and a modifier respectively to see why.

12.

```
               XP
        ┌──────┴──────┐
       YP             X'
        │              │
        Y              X
```

13.

```
              X′
           ╱     ╲
        YP          X′
        |           |
        Y           X
```
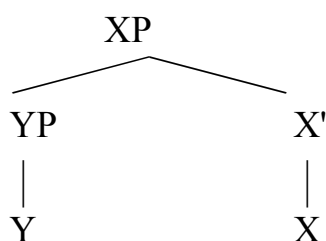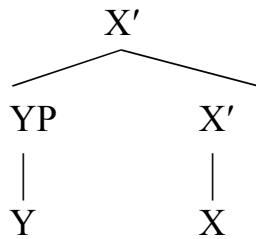
In structure (12), the specifier YP asymmetrically c-commands X, and the X' asymmetrically c-commands Y. This means that it cannot be established whether the specifier precedes the head or the other way around.

In structure (13) the modifier YP asymmetrically c-commands X, and the lower X' asymmetrically c-commands Y. This means that it cannot be established whether the modifier precedes the head or the other way around.

Modifiers, such as adjectives, are reanalyzed in *The Antisymmetry of Syntax*. Phrases traditionally analyzed as specifiers, are now analyzed as adjuncts. For this reason, many people following Kayne call the adjunct specifier. I will also call the adjunct specifier in my thesis as well.

There is one other consequence of Kayne's LCA that needs to be mentioned. Multiple specifiers/adjuncts or head adjuncts are illegal.

14.

```
                  XP
              ╱        ╲
        ZP                XP
        |             ╱       ╲
        Z          YP            XP
                   |
                   Y
```
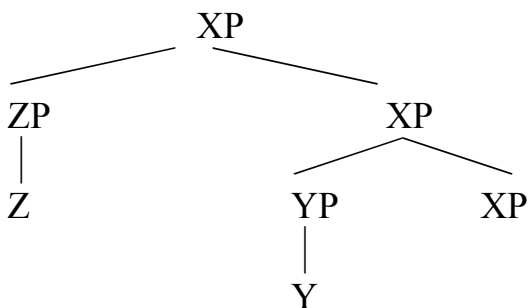
(14) is a structure with two adjuncts. ZP asymmetrically c-commands Y, and YP asymmetrically c-commands Z. This means that no order can be established between the two adjuncts and it is therefore illegal.

An example of multiple head-adjuncts is (15)

15.

```
                X
            ╱        ╲
        Z                X
                     ╱       ╲
                   Y            XP
```
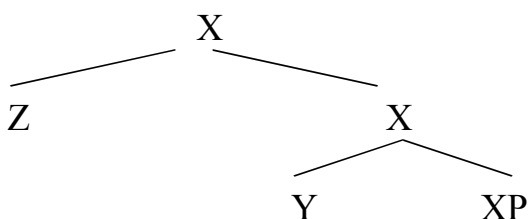
In (15) Y c-commands Z and Z c-commands Y, so neither asymmetrically c-commands the other. This means that no order can be established and therefore (15) is illegal.

A final consequence of Kayne's LCA is that rightward movement is illegal. If something is moved in minimalism, it is moved to a position that c-commands its original position. According to the LCA, this can only be a position to the left of the original position.

1.2.2 Other Theoretical Issues

I will follow Chomsky's (2001) idea of Agree. According to Agree, if A agrees with B, A c-commands B at some point of the derivation.

Another point that is important is that I will assume that the terminals in the tree structures are morphemes, not words. This means that morphologically complex words have an internal structure that can be described by the syntax. This has been proposed amongst others by Ngonyani (1996) for Swahili and by Buell (2005) for Zulu verbs.

2. Noun Prefixes

In Zulu all nouns belong to a noun class. These noun classes play an important role in Zulu grammar. There are many relationships in Zulu that are triggered by noun class. For example, verbs can agree with the noun class of the subject and of the object and adjectives and possessives agree with the noun class of the noun they modify.

This noun class system is comparable to the gender system most Indo-European languages have. There are a few differences though. For a start there are different noun classes for singular and plural. *Umfana* "boy" is a noun class 1 noun but its plural *abafana* is in noun class 2. These noun classes often form pairs of one singular noun class and one plural noun class. A second difference is that there are more noun classes than there are genders. In Indo-European languages there are at most three noun classes, but in Zulu there are 16 noun classes, 10 of them are singular noun classes and 6 of them are plural noun classes.

Another difference is that in the Indo-European gender system the gender on the noun is either marked by a suffix or not marked at all, whereas in Zulu the noun class is usually marked by a prefix. Below is a table with every noun class and its prefix.

Singular noun class	Noun prefix	Noun stem	Plural noun class	Noun prefix	Noun stem	Meaning
1	-m(u)-	-ntu	2	-ba-	-ntu	"person"
1a	Ø	-baba	2a	Ø	-baba	"father"
3	-m(u)-	-fula	4	-mi-	-fula	"river"
3a	Ø	-sheleni	2a	Ø	-sheleni	"shilling"
5	Ø	-gama	6	-ma-	-gama	"name"
7	-si-	-tulo	8	-zi-	-tulo	"chair"
9	-i(n)-	-ja	10	-zi(n)-	-ja	"dog"
11	Ø	-hlobo	10	-zi(n)-	-hlobo	"kind"
14	-bu-	-hle				"beauty"
15	-ku-	-dla				"to eat"

The noun class prefix of noun classes 1 and 3 is *-mu-* before monosyllabic stems and *-m-* for other stems. The *n* of the noun prefixes of noun class 9 and 10 fuses with the following consonant forming prenasalized consonants, and is absent in some recent nouns. For some noun stems starting with a vowel the noun prefix for noun class 14 is *-tsh-* .

For the most part, the semantics of a noun only plays a limited role in determining what noun class a word falls in. There are however a few constraints. Noun class 1 and 1a only have human nouns and noun class 3 and 3a only have non-human nouns. Noun class 15 contains only infinitives, and words derived from infinitives. All personal names are in noun class 1a. Most noun stems belong to only one noun class pair. However, a few noun stems appear in more than one noun class. *Ntu* for example, appears in the noun class pair 1/2, in noun class 7, and in noun class 14. Noun class prefixes can also be used to form new nouns from other noun stems and other stems. Noun class 15, which crates infinitives out of verbal stems, has already be mentioned. But the vast majority of the nouns in noun class 14 is derived as well. Noun class 14 prefix -bu- forms abstract nouns from other noun stems and adjective stems, as (2) shows.

2. a. u-   m-   ngane
        AUG- NPX1- friend

    b. u-   bu-   ngane
        AUG- NPX14-friend

2.1 Explanation

If we believe that morphemes rather than words are terminals, we can hypothesize a syntactic structure of the Zulu noun. In order to know how this structure looks like, we must know if the noun prefix or the noun stem is the head of this structure. It seems that the evidence points to the noun prefix being the head of the noun. The noun class of a word is determined by the noun class prefix. It could be argued, however, that the noun class prefix merely agrees with the noun class, and that the noun stems inherently have a certain noun class. There are two objections against this way of reasoning. First of all, there are noun stems that do not seem to be specified for any noun class and appear in several noun classes. Secondly, in some noun class 14, the noun class prefix serves as a derivational affix that turns other noun stems into nouns of noun class 14. It seems that in both these cases the noun class prefix does not agree with the noun stem in noun class. In the first case the noun stem has no noun class to agree with. In the second case the noun stem is not specified for noun class 14, the noun class of its noun prefix.

The noun class prefixes precede the noun stems. This might pose a problem if we follow Kayne's antisymmetry. A structure as (3) would be the natural way to analyze a Zulu noun, but this structure is not allowed if we follow Kayne. In this structure the noun stem, which has the label Nst, is an adjunct to the noun prefix, which has the label Npx, but it follows the noun prefix. According to Kayne, adjuncts are always to the left of their heads, never to the right.

3

```
            Npx
        ┌────────┴────────┐
      Npx              Nst
      mu-              ntu
```
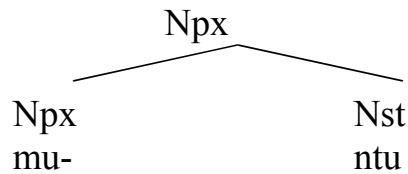
The only structure in which the noun prefix is the head of the noun and is legal according to Kayne's antisymmetry, is a structure in which the noun stem heads a phrase that is the complement of the noun class prefix. This structure is (4). According to structure (4) the Zulu noun is syntactically a phrase. Yet it is phonologically a word. In monosyllabic stems the noun prefix carries the stress of the word. The only way to solve this problem is to abandon the idea that a word is a syntactic constituent in Zulu.

4.
```
              NpxP
        ┌────────┴────────┐
      Npx              NstP
       │                 │
       │                Nst
       │
      -mu-              -ntu
```
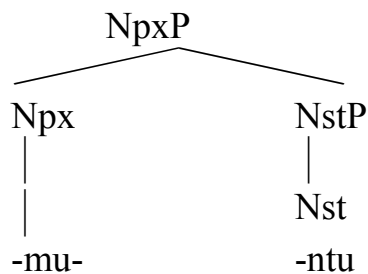
In structure (4) the noun class prefix may agree in noun class with the noun stem. If the noun stem is not specified for noun class, or if the noun is derived, the noun prefix determines what noun class the noun has.

In the following chapters of my thesis I will call NpxP NP if the internal structure is not important.

2.1.1 Compounds

So far I have shown what the structure is of morphologically simple nouns, but some nouns are more complex. I will now show what the structure is of some morphologically complex nouns. Some of those more complex stems are compounds. Zulu has a variety of types of compounds. I will discuss two of them. One is a compound that consists of two noun stems and that has one of the noun stems as a head. In Zulu the head is the first noun stem. A few examples are listed in (4).

a   u-   m-   khumbi-   m-   khathi
    AUG-   NPX3-   3.ship-   NPX3-   3.fimament
    "space-ship"

   b.   a-   ba-   ntu-   nyoni

13

AUG- NPX2- 2.person- 9.bird
"astronaut"

It is shown in (4a) that both nouns keep their noun class prefix. It is shown in (4b) that the augment agrees with the first noun, the head, and not with the second noun. This shows that the noun class of the compound is that of the head.

The question is what the structure of these compounds is. The first thing that is notable is that the second part of the compound noun must be an NpxP, since it consists of both the noun stem and a noun prefix. The first part precedes is, so by assumption it must c-command it. The easiest way to account for this is structure (5).

5.

```
                    NpxP
          ┌──────────┴──────────┐
        Npx                    NstP
          │              ┌───────┴───────┐
          │            Nst             NpxP
          │              │        ┌───────┴───────┐
          │              │      Npx             NstP
          │              │        │               │
          │              │        │              Nst
          │              │        │               │
         m-          khumbi-     m-            khathi
```
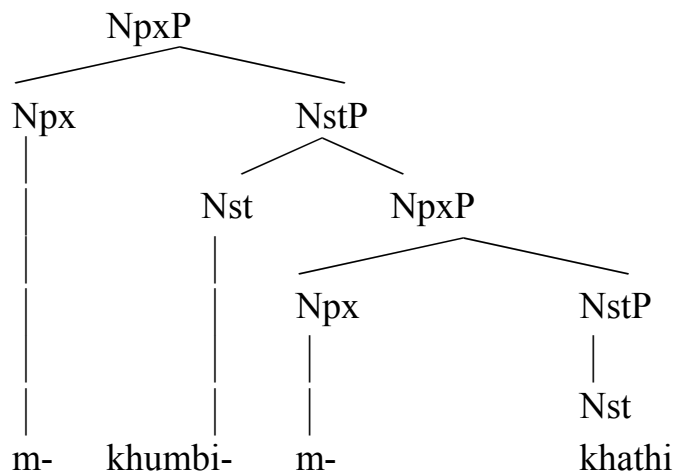
Another kind of compounds are the compounds that consist of a verbal stem and an adverb. An example of such a compound is in (6)

6. a.   u-   ma-   bona- kude
        AUG- *ma*- see-   far
        "television"

   b.   u-   ma-   khal-   ekhukhwini
        AUG- *ma*- scream-   in.the.pocket
        "mobile phone"

Both compounds have the morpheme *ma*. Both compounds, as all compounds that have *ma*, are in noun class 1a. Because it seems that *ma* controls what noun class the compound belongs to, this is the head of the compound. The combination of the verb and the adverb can occur in Zulu as a verbal phrase, as (7) shows.

7. a.   u-   ku-   bon- a   kude
        aug- inf- see- fv   far
        "to see far away"

14

This indicates that the verb and the adverb can form a VP. The simplest structure in which *ma* is the head and the verb and the adverb form a VP is (8).

8.

```
                NpxP
          _____/_____
        Npx              maP
         |            ___/\___
         |          ma         VP
         |           |        /\
         Ø—         ma-   bona-kude
```
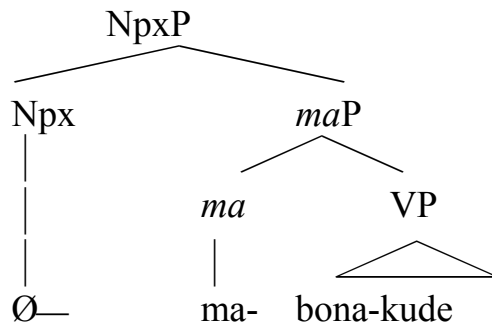
3. The Augment in Zulu Nouns

3.1 Introduction

In Zulu, nouns usually start with what is called an initial vowel, augment or preprefix. This is a vowel that precedes both the noun stem and the noun prefix. An example of a Zulu noun with an augment is *a-ba-hambi,* which means "travelers". *-hambi* is the noun stem, *-ba-* is the noun prefix, and *-a-* is the augment.

However, sometimes the augment is omitted. This is for example the case in environments where Negative Polarity Items (NPI's) are licensed as in (1a). Other cases include nouns used as vocatives (1b), nouns following determiners (1c) and nouns following absolute pronouns (1d).

1. a.   a-   ku-   fik-   anga bahambi
           NEG-   SA17-   arrive-NEG   2.travelers
           "No travelers arrived."

    b.   Nkosi!
           9.king
           "King!"

    c.   Leli   hhashi
           5.this 5.horse
           "This horse"

    d.   Nami   mfundi   be-   ngi-   bon-   a
           PN1S   1.student   PST-   1SG-   see-   FV
           "I, the student saw"

I will argue that the augment is a determiner, and that it occurs whenever bare NP's are not allowed and there is nothing else on D-head position.

3.2 The Form of the Augment

As said in the previous chapter, Zulu nouns have prefixes which show to which noun class a particular noun belongs to. Table 1 shows for all of the noun classes a noun with and without an augment.

Table 1

noun class	*augment*	*noun prefix*	*noun stem*	*meaning*
1	u-	m-	fazi	woman
1a	u-	ø-	Nkulunkulu	god
2	a-	ba-	fazi	women
2a	o:-	ø-	mese	knives
3	u-	m-	fula	river
3a	u-	ø-	mese	knife
4	i-	mi-	fula	rivers
5	i:-	ø-	gama	name
6	a-	ma-	gama	names
7	i-	si-	lwane	animal
8	i-	zi-	lwane	animals
9	i-	ø-	ntaba	mountain
10	i-	zi-	ntaba	mountains
11	u:-	ø-	phondo	horn
14	u-	bu-	sika	winter
15	u-	ku-	dlala	to play

As you can see the form of the augment also agrees with the noun class. It has the shape of a short /u/ for the noun classes 1, 1a, 3, 3a, 14 and 15. It is a short /i/ if it precedes a noun of noun class 4, 7, 8, 9 and 10. A short /a/ is used for noun classes 2 and 6, a long /i:/ for noun class 5, a long /u:/ for noun class 11 and a long /o:/ for noun class 2a.

It is possible that in an earlier stage, the augment vowel agreed with the vowel of the noun class, so the form of the augment could be explained phonologically. Some noun prefixes lost their consonants and fused with the augment, the result of such a fusion was a long vowel. This long vowel was reanalyzed as the augment. These diachronic changes make it unlikely that the form of the augment can be explained phonologically. Therefore it has to be accounted for by the syntax.

3.3 The Use of the Bare Noun

Since in Zulu nouns usually have an augment I will list when the augment is missing rather than when it is used. Most of the data come from von Staden (1973).

3.3.1 As Negative Polarity Items

In Zulu bare nouns can be used as Negative Polarity Items (NPI's). An NPI is something that can only occur when it is c-commanded by something that can license a NPI, usually a negation. This means that a bare noun can occur in Zulu whenever it follows a negative verb. It may be used as a postponed subject (2a), object (2b), after a preposition (2c), or after possessive agreement. I will give examples of these below.

2.   a.   a-   ku- sho   muntu
                NEG- SA17-say   1.person
                "Nobody would say so"

        b.   a-   ka- limaz-   a   2.bantwana
                NEG- SA1- hurt-   FV   children
                "He doesn't hurt any children"

        c.   ba- be-   nga- lw- i   nga- mkhonto
                SA2 PST- NEG- fight- FV   with- 3.assegai
                "They weren't fighting with any assegai."

        d.   a-   ka- dl-   anga u-   mmbila   wa- mlunga
                NEG- SA1- eat-   FV   AUG- 3mealies   POSS3- 1.white.person
                "He didn't eat the mealies of any white person."

In all these cases an augmented noun could also be used shows in (3). It would have a different meaning, though.

3.   a.   a-   ku- sho   u-   muntu
                NEG- SA17- say   AUG- 1.person
                "A person wouldn't say so."

        b.   a-   ka- limaz-a   a-   bantwana
                NEG- SA1- hurt- FV   AUG- 2children
                "He doesn't hurt (some particular) children."

c. ba- be- nga- lw- i ngo- mkhonto
SA2 PST- NEG- fight- FV with.AUG- 3.assegai
"They weren't fighting with the assegai."

d. a- ka- dl- anga u- mmbila
wo- mlunga
NEG- CL1 eat- FV AUG- 3mealies
POSS3.AUG- 1.white.person
"He didn't eat the mealies of the white person."

Note that in examples (3c) and (3d) the augment has fused with the vowel of the preposition and the possessive agreement. The change of the vowel of the preposition and the possessive agreement betrays the presence of the augment. In both cases the augment is *u-*, in both cases the vowel preceding the augment is /a/. The /a/ and the /u/ fuse into /o/. Whenever the augment fuses with the preceding vowel, I will treat the morpheme this vowel belongs to and the augment as one morpheme in my glosses.

3.3.2 In Negative Associative Copulatives

The bare noun can also be used in so-called negative associative copulatives. These are negative forms of the associative copulative. An associative copulative is a copulative based a noun with the associative marker *na,* usually translated with *with.* A copulative is term used in Nguni linguistics for a form of non-verb such as a noun, adjective or adverb that functions as a predicate of a clause. The copulative of a non-verb *x* would mean "to be x". The meaning of an associative copula based on noun x would logically be "to be with an/the x". However, the associative copulative usually has the meaning of "to have x".
I will give an example of such an associative copulative. It still has the augment.

4. ngi- ne- nja
SA1s- with.AUG- 9.dog
"I have a dog"

Note that in example (4) the vowel of the augment is fused with the */a/* of the associative marker.
The bare noun can be used in negative associative copulatives. It would make sense to treat it as a kind of Negative Polarity Item. There is however a difference between the cases in which the bare noun is a NPI and in the cases in which it is a negative associative copulative. The augment can never be used, as (5) shows.

5.   a.   a-   ngi- na- nja

	a-	ngi-	na-	nja
	NEG-	SA1S-	with-	9.dog

"I don't have a/the/any dog"

      b.

*a-	ngi-	ne-	nja
NEG-	1SG-	with. AUG-	9.dog

3.3.3 Following Absolute Pronouns

After absolute pronouns the bare nouns are also used. Sometimes an appositive follows a pronoun. An English example is "we, the people". (6) Is a Zulu example

6.   a.

Na-	mi	mfundi	be-	ngi-	bon-	a
and-	PN1S	1.student	PST-	SA1S-	see-	FV

"I, the student, also saw"

    b.

*Na-	mi	u-	mfundi	be-	ngi-	bon-	a
And-	PN1S	AUG	1.student	PST-	SA1S-	see-	FV

According to Von Staden (1973) the augmented noun can also be used in this context, with a different meaning. He says that in (6a) *mfundi* has the meaning, "in the capacity as a student" , whereas *umfundi* in (6b) means "being the particular student". I solicited (6b) on an internet forum about the Zulu language. The response of a native speaker was "does not mean anything to me. It is just three words." I conclude that (6b) is ungrammatical for at least some speakers.

3.3.4 As Vocatives

(7) Shows that vocatives have never the augment.

7.   a.

madoda,	ngi-	bhek-	e-	ni
6.men	SA1S-	look.at-	FV-	PN2P

"Men, look at me"

    b.

* a-	madoda,	ngi-	bhek-	e-	ni
AUG-	6.men	SA1S-	look.at-	FV-	PN2P

    c.

baba,	a-	ngi-	na-	mandla
1A.father	NEG-	SA1S-	with-	strong

"Father, I am not able"

d.   *a-   baba,   a-   ngi- na-   mandla
          AUG-   1A.father   NEG- SA1S- with- strong

If the noun is monosyllabic and from class 5 or 11, a form different from both the augmented noun and the bare noun is used. The prefix of these noun classes is usually null. Occasionally nouns in these noun classes take the original noun prefix, *li-* for noun class 5, *lu-* for noun class 11. According Van Eeden (1956), this is "not everyday Zulu". Monosyllabic nouns in these classes, however, obligatorily take the original noun prefix when used as a vocative.

8.   a.   lu-   thi!
          lu-   11.stick
          "stick!"

    b.   u-   thi
          AUG- 11.stick
          "a stick"

    c.   li-zwe!
          *li-*5.land
          "land!"

    d.   i-   zwe
          AUG- land
          "a land"

Class 2a also has a different vocative. It forms its vocative by replacing the augment by *bo*.

9.   a.   o-   baba
             AUG- 2A.fathers
             "(the) fathers"

      b.   bo-   baba
             bo-   2A.fathers
             "fathers!"

3.3.5 Following Demonstratives

If a noun is modified by a demonstrative it can either follow or precede the noun. If it follows the noun, the noun has an augment, as in (10). If it precedes the noun, there is never an augment as in example (11).

10   a.   U- mfundi   lo   u- kw- az- i   u-   ku-
bhal- a kahle
    AUG- 1.student   this.1 AUG- INF-   know-FV   AUG- INF-
write- FV well
"This student knows how to write well"

            b.   *mfundi   lo   u- kw-az- i   u-   ku-
bhal- a kahle
1.student   1.this   AUG-INF-know-FV   AUG-INF-
write- FV well

11   a.   Ngi- biz- a   labaya   bafazi
SA1s- call- FV   that.2   women
"I call those women"

            b.   *Ngi- biz- a   labaya   a-   bafazi
SA1s- call- FV   that.2   AUG-   women

I will explain these data in chapter 4.

3.3.6 Following Possessive Agreement

Most, if not all languages have genitive constructions to express possession. In Zulu, the genitive construction consists of a head noun, which is the thing that is possessed, followed by a noun that is the possessor. The possessor agrees with the head noun. If the possessor noun is not in class 1a, 2a or 3a, the agreement prefix consists of a subject agreement followed by *a*. The agreement prefix precedes the noun including the noun prefix and the augment, if any. The *a* of the agreement prefix fuses with the augment. (2d) and (3d), repeated below as (12a) and (12b) show a genitive construction without and with augment.

12.   a.   a- ka- dl- anga u-   mmbila   wa- mlunga
NEG- SA1- eat- FV   AUG- 3mealies   POSS3-1.white.person
"he didn't eat the mealies of any white person

b	a-	ka-	dl-	anga	u-	mmbila
	wo-		mlunga			
	NEG-	SA1-	eat-	FV	AUG-	3mealies
	POSS3.AUG-		1.white.person			

"he didn't eat the mealies of the white person"

If a noun is in class 1a or 3a, the agreement prefix is *ka-* if the subject agreement is just a vowel, in other cases it is subject agreement plus *-ka-*. The possessor noun has never an augment.

13.	a.	U-	muzi	ka-	Cele
		AUG-	3.village	POSS3-	1A.name

"Cele's village"

	b.	*U-	muzi	ko-	Cele
		AUG-	3.village	POSS3.AUG-	1A.name

I will explain these data in chapter 6.

3.3.7 Following Relative Agreement

A relative clause always has what is called relative agreement. In most cases the relative agreement occurs on the verb. But if the head of the relative clause is a possessor the relative agreement appears as a prefix on the possessee, as is shown in Zeller (2003). The augment however disappears.

14.	a.	u-	mfazi	**o-**	bantwana	ba-	khe	u-	ba-
		limaz-		ile					
		AUG-	1.woman	RA1-	2A.children	POSS2-PN1		SA2S-	OA2-
		hurt-		FV					

"the woman whose children you hurt"

	b.	*u-	mfazi	**wa-**		bantwana	ba-	khe	u-
		ba-	limaz-	ile					
		AUG-	1.woman	RELA1.AUG-		2A.children	POSS2-PN1		SA2S-
		OA2-	hurt-	FV					

3.4. Explanation

The gist of my proposal is that augments are default D's. They appear whenever a bare noun isn't allowed and there is nothing else in the position of D. In Zulu an NP

must always be licensed by a licensor that c-commands it. If an NP is not licensed by anything else it will be the complement of a D. I will argue that in all cases discussed above in which there is a bare noun either bare noun phrases are allowed, the position of D is occupied by something else, or there is conflation between the augment and the preceding affix.

3.4.1 The Augment as Head-DP

As previously mentioned, my proposal is that the augment occupies the head position of the DP. The reason for this is that the augment cannot co-occur with a pre-nominal demonstrative. Therefore it is safe to assume that they occupy the same position. Since there can be only words and affixes in this position and never phrases, it is likely that we are dealing with a head position. The head position most strongly associated with demonstratives is the head-DP position. So the augment probably occupies the head position of the DP.

3.4.2 The Use of the Bare Noun Phrase.

My proposal is that, in Zulu, bare NP's must be licensed. Normally they are complements of a determiner and need not be licensed. This paper is not about why NP's must be licensed, except when they are part of a DP. It is possible that NP's must always be licensed, and that any D is a licenser. That explains the reason why NP's that are complements of DP's are need not be licensed, but not why NP's must be licensed in the first place. Progovac (1993) and Hyman and Katamba (1993) claim that in other Bantu languages (Kinande and Luganda respectively) bare NP's are A′-anaphora and must be licensed by an A′-operator.

For whatever reason, if NP's are not complements of DP there has to be a licensor. I will determine what those licensers are below.

3.4.2.1 Bare Noun Phrases as NPI's

Negation can be a licensor of an NP. Negation is in Zulu marked on the verb. There are several negative markers. Which one is used is dependent on the mood and tense of the verb. Often more than one negative marker is used. The most important negative markers are the prefix *a-,* the infix *-nga-* and the suffixes *-anga*, and *i.* According to Buell (2005), these affixes are base-generated in a different position than the verb-stem. Some of these affixes move up to form complex heads with other heads, like the subject agreement affix, whereas other heads stay in situ. Wherever the negation ends up, it always ends up c-commanding post-verbal NP's and not preverbal NP's. So only post-verbal NP's can by licensed by the negation. This is

indeed the case; in (15a) the post-verbal subject can be licensed and may appear as a bare noun but in (15b) the preverbal subject cannot be licensed and may not appear as a bare noun.

15.   a.   a-   ku-   fik- ile   ndoda
              NEG-   SA17-   arrive-FV   9.man
              "No man has arrived"

       b.   *ndoda   a-   ku-   fik-   ile
              9.man   NEG-   SA17- arrive-FV

If a phrase must be licensed by a negation it is called a negative polarity item (NPI). Cross-linguistically NP's that are NPI's tend to be indefinite. One example is the English *any.* The Zulu bare nouns have the same indefinite non-specific meaning as *any.* It is safe to say that bare noun NPI's have to be indefinite and non-specific in Zulu and that this is the reason for the differences in meaning between augmented and augmentless nouns in negative sentences.

3.4.2.2. Bare Nouns after Absolute Pronouns

After absolute pronouns the augment must be dropped. (6a) was an example, another example is (16).

16.   thina madoda
              PN1P   6.men
              "we men"

There are several explanations possible to explain this. The first one is that the pronoun is a D and the NP is its complement. The absence of the augment then has the same explanation as the case with the demonstratives; the pronoun already occupies the D-position.
    A second explanation is that bare NP's need not be licensed, if they are appositives. The second analysis would suggest that appositives following nouns rather than pronouns also drop the augment. I have no information whether that is the case.

3.4.2.3 Bare Nouns as Vocatives

The vocative differs from the other cases in the form of the noun. Some nouns, namely class 2a nouns and monosyllabic class5 and class11 nouns, have a vocative marker, respectively *bo, li* and *lu*. It wouldn't be a stretch to assume that other nouns

also have a vocative marker that is phonetically null. This vocative marker could be either a determiner and as a demonstrative have a bare NP as a compliment, or a licensor of a bare noun.

3.4.2.4 Miscellaneous Cases

I will discuss the lack of the augment in possessives in the chapter about possessives, chapter 6.

The loss of the augment in relatives can be explained as a form of conflation. In this case the relative agreement and the augment form a new morpheme that is the same as the relative agreement.

The negative associative copulative is not likely to be conflation. In that case the morpheme only would only be conflating in negative copulative environments. Conflation is however a phonological process and the semantic environment should be invisible for conflation. This means that I cannot explain the lack of the augment in negative associative copulatives.

3.5 Conclusion

My analysis that augments are D's that license NP's gives by and large the right predictions. If the augment is missing there is either something else licensing the NP, whether it is a determiner or something else, or there is conflation. The only case that cannot be explained yet is the negative associative copulative.

My conclusion is that the augment is a determiner and has bare a NP as its complement. Whenever there is some other determiner in the D-head position, or there is no D necessary because a bare NP is licensed, the augment is not used.

4 Demonstratives in Zulu

In Zulu demonstratives can be pre-nominal and post-nominal. There is a difference between post-nominal and pre-nominal demonstratives. Nouns following pre-nominal demonstratives have no augment and nouns preceding post-nominal demonstratives do have an augment. An example of a pre-nominal demonstrative is (1a), whereas (2a) is a post-nominal demonstrative.

1. a. le ndoda
      this.9 9.man
      "this man"

   b. u- mfazi lo.1
      AUG- 1.woman this

4.1 Explanation

The absence of the augment in Zulu can be explained easily by assuming that the pre-nominal determiner has the same position as the augment. This means that the demonstrative is a determiner. We could propose a structure that is the same as an augment with a noun, but with a demonstrative instead of an augment. This structure is shown in (2).

2.
```
           DP
         /      \
       D          NP
       le         ndoda
```
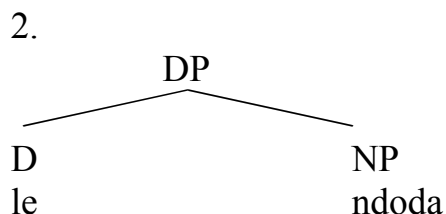
A post-nominal demonstrative differs in two ways from its pre-nominal counterpart. It follows the noun rather than preceding it and the noun retains its augment. If the noun precedes the demonstrative it must c-command the demonstrative. The noun c-commands the demonstrative if it is in the specifier of whatever projection the demonstrative is heading. A structure such as (3) would do that. I will label the projection of the demonstrative DemP in (3).

3.

```
              DP
          ┌────┴────┐
          D        DemP
          │      ┌──┴──┐
          │     NP     Dem
          u-   mfazi    lo
```
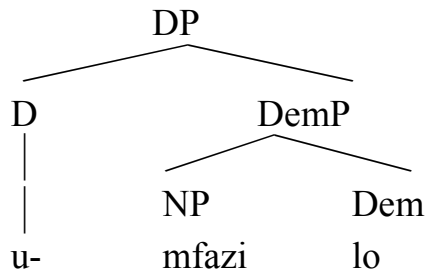
However, it is clear that the DemP in structure (3) is a functional category. Functional categories usually have a projection of a lexical category in their complement, either directly as their complement, or as the complement of a functional projection in their complement. If the NP originates as the complement of the DemP and is moved to the specifier of the DemP, we have a structure that follows this convention. Such a structure would be as in (4).

4.

```
              DP
        ┌─────┴─────┐
        D          DemP
        │       ┌───┴────┐
        │      NP_i     DemP
        │       │     ┌──┴──┐
        │       │    Dem    NP
        u-    mfazi   lo     t_i
```
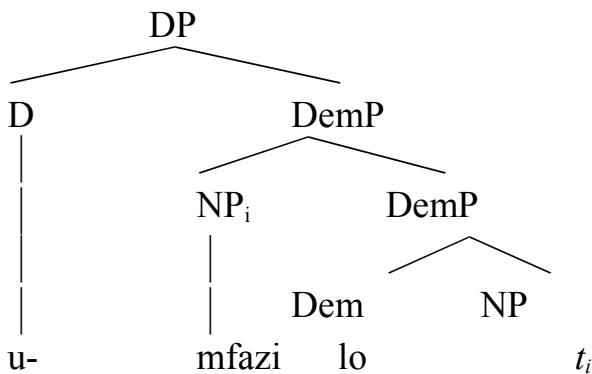
In (4) the projection the determiner heads dominates the DemP. So far, there is no reason to believe that that should be the case. A structure in which the specifier of the demonstrative is a DP instead of an NP is also possible. Such a structure is (5).

5.

```
              DemP
         ┌─────┴─────┐
        DP_i        DemP
         │        ┌──┴──┐
         │       Dem    DP
       umfazi    lo     t_i
```
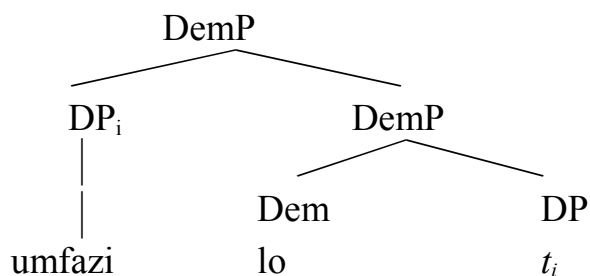
There may be an empirical difference between the two structures. If a noun is modified by a possessive, a relative clause or an adjective, (5) would predict that it would precede the demonstrative. The possessive, relative clause and adjective are

part of the DP and are expected to move to the right along with the noun and the augment. If the demonstrative does not have the DP as complement the modifiers might remain in situ while the only the NP moves to the specifier. It turns out that modifiers follow the demonstrative as (6) shows.

6. i-   zinkunzi   lezi o-   ku-   khuluny- w-   a nga-zo
    AUG- 10bulls   these.10   RELA- SA17- talk- PASS- FV about-PN10
    " These bulls that are talked about."

The simplified structure of (6) is (7).

7.
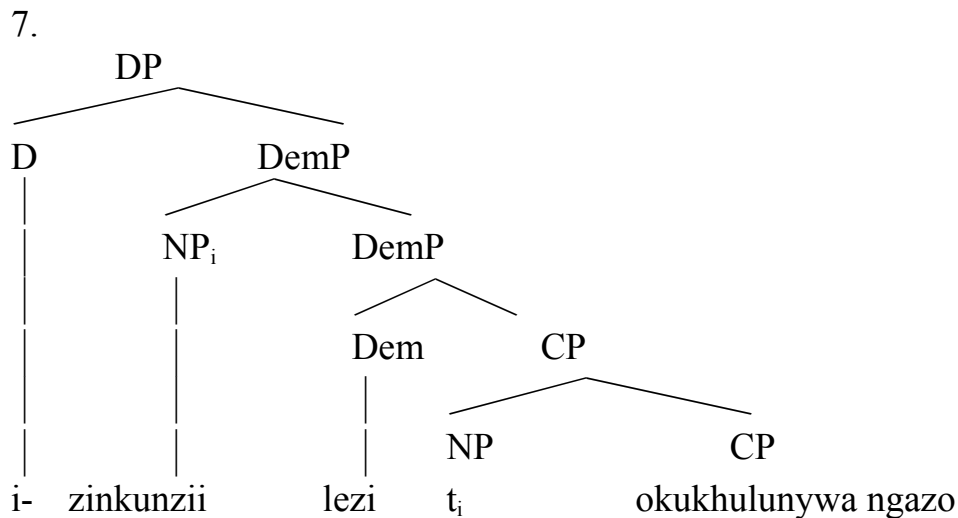
Note that (6) cannot be derived if we assume the structure of (3) unless we allow for rightward movement. This is further evidence that (4) is the correct structure for post-nominal demonstratives.

5 The Zulu Relative

5.1 Introduction

One of the consequences of Kayne's LCA is that an adjunct must always precede its head. Because an adjunct cannot follow its head a post-nominal relative clause cannot be an adjunct, which was the standard assumption in generative grammar before Kayne. Instead, he proposed that the head of a relative is base-generated inside the relative clause and moves to the specifier of the CP of the relative clause.

The Zulu language is a language that has a post-nominal relative clause. I will investigate how Kayne's analysis can be used for Zulu relative clauses.

5.2 The Data

There are different ways to create a relative clause. Following Zeller (2003) amongst others I will call these different strategies strategy 1 and strategy 2. Strategy 1 is by far the most common. I will focus mostly on this strategy in this paper.

5.2.1 Strategy 1

Strategy 1 relatives differ from normal clauses in three ways. The verb has a different agreement pattern, the verb is in a different mood as well and sometimes the verb gets a clitic *–yo*. There is a difference between relatives in which the subject of the relative clause is the head, the so-called subject relatives or direct relatives, and relatives in which a non-subject is the head, the so-called non-subject relatives or indirect relatives. They differ in the form of the subject agreement, and the non-subject relative may have a resumptive pronoun, unlike the subject relative.

5.2.1.1 The Subject Relative

The verb in a subject relative clause has a different agreement pattern than a verb in a main clause. This so-called relative agreement can be analyzed at least diachronically as an *a-* followed by the normal subject agreement. If the normal subject agreement consists of a single vowel the *a-* and the vowel coalesce into one vowel. If the normal agreement consists of a consonant followed by a vowel the *a-* will turn into *e-* or *u-* if the vowel in the normal agreement is *-u-* or *-i-* respectively.

The table in the appendix shows both the normal and the relative agreement pattern.

Apart from the agreement affixes there are other differences from main clause verbs in the verbal morphology as well. Negative relative verbs for example have an infix –nga- instead of the prefix a- and there are tonal differences as well. In these respects it has the same morphology as the so-called participial mood that is used in some dependent clauses.

Another difference is that sometimes the verb in a relative clause is followed by the clitic –yo. The presence of this article is comparable with the distinction between long forms and short forms of the present tense and the immediate past tense. It is, obligatory when the verb is clause-final, just like the long forms of the present and immediate past in matrix clauses:

1. a.
i-	ndoda	e-	lim-	a-	yo
AUG-	9.man	9RA-	farm-	FV-	*yo*

"the man who cultivates"

   b.
i-	ndoda	e-	lim-	a	u-	mmbila
AUG-	9.man	9RA-	farm-	FV	AUG-	3.corn

"the man who cultivates corn"

   c.
i-	ndoda	i-	ya-	lim-	a
AUG-	9.man	9SA-	*ya-*	farm-	FV

"the man farms"

   d.
i-	ndoda	i-	lim-	a	u-	mmbila
AUG-	9.man	9SA-	farm-	FV	AUG-	3.corn

"the man cultivates corn"

   e.
i-	ndoda	i-	lim-	ile
AUG-	9.man	9SA-	farm-	*ile*

"the man farmed"

   f.
i-	ndoda	i-	lim-	e	u-	mmbila
AUG-	9.man	9SA-	farm-	*e*	AUG-	3.corn

"the man cultivated corn"

In example (1a) the verb is obligatory followed by –yo, just as in (1c) the verb has an obligatory –ya- and the verb ends in -ile in (1e). Both -yo and -ya- are omitted in (1b) and (1c) and -ile is replaced by -e in (1f). The distribution is more complicated in non final environments, but according to Buell (2006) long forms as well relative verbs with –yo in these environments can be analyzed as phrase-final.

5.2.1.2 Non-subject Relatives

In non-subject relatives a non-subject is the head of a relative clause. There are two differences between the subject and the non-subject relative. There may be a resumptive pronoun and there is a difference in agreement with class 1:

2. …nomngani wakhe asanda kukhipha i-albhamu naye

na.u-	mngani	wa-	khe	a-	sand-a	ku-khip-a
i-albhamu		na-	ye			
with-AUG-	1.friend	1.POSS-1PN		1RA-	just-FV	INF-release- FV
AUG -album		with-1PN				

" …with her friend with whom she has just released a record."

In (2) both properties are visible. There is a resumptive pronoun –*ye*, In this case fused with the preposition *na-*. Also note that the subject agreement is *a-*, rather than *o-*. Not all indirect relative clauses have resumptive pronouns. If the head is an object the resumptive pronoun is usually dropped. If it is retained the head is emphasized.

3. a.   Umuzi   awakhayo
         U-   muzi   a-   w-   akh- a-   yo
         AUG- 3.village SA1- OA3- build-FV- *yo*
         "the city he is building"

   b.   Into engiyifunayo yona
         i-   nto   engi- yi- fun- a-   yo   yona
         AUG-9.thing   RA1S- OA9- want- FV- *yo*   9PN
         "That particular thing that I want"

In main clauses, Zulu pronouns sometimes appear followed by a noun to emphasize the noun. Also the pronoun can be followed by a demonstrative and have the meaning "the same". I assume that a similar thing is going on in (3b).

In some cases there is a resumptive pronoun in an object position without object agreement and without emphasis. The only cases I have seen involve direct objects of ditransitive verbs. In ditransitive verbs the object agreement agrees with the indirect object rather than with the direct object.

4.   i-   mali   engi- ku- ph- a   yona
         AUG- 9.money   RA1S- OA2S- give- FV   9PN
         "the money I give to you"

5.2.2 Strategy 2 Relative

There is also another way of forming a relative clause that is used in possessive constructions. (5) is an example of it.

5.

u-a	mfazi	o-	bantwana	ba-		khe	u-	ba-	limaz-
AUG-FV	1.woman	RA1-	2children	POSS2-		PP1	SA2S-	OA2-	hurt-

"The woman whose children you hurt"

In this case, the relative agreement agrees with the head of the relative clause and not with the subject. The relative agreement is not on the verb but on the first noun following the head. Also the verb has normal agreement and has all the features of the indicative mood.

Some speakers also accept this kind of relatives in non-possessive environments.

According to Zeller (2003) strategy 2 relatives are not accepted by all speakers of Zulu speakers. Even those who do find it grammatical prefer strategy 1 alternatives. Strategy 2 is also more common in idiomatic expressions than with normal expressions.

5.3 The Phonological Shape of the Relative Agreement

As said earlier, the relative agreement can be analyzed as an *a-* followed by the subject agreement. The *a-* would be a relative marker and the rest of the relative agreement the regular subject agreement. We could then analyze the relative mood as an *a-* followed by a regular verb. There are a few reasons to analyze the relative agreement as a single morpheme. For a start the *a-* shows vowel harmony. Vowel agreement is however absent in Zulu. Secondly, the relative verb shares the rest of the morphology with the participial mood. The indicative verb forms its negative with the prefix *a-*, both the relative and the participial verb form their negative by inserting *-nga-*. The indicative has a long form in the present tense formed by inserting *-ya-* that must be used in certain contexts such as at the end of a sentence. Both the relative and the participial verb lack the *-ya-* morpheme. The relative and the participial verb forms have also the same tonal shape. It is fair to say that the relative verb forms are the same as the participial verb forms with the exception of the subject agreement. Based on this evidence one would conclude that the verb form following the relative *a-* would be in the participial mood, which is the default mood for subordinate clauses anyway. The participial mood however, has a subject agreement

that is different from the normal subject agreement for some noun classes. The relative agreement is *a*- plus normal subject agreement, not *a*- plus participial subject agreement.

These objections can be countered. We could say that the relative *a*- itself shows agreement with the subject, or in direct relatives with the head. If the subject is 1st person singular, 1st person plural, 2nd person plural, a noun in class 4, 5, 7, 8, 9 or 10 the relative *a*- is *e*-. If the subject is 2nd person singular, or a noun in noun class 1 (in subject relatives), 3, 11, 14, or 15 the relative *a*- is an *o*-.

There are a few reasons to analyze the relative agreement as consisting of two morphemes. For a start, Zulu has again two different sets of subject agreement markers in some past tenses. One of these sets, the recent past continuous and the recent past perfect, starts in some cases with *be*-. The relative agreement for these tenses is the relative *a*-, followed by the regular agreement for these tenses. We could argue that there is another relative agreement pattern called recent past relative agreement, but we could simplify this if we would argue that this recent past agreement is actually two morphemes, the relative *a*-, and the recent past agreement.

The most important reason to analyze the relative *a*- as a separate morpheme is its occurrence in other environments. The relative *a*- is also used in adjectives and in independent possessives.

When adjectives are used as a modifier it agrees with its head. The shape of this agreement morpheme is what is historically the noun prefix preceded by the relative *a*-. If the adjective is used predicatively the agreement is the same but it misses the relative *a*-. This is explained more detailed in section 4.2.1.

The relative *a*- is used for independent possessives. In Zulu possessive constructions the possessor follows the thing possessed. The possessor also shows agreement with the thing possessed. The possessive agreement is the subject agreement plus -*a*-, for most nouns and all pronouns. For possessors that belong to class 1a the rules for the possessive agreement are a bit more complicated. If the subject agreement only consists of a vowel, the possessive agreement is *ka*-, if the subject agreement consists of consonant and a vowel, the possessive agreement is the subject agreement plus -*ka*-. If a possessor is used independently, it must be preceded by a relative *a*-.

It is tempting to believe that the relative *a*- is the same morpheme doing the same thing in all these instances, and I will explore this possibility in section 4.2.2 and in chapter 6.

5.4 Relative Clauses according to Kayne

According to Kayne, one of the ways to form a relative is by moving the head NP from its base position inside the relative clause to SpecCP.

In Zulu we could argue for such an analysis for strategy 2 relatives in a very straight-forward manner. The relative agreement in strategy 2 relative is actually a

complementizer that attaches to whatever DP the relative clause starts with. At PF the augment of the DP disappears, for phonological reasons.

6. u-   mfazi   o-   bantwana   ba-   khe   u-   ba-   limaz-   a
   AUG-   1.woman   RA1-   2children-   POSS2-PP1   SA2s-   OA2-   hurt-   FV
   "The woman whose children you hurt"

```
                        DP
          _____/    _____
        D                              CP
        |                    _____/   _____
        |                  NPⱼ                     CP
        |                   |              _____/  _____
        |                   |            C                   TopP
        |                   |            |            _____/   _____
        |                   |            |          DPᵢ               TopP
        |                   |            |          / \          _____/   \_____
        |                   |            |         D  PossP     Top            IP
        |                   |            |         |    /\                     /\
        u                  mfazi         o         a- bantwana ba-kheⱼ   ubalimaza tᵢ
```
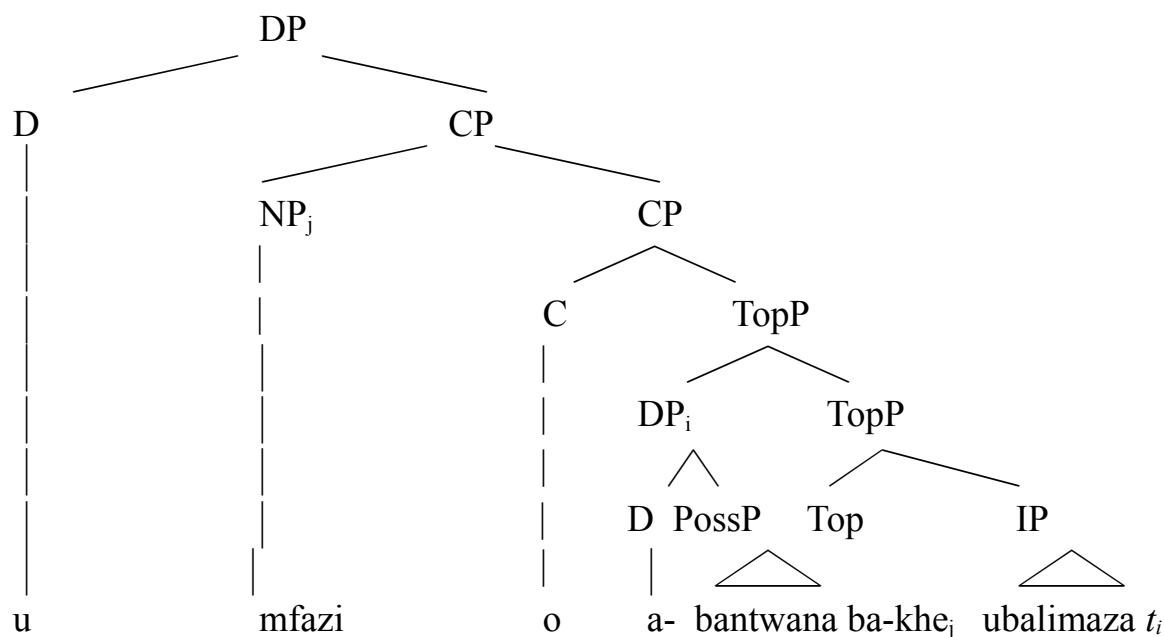
For some reason the whole object of the relative clause in (6) is moved to SpecTopP before the possessor NP, which is the head of the relative clause, is moved to the SpecDP.

The problem is what the status is of the resumptive pronoun. I assume that it is some kind of copy that is not deleted, but I don't know the exact nature.

The difference between subject relatives and strategy 1 relatives is not so big. Both involve prefixes on the first word of the relative clause. If we assume that the relative agreement consists of two morphemes, the relative *a-* and the actual subject agreement, the relative *a-* would be the complementizer.

Non-subject relative agreement are more problematic. It seems the relative *a-* cannot act as a complementizer in these cases because the head of the relative clause are not always adjacent. Also, just as the strategy 2 relatives, there is a resumptive pronoun in some indirect relatives.

In the next sections I will try to explain the differences between the subject and non-subject relative. I will also try to explain why adjectives use the relative *a-*.

5.4.1 Subject Relatives

As I said, subject relatives can be analyzed more or less the same way as strategy 2 relatives are analyzed, if we assume that the relative *a-* is a complementizer. The main difference is that the verb in the relative clause has a different form than the verb in the main clause. The verb has the normal subject agreement, (if we ignore the relative *a-*) and in some cases the clitic *-yo* but the rest of the morphology is the same as verbs in the participial mood, which is used dependent clauses. This can be explained if we assume that the relative *a* subcategorizes for what I call the subject relative mood that has these morphological properties.

I will explain the derivation with the example *umfindisi osheshayo*, meaning *the teacher who is in a hurry*.

In the first stage the structure is as follows.

7.

```
          IP
        /    \
      NP      IP
              /\
   mfundisi  usheshayo
```
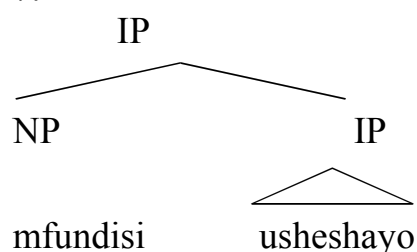
Then the relative *a* is merged with the IP and the subject moves to the SpecCP.

8.

```
              CP
           /      \
        NP_i       CP
         |        /    \
         |       C      IP
         |       |     /   \
         |       |    NP    IP
         |       |    |     /\
     mfundisi    o    t_i  usheshayo
```

Than the CP merges with a D.

9.

```
                        DP
              ┌──────────┴──────────┐
              D                     CP
              │           ┌──────────┴──────────┐
              │          NP_i                   CP
              │           │           ┌──────────┴──────────┐
              │           │           C                     IP
              │           │           │              ┌───────┴───────┐
              │           │           │             NP             IP
              │           │           │              │          ╱‾‾‾‾‾‾╲
              u        mfindisi       o             t_i         usheshayo
```
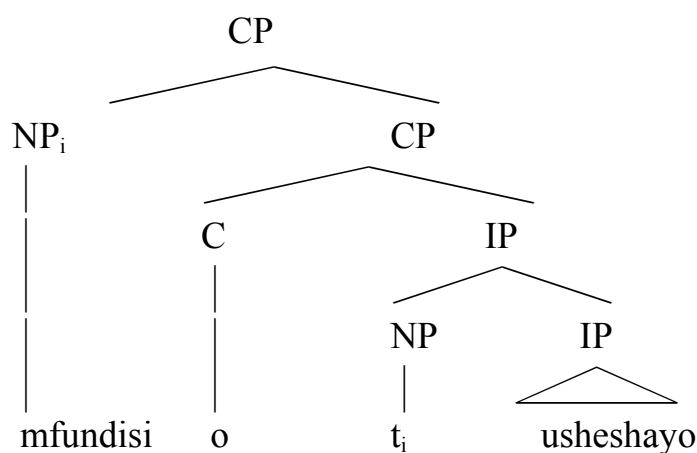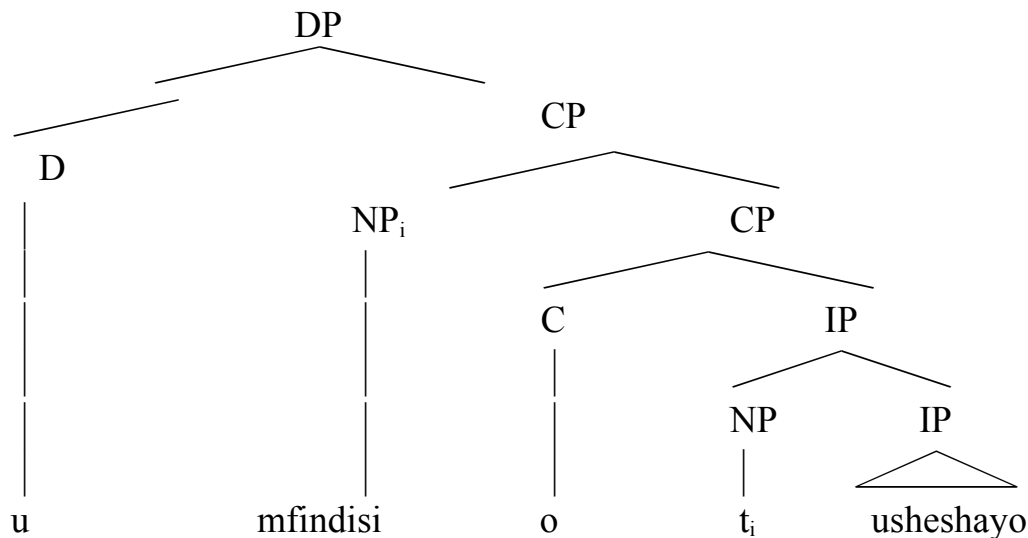
At PF the *u-* of the verb is deleted for phonological reasons.

If the relative is headless, the relativized NP is empty. An example is *okhuluma amanga*, meaning *the one who tells lies.*

10.

```
                   CP
          ┌─────────┴─────────┐
         NP_i                 CP
          │           ┌────────┴────────┐
          │           C                 IP
          │           │          ┌───────┴───────┐
          │           │         NP             IP
          │           │          │         ╱‾‾‾‾‾╲
          e           o         t_i    ukhuluma amanga
```
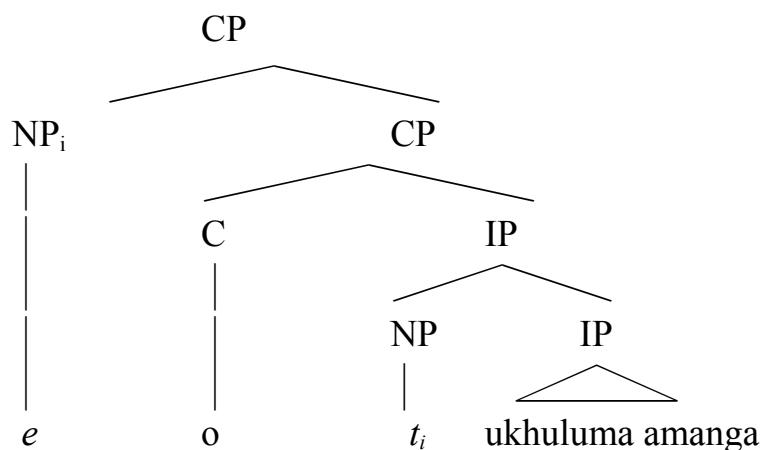
5.4.2 Adjectives

A good argument for the correctness of this analysis is that the same analysis can be used for adjectives. There are two groups of adjectives in Zulu. The first group is called relatives in the descriptive Zulu literature and behaves more or less like verbs. If a so-called relative is attributive the relative has relative agreement, if it is used predicative it has normal subject agreement. I will assume that they can be analyzed as subject relative clauses because they are direct relative clauses. I will not discuss this type of adjectives.

The other group is called adjectives in the descriptive Zulu. These true adjectives have some intriguing properties when they are predicates. I will restrict myself to the

present tense. Forms of the third person indicative affirmative present consist of the stem and an agreement prefix that closely resembles the noun prefix and agrees with the subject. Let's call this prefix the predicative adjective agreement.

11. a.   U-   mfana   mu-   hle
            A<small>UG</small>- 1.boy   <small>PAA</small>1- beautiful
            " the boy is beautiful"

    b.   I-   mizi   mi- khulu
            <small>AUG</small>- 4.village   <small>PAA</small>4- big
            " the villages are big"

Forms of the first and second person indicative positive present as well as all forms of the negative present and the participial present have not one but two agreement prefixes. One is the same as predicative adjective agreement and one is the same as the subject agreement.

12. a. ngi- m-   ncane
        <small>SA</small>1<small>S</small>-<small>PAA</small>1- small
        "I am small"

    b. I-   mizi   ayi-   mi-   khulu
        <small>AUG</small>- 4.village   <small>NEGA</small>4-   <small>PAA</small>4- big
        "The villages aren't big"

    c. uma u-   mfana   e-   mu-   hle
        if   <small>AUG</small>- 1.boy   <small>PA</small>1- <small>PAA</small>1- beautiful
        "if the boy is beautiful"

If an adjective is attributive, the agreement is the same as the relative *a-* followed by the predicative adjective agreement. This can easily be explained if an attributive adjective is a relative clause. (13) would be an example of how that might work.

13.

```
                        DP
              _____/    _____
             /                      CP
            D              _____/    _____
            |             NPᵢ                    CP
            |              |              _____/    _____
            |              |             C                    IP
            |              |             |              _____/    \_____
            |              |             |             NP              IP
            |              |             |             |              /\
            u            mfana           o            tᵢ            muhle
```
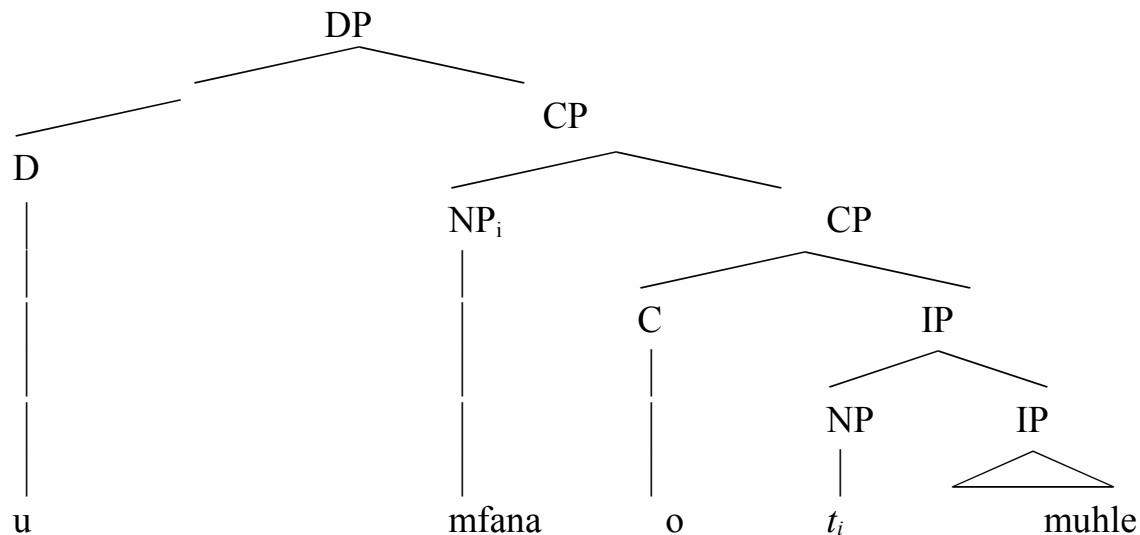
5.4.3 Non-subject Relatives

As said earlier, there are two differences between subject and non-subject relatives that are noted in the descriptive grammars. There may be a resumptive pronoun and there is a difference in the agreement.

I will start with the resumptive pronoun. The resumptive pronoun occurs only in environments where there is no agreement. These are the environments where there is no pro-drop. My analysis of the resumptive pronouns in Zulu is that they are copies of the moved relative head. For some reason this copy surfaces as a *pro* if possible and as a resumptive pronoun if *pro* is not possible. Since the head of a direct relative clause is always a subject and since there is subject agreement the direct relative clause does not have a resumptive pronoun. So there is no difference between subject and non-subject relative clauses in that respect.

The difference in agreement, however, is more essential. This difference makes it implausible that the non-subject relative has the same derivation as the subject relative. If they had the same derivation the relative *a-* would have been sensitive to case. There is no other part of the Zulu morphology that is sensitive to case.

Another reason why non-subject relatives must have a different derivation is that frequently the relative *a* not adjacent to the head. I have never encountered a direct relative where the head was not adjacent to the verb and thus not to the relative *a.*

There are of course also similarities between subject and non-subject relatives. The subject agreement for other noun classes than noun class 1 and for first and second person are identical for subject and non-subject relatives. Just like subject relatives the verb in non-subject relatives has all features of the participial mood except for the subject agreement. Like subject relatives the verb is sometimes followed by *-yo.*

Let's assume that because of the similarities, the relative *a* of non-subject relatives is a complementizer as well, and this complementizer subcategorizes for a verb in the

relative mood. Subjects always precede the relative *a*, so just as in subject relatives, the subject could be in SpecCP. In non-subject relatives however, the head of the relative clause precedes the subject, unlike subject relatives where the subject and the head are the same. In our framework it is forbidden for a phrase to have two specifiers, so the only place where the head of a non-subject relative could go to is the specifier of another CP, dominating the CP headed by the relative *a*. The derivation is shown in (16).

14.   i-   nkabi u-   mfana   a-   yi-   bon- a
       AUG- ox   AUG- boy   RA1- OA9- see- FV
       "the ox the boy sees"

```
                        DP
               ╱                  ╲
        D                        C1P
        │                ╱               ╲
        │           NP_i                  C1P
        │            │            ╱            ╲
        │            │          C1              C2P
        │            │          │         ╱           ╲
        │            │          │      DP_j            C2P
        │            │          │       │         ╱         ╲
        │            │          │       │        C2          IP
        │            │          │       │        │      ╱        ╲
        │            │          │       │        │     │          IP
        │            │          │       │        │     │         △
        i          nkabi             umfana    a-    t_j      uyibona t_i
```
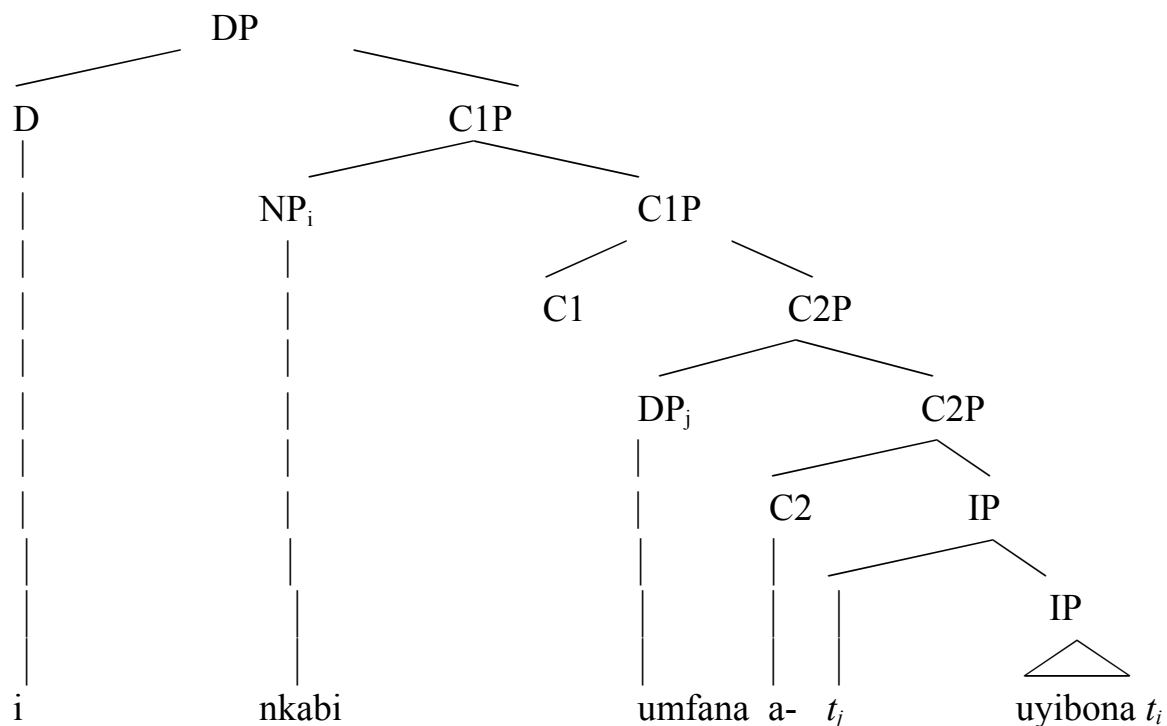
At PF the *u-* of the subject agreement disappears.

5.5 The Xhosa Data

There are however data that are perhaps surprising. In the closely related language Xhosa the relative *a* is not present if the head noun does not have an augment, or if it has a prenominal determiner other than the augment. Since the two languages are closely related and this (and a slightly different distribution of *-yo*) is the only difference between the languages regarding relative clauses, it would be expected that the analysis presented here can be applied to Xhosa as well. In that case my analysis should handle the Xhosa data as well. I will show that that is indeed the case.

First let me explain the data. The verb of a relative clause may have normal subject agreement instead of relative agreement if the augment is lacking as in (15c) or if the there is a prenominal determiner as in (15e) or both happens as in (15g). If the head noun has an augment and no prenominal determiner the verb of the relative clause has only relative agreement.

15a. *u-   mntwana   u-   gul-   a-   yo
      AUG-   1.child   SA1-   sick- FV-   *yo*
      "the child who is sick"

b.   u-   mntwana   o-   gul-   a-   yo
      AUG-   1.child   RA1-   sick- FV-   *yo*

c.   a-   ka-   nced- i   mntwana   u-   gul- a-   yo
      NEG- SA1- help- NEG   1.child   SA1-   sick- FV-   *yo*
      " she didn't help any child who is sick"

d.   a-   ka-   nced- i   u-   mntwana   o-   gul- a-
      yo
      NEG- SA1- help- NEG   AUG-   1.child   RA1-   sick- FV-
      yo
      " she didn't help any child who is sick"

e.   lo   u-   mntwana   u-   gul- a-   yo
      This.1   AUG- 1.child   SA1-   sick- FV-   *yo*
      "this child who is sick"

f.   lo   u-   mntwana   o-   gul- a-   yo
      This.1   AUG- 1.child   RA1-   sick- FV-   *yo*
      "that child who is sick"

g.   lo   mntwana   u-   gul- a-   yo
      This.1   1.child   SA1-   sick- FV-   *yo*
      "this child who is sick"

h.   lo   mntwana   o-   gul- a-   yo
      This.1   1.child   RA1-   sick- FV-   *yo*
      "this child who is sick"

Since this and a different distribution of -*yo* are the only differences between Xhosa and Zulu the analysis for Zulu, relative clauses developed here can be applied to Xhosa as well. This means that the relative *a* is a complementizer. The difference between Xhosa and Zulu is that in Xhosa an empty complementizer is sometimes
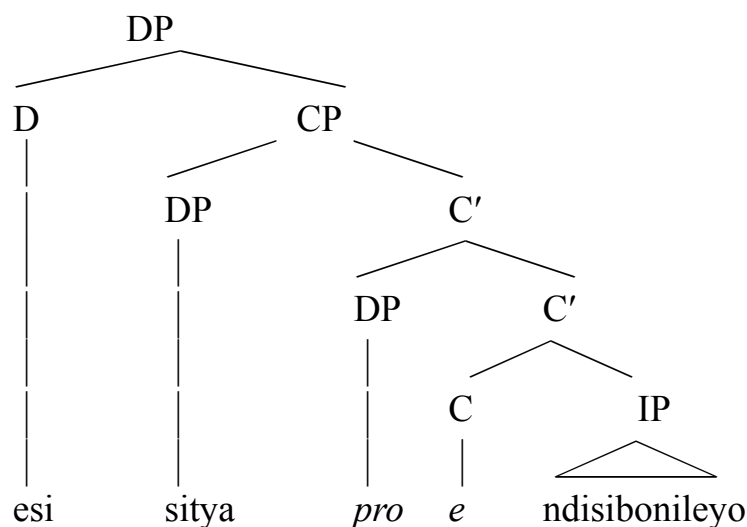
used in relatives clauses. When the determiner is just an augment it selects a relative *a*, as it does in Zulu. When the determiner is not an augment both a relative *a* and an empty complementizer are possible. I assume that in Xhosa the augment that appears with a prenominal determiner as in (15e) and (15f) is a different kind of augment that does not select a relative *a*.

Things are a bit more problematic for non-subject relatives. In my analysis there are two complementizers in non-subject relative clauses. One high complementizer that is always empty and one complementizer directly below it, the relative *a*. In Xhosa, it is this lower complementizer that may be empty depending on the determiner. Now if we would argue that the relative *a* is selected by the augment in non-subject relative clauses we have a problem. The relative *a* is not the complement of the augment but the higher complementizer is. The augment cannot directly select the relative *a*. We have to assume that it there are two different higher complementizers, one that may be selected by the augment and always selects the relative *a*, and one that is never selected by the augment and selects an empty lower complementizer.

This problem would not arise if we didn't follow Kayne and allowed multiple specifiers as in structure (16). In that case there would be no need for two complementizers. In a non-subject relative clause the complementizer can have two specifiers. One specifier is the subject and the other is the head noun. The head noun is an argument of both the relative clause and the matrix clause. That means that it has to be visible when the matrix clause is generated. According to Chomsky (2001) CP's are phases. Only the head of a phase and its highest specifier are visible. If the head noun must be visible, it must be the highest specifier. If it is not the highest specifier, it crashes.

Because there is only one complementizer in (16), and therefore only one CP, the relative *a,* or the empty complementizer as is the case in (16) can be selected directly by the augment.

16.　　　esi　　sitya　ndi-　si-　　bon-　ile-　yo
　　　　　this.7　7.dish SA1s-　OA7-　see-　RPST-　*yo*

```
                          DP
              ┌────────────┴────────────┐
              D                          CP
              │              ┌───────────┴───────────┐
              │             DP                       C′
              │              │          ┌────────────┴────────────┐
              │              │         DP                         C′
              │              │          │              ┌──────────┴──────────┐
              │              │          │              C                     IP
              │              │          │              │                   ╱────╲
             esi           sitya       pro             e             ndisibonileyo
```

5.6 Conclusion

　　Kayne's antisymmetry reduces the number of possible grammars. Restrictive
theories such as Kayne's are preferred because they are easier to falsify.
Relativization is a subject where the differences between Kayne and the traditional
generative grammar are great. This makes it a good subject to test Kayne's theory.
　　I have shown that it is possible to analyze the Zulu relative in a way in which the
head raises from within the relative clause, as Kayne has proposed. The very same
analysis can also be used for adjectives. Also the differences between direct and
indirect relatives can be explained by assuming that the landing site of the head is
different in the two cases. Zulu relatives fail to falsify Kayne's antisymmetry.

6. Possessives

6.1 Data

In Zulu possessives are usually post-nominal. The possessor follows the possessee. The possessor noun is usually preceded by a prefix that shows agreement with the possessee, called possessive agreement. If the noun class of the possessor noun is not 1a or 3a then the possessive agreement is the subject agreement plus *-a-*. This *-a-* fuses with the augment if it is present. If the augment is *u* the fused vowel is *o*, if the augment is *i* then the fused vowel is *e,* and if the augment is *a* the fused vowel is *a.* If the fused vowel is *o* the *w* of noun class agreement 11 and 15 disappears.

1   a.   ukhezo lomfazi

u-	khezo	lwa-	u-	mfazi
AUG-	11.spoon	POSS11-	AUG-	woman

"the spoon of a woman"

b.   inganekwane yezinyoni

i-	nganekwane	ya-	i-	zinyoni
AUG-	9.story	POSS9-	AUG-	10.birds

"the story of the birds"

If the possessor noun is preceded by a demonstrative or another determiner it is the demonstrative that is prefixed by the possessive agreement.

2   a.

i-	zimvu	za-	leyo	ndoda
AUG-	10.sheep	POSS10-	that	9.man

"the sheep of that man"

b

u-	mngane	wa-	lo	mlungu
AUG-	1.friend	POSS1-	this	1.white.man

"the friend of this white man"

If the possessor is just a pronoun, whether that pronoun is a personal pronoun, a demonstrative or another kind of pronoun, the possessive is prefixed to that pronoun. If that pronoun is a personal pronoun the form of the pronoun is different than the normal form of the pronoun in some cases.

3 i- ngane ya- mi
  AUG- 9.child POSS9-PN1S

If an independent relative is the possessor the possessive agreement immediately precedes the possessor as well. The *a* of the possessive agreement fuses with the relative *a*.

4. izindaba zabadala
  i- zindaba za- a- ba- dala
  AUG- 10.issues POSS10 RELA- AGR2- old
  "the issues of the old people"

6.1.1 Possessors of Noun Class 1a and 3a

If the possessor is a noun that belongs to class 1a or 3a a different possessor agreement is used. The possessor agreement shows agreement with the possessee. If the noun class the possessee belongs to has a subject agreement affix that is only a vowel, then the agreement affix is *ka-*. If the possessee noun belongs to another noun class the agreement affix is subject agreement followed by *-ka-*. The augment of the possessor noun disappears.

5. a. i- misebenzi ka- hulumeni
    AUG- 4.jobs POSS4-1A.government
    "the jobs of the government"

  b. u- kufa kuka- Dube
    AUG- 15.death POSS15- 1A.Dube
    "Dube's death"

If the possessor has a prenominal determiner the normal agreement is used.

6 a. i- siso sa- lo gandaganda
    AUG- 7.condition POSS7 this1 1A.tractors
    "the condition of this tractor"

6.1.2 Relativized Possessives

In Zulu the possessee can be omitted in a possessive construction if it is clear from the context what it is. In that case the relative *a* precedes the possessor. For that reason this kind of possessive is called the relativized possessive.

7. a. abenkosi

        a-   ba-   i-   nkosi

        RELA- POSS2- AUG- king

        "the men of the king"

   b. ezemizi

        e-   za-   i-   mizi

        RELA- POSS10-   AUG- 4.villages

        "the things of the villages"

Independent possessives are not the only function of relativized possessives. Zulu has also a prenominal possessive construction. (8) is an example of this construction.

8. e-   ya-   mi   i-   ngane

    RELA- POSS9-   PN1s   AUG- child

    "MY child"

In this construction the possessive has the same form as an independent possessive. Just like the independent possessive the possessive agreement is preceded by a relative *a.* This construction is used when the possessor is emphasized.
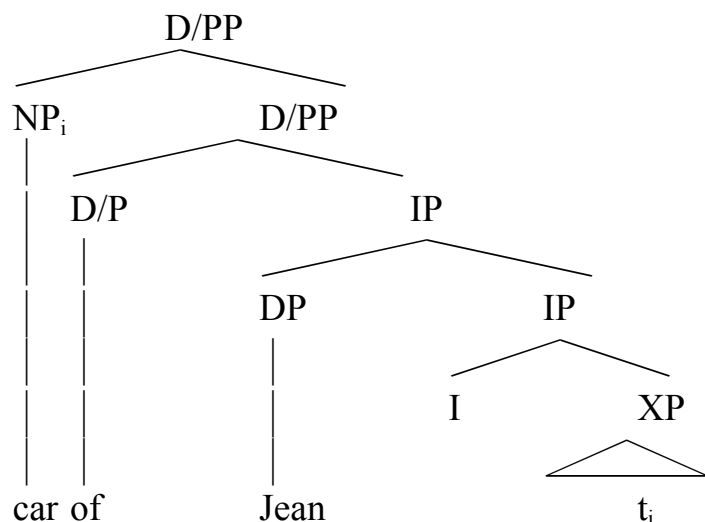
6.2 Possessives according to Kayne

Kayne (1994) discusses possessives. Since he is talking about post-nominal possessives in English and French it might be interesting to see what his proposals are. According to him possessive constructions start as an IP with the possessor occupying the specifier position and the possessee occupying some position inside the complement of the I as in (9). Kayne does not specify what the complement of the I would be.

9.
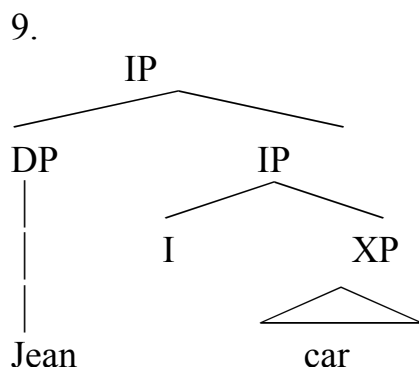
Then *of* or *de* is merged. According to Kayne the category of *of* and *de* is D/P. The Possessee moves to the specifier position of that D/PP.
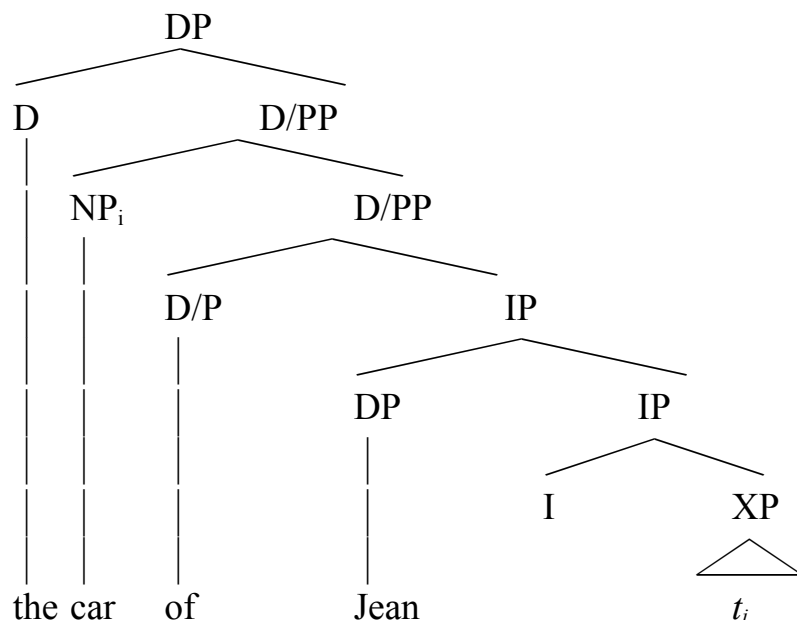
10.

```
                   D/PP
          ┌─────────┴─────────┐
        NP_i                 D/PP
         │          ┌──────────┴──────────┐
         │         D/P                     IP
         │          │            ┌──────────┴──────────┐
         │          │           DP                     IP
         │          │            │              ┌───────┴───────┐
         │          │            │              I              XP
         │          │            │                           ╱────╲
        car        of          Jean                           t_i
```

Kayne links this structure with the verb *have.* The D/PP can be the complement of a projection headed by the copula be, which I will call CopP. In that case the possessor moves to the SpecCopP and the D/P itself moves to the Be. The D/P is incorporated by the Cop and the combination of the two is spelled out as *have.*

The D/PP can also be a complement of a DP. That is the structure of postnominal possessives in English and French.

11.

```
                     DP
          ┌───────────┴───────────┐
         D                        D/PP
         │            ┌────────────┴────────────┐
         │          NP_i                        D/PP
         │           │            ┌──────────────┴──────────────┐
         │           │           D/P                            IP
         │           │            │              ┌───────────────┴───────┐
         │           │            │             DP                       IP
         │           │            │              │              ┌─────────┴─────────┐
         │           │            │              │              I                  XP
         │           │            │              │                               ╱────╲
        the         car          of            Jean                              t_i
```
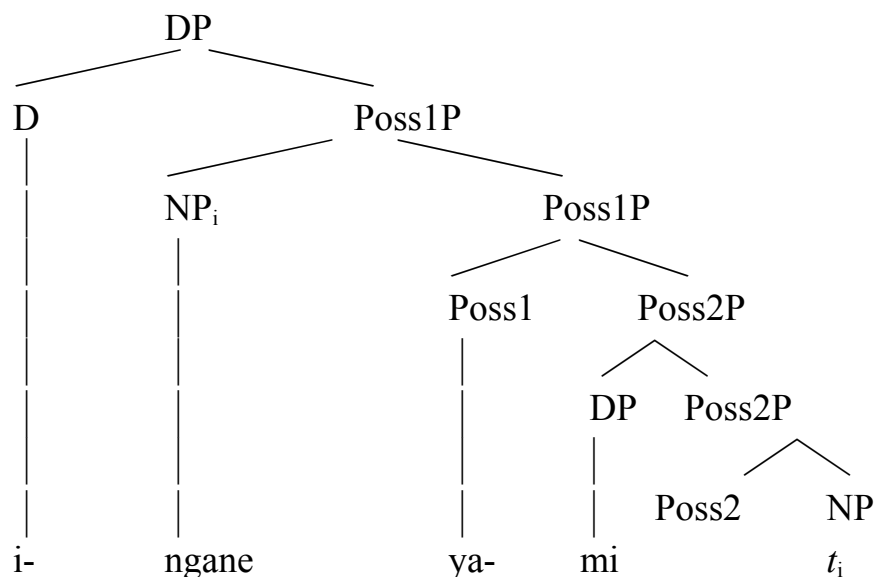
We can easily extend his ideas to postnominal possessives in Zulu. I will replace D/PP and IP by the more neutral labels Poss1P and Poss2P. Unlike French *de* and

English *of* the possessive agreement is not a preposition. It cannot be used outside the possessive construction and unlike Zulu prepositions it shows agreement.

Kayne's structure can be simplified further if the complement of the Poss2P (the IP in Kayne's account) is replaced by the possessee NP.

12.

```
                    DP
           _____/_____
          D                  Poss1P
          |          _____/_____
          |         NPᵢ                Poss1P
          |          |          _____/_____
          |          |         Poss1            Poss2P
          |          |          |          ____/\____
          |          |          |         DP       Poss2P
          |          |          |         |       ___/\___
          |          |          |         |     Poss2     NP
          i-        ngane       ya-       mi                tᵢ
```

6.3 Noun Class 1a/3a Possessors

As we have seen, noun class 1a/3a possessors have a different possessive agreement than other possessors. They have a possessive agreement that is either *ka-* if the noun class of the possessor has subject agreement that consists of only a vowel or the subject agreement followed by *-ka-*. Other possessors have possessive agreement affixes that consist of the subject agreement followed by *-a-*. The question is how this can be explained.

A possible explanation might be that the possessive agreement agrees not only with the possessee but also with the possessor. Possessive agreement shows agreement with the noun class of the possessee. If a possessee changes noun class the possessive agreement changes as well. However, the form of the possessive agreement is also dependent on the noun class of the possessor. If the possessor is a noun of noun class 1a/3a the possessive agreement has *-ka-,* If the possessor is something else the possessive agreement has *-a-*. It shows possessor agreement.

If this is the case the possessor agreement is different from other kinds of noun class agreement. As far as I know, noun class agreement is never blocked by determiners. If possessor agreement shows noun class agreement with the possessor, this agreement is blocked by prenominal determiners, as (13) shows.

13.   a.   i-   siso   sa-   lo   gandaganda

              AUG-   7.condition POSS7   this.3 3A.tractor

              "the condition of this tractor"

In (13) the possessor is of noun class 3a. Yet it has normal possessive agreement and not possessive agreement with *-ka-*. The reason it has normal possessive agreement is that it has a prenominal possessor, *lo,* that somehow causes the normal possessive agreement to be used.

There is another issue that sets this phenomenon apart from the normal Zulu noun class agreement. Normally, class 1a nouns trigger noun class 1 agreement and noun class 3a nouns trigger noun class 3 agreement. However, both noun class 1a and 3a possessors trigger the *-ka-* possessive agreement whereas noun class 1 and 3 possessors trigger normal possessive agreement.

This all suggests that it may be not noun class agreement. Let's take a closer look at noun class 1a and 3a. The two noun classes do not have a noun prefix. Noun class 1a has few native words other than personal names, and noun class 3a consists entirely of loans. According to Van de Velde (2006) this is typical for noun class 1a throughout the Bantu languages, and can be explained by assuming that noun class 1a nouns are not specified for noun class[3]. If they do not belong to a noun class they do not need a noun prefix that marks this noun class. Names are not part of the lexicon of a language so they are not specified for a noun class. When loans enter a language from another language they are also not yet part of the lexicon so they are also not specified for a noun class.

We have said in chapter 2 that all nouns belong to a noun class and have a noun prefix. This means that the structure of a noun in Zulu is as (14) shows.

14.

              PrefixP

   Prefix   Noun-stemP

    mu-   ntu
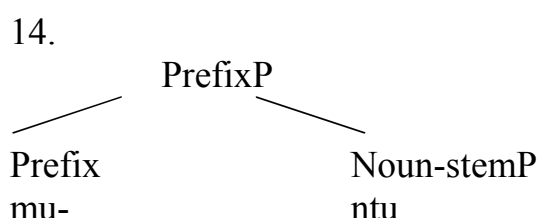
Noun class 1a/3a nouns do not belong to a noun class and do not need a noun prefix. While most nouns trigger noun class agreement based on their noun class, noun class 1a/3a nouns trigger noun class agreement based on their animacy. If a noun is human it triggers noun class 1 agreement and if it is non-human it triggers noun class 3 agreement.

If the difference between noun class 1a/3a nouns and other nouns is that noun class 1a/3a noun stems can stand alone and other noun stems need a prefix, then that may be the reason why class 1a/3a possessors have different possessive agreement. A possibility is that the *-ka-* agreement only licenses and agrees with bare noun stem possessors. Only noun class 1a/3a noun stems can stand alone and can be bare noun

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3   A problem for this analysis is that recent loans usually belong to noun class 9, not noun class 3a.

stems. Therefore it only licenses only those nouns as possessors. Other noun stems need a noun prefix and cannot stand alone. The *-ka-* agreement cannot agree with those nouns since it agrees with bare noun stems, not with nouns with noun prefixes. This also explains why *-ka-* never occurs with an augment. Augments are needed when bare noun phrases are not licensed. *-Ka-* however licenses bare noun stems so there is no need for an augment. The structure of a noun class 1a/3a possessor is shown in (15).
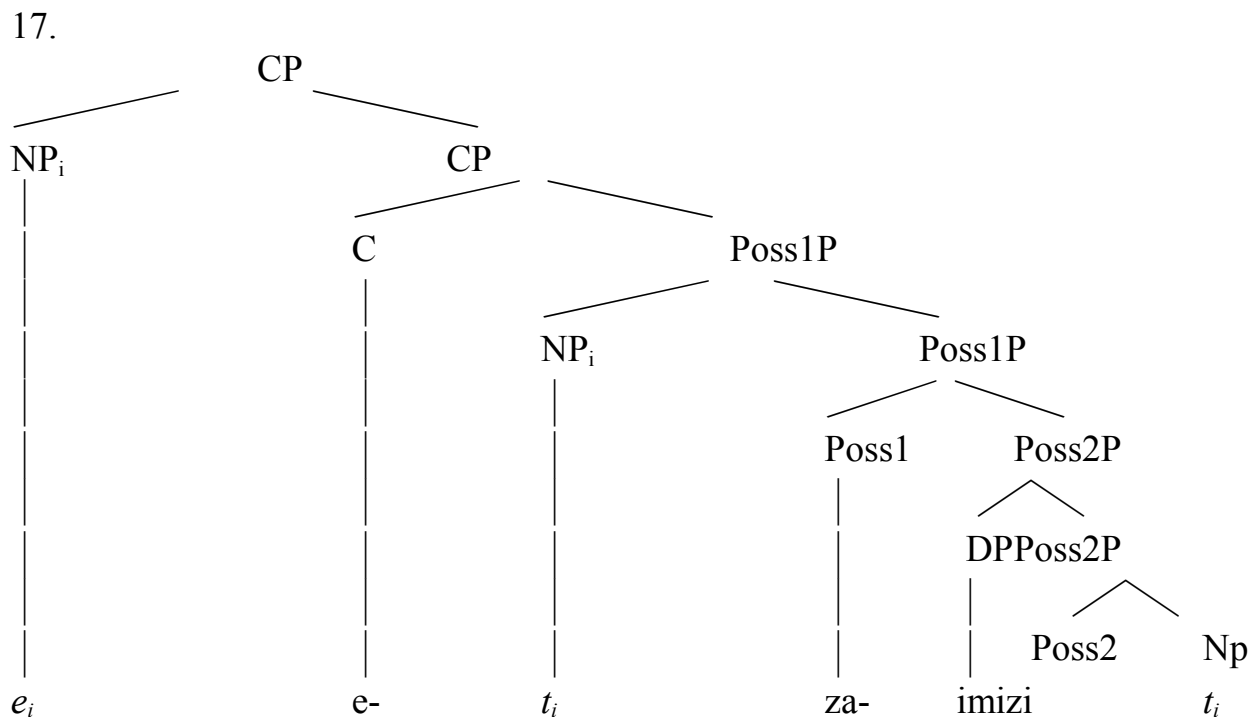
15.
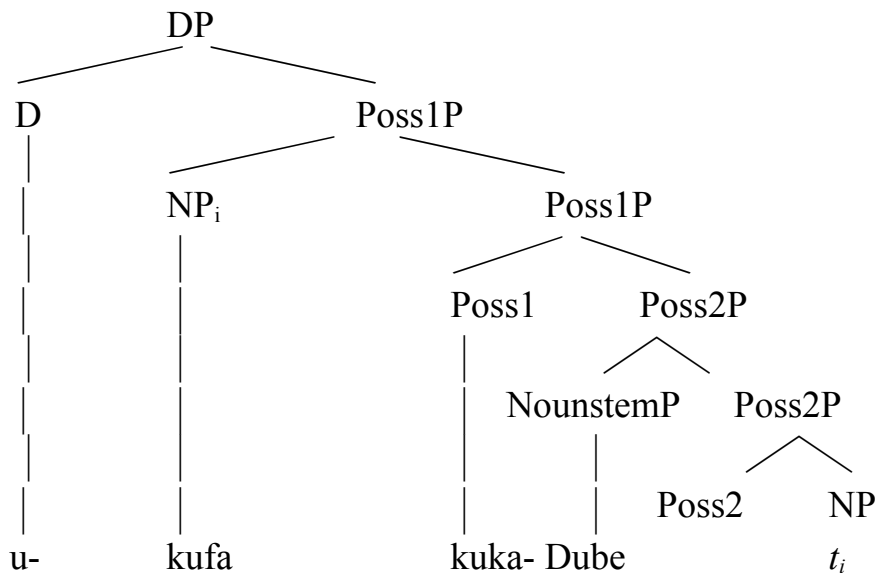
6.4 Relativized Possessives

Independent possessives and prenominal possessives have a relative *a*. It seems likely that this relative *a* is the same as the relative *a* of the relative clauses. That means that there is a complementizer projection in the structure of independent and prenominal possessives. The question is why they have a relative *a* and what the structures of these possessives look like.

6.4.1 Independent Possessives

Independent possessives are possessives where the possessee is omitted. An English parallel is *mine.* Independent possessives in Zulu consist of the relative *a,* the possessive agreement and the possessor. An example is (16).

16.   ezemizi
           e-   za-   i-   mizi
           RELA- POSS10-   AUG- 4.villages
           "the things of the villages"

The question is if the relative *a* is the same as the relative a that occurs in relative clauses. If that is the case the relative *a* is a complementizer, just like it is with relative clauses. Because the relative *a* precedes the rest of the possessive construction it must c-command the rest of the construction. This means that the construction is as (17).

17.

```
                            CP
              _____|_____
           NP_i                              CP
            |                    _____|_____
            |                   C                        Poss1P
            |                   |              _____|_____
            |                   |            NP_i                    Poss1P
            |                   |             |              _____|_____
            |                   |             |           Poss1              Poss2P
            |                   |             |             |              ____|____
            |                   |             |             |            DP     Poss2P
            |                   |             |             |             |     ____|____
            |                   |             |             |             |  Poss2     Np
            e_i                 e-            t_i           za-         imizi          t_i
```

In (17) the possessee is an empty NP. It moves to SpecPoss1P, just like the possessee in a normal possessive would. The relative *a* is merged with the construction and agrees with the possessee. In relative clauses whatever agrees with the relative *a,* moves to the SpecCP. In independent possessives the possessee agrees with the relative *a* so the possessee moves probably to the SpecCP as well.

The question is why the independent possessives have a relative *a*. It could be that a Poss1P does not have the same distribution as a DP. It cannot be an argument on its own for example. CP's can be arguments and can be in the same position as DP's. A complementizer like the relative *a* can be a good substitution for a determiner if a determiner is not available. Apparently the augment is not available as a determiner for independent possessives. This may be because an augment must attach to a noun. If an augment would merge to the Poss1P instead of a relative *a* it would be followed by the possessive agreement. There would be no noun following the augment to attach to. So the relative *a* merges with the Poss1P and attaches to the possessive agreement.

6.4.2. Prenominal Possessors

If a possessor is emphasized it does not follow the possessee but precedes it. If that happens the possessor is preceded by the relative *a*, just like independent possessives. (18) is a good example of a prenominal possessor.

18. e-   ya-   mi   i-   ngane
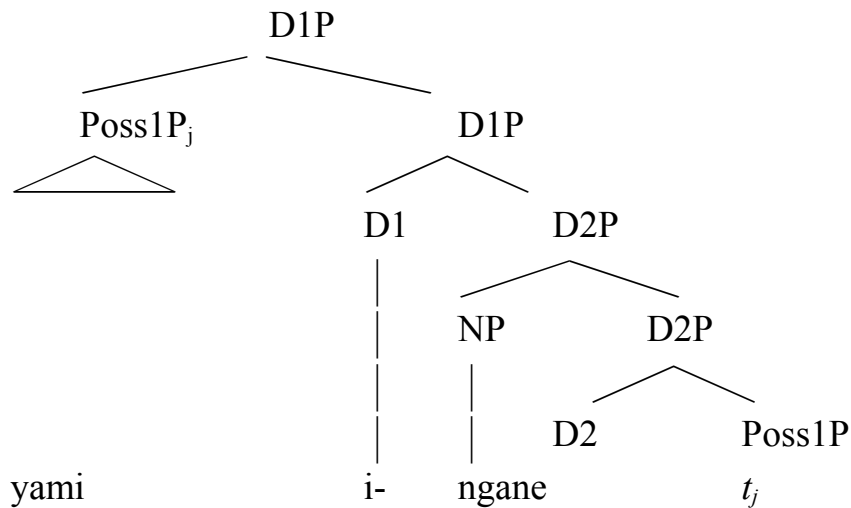   RELA-   POSS9-   PN1S   AUG-   child
     "MY child"

The relative *a* is not the only thing that needs to be explained about prenominal possessives. The possessor is preceded by the possessive agreement, as if they both are preposed. However, the possessive agreement is in my analysis Poss1the possessee , and the Poss1P also includes the possessee. Before the possessor and the possessive agreement are preposed, the possessee has to move out of the Poss1P as well. This is exactly what I am going to propose.

The prenominal possessive starts as a normal possessive construction. The only difference is that the determiner is empty. Then the possessee moves to SpecDP.
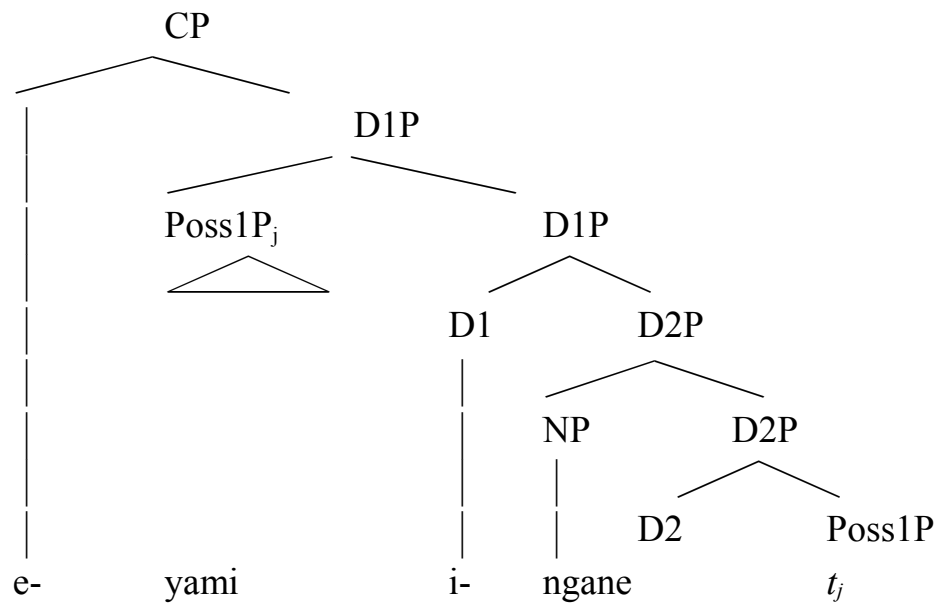
19.
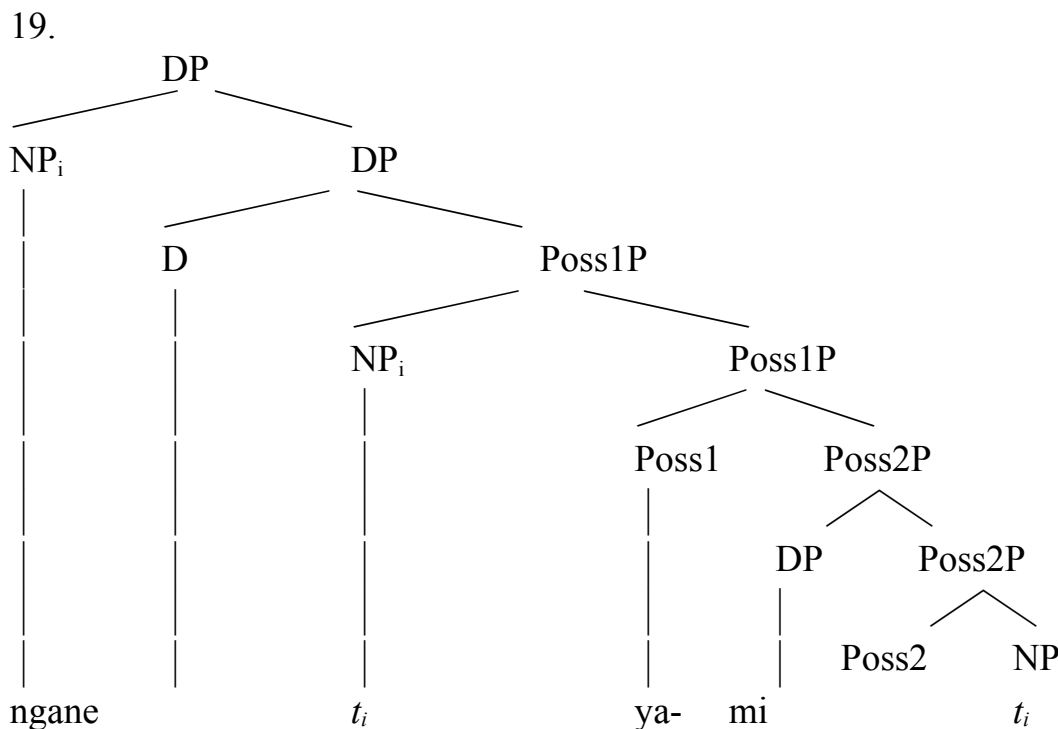
Then another DP is merged with the construction. This D is the augment. The Poss1P which now has no possessee is moved to the specifier of the augment.

20.

D1P
├─ Poss1P_j
│   (△)
└─ D1P
    ├─ D1
    └─ D2P
        ├─ NP
        └─ D2P
            ├─ D2
            └─ Poss1P
                  t_j

yami   i-   ngane   t_j

The last step is that the relative *a* is merged with the construction.

21.

CP
├─ e-
└─ D1P
    ├─ Poss1P_j
    │   (△)
    └─ D1P
        ├─ D1
        └─ D2P
            ├─ NP
            └─ D2P
                ├─ D2
                └─ Poss1P
                      t_j

e-   yami   i-   ngane   t_j

It is not clear why the prenominal possessive is preceded by a relative *a*.
Possessives are not the only noun modifiers that can be preposed, however.
Adjectives and relatives can be preposed as well, though it is rarer. An example
would be (22).

22. o- m- khulu u- muthi
    RELA- PAA- big AUG- tree
    "a big tree"

As (22) shows, if they are preposed they are also preceded by a relative *a*. Adjectives and relatives are preceded by a relative *a* as well if they are not preposed, though. It could be that this obscures the fact that all preposed nominal modifiers must be preceded by a relative *a*. If that is the case the reason why preposed possessives have a relative *a* is the same as the reason why preposed adjectives and relatives have a relative *a*. It is unclear what that reason is.

6.5 Conclusion

It is possible to analyze the Zulu possessives in a way that is consistent with Kayne's theory of antisymmetry. It is also possible to explain the distribution of the -*ka*- possessive. Independent possessives can also be analyzed and it can be explained why they always have a relative *a*. The preposed possessive can be analyzed in a way consistent with Kayne. Why preposed relatives are preceded by a relative *a* cannot be explained.

7. Locatives

7.1 Data

Most if not all languages have ways to turn DP's into adverbial phrases. English uses prepositions as in *with a gun.* Zulu also uses prepositions as in (1). In (1) a preposition *na* is prefixed to the DP.

1. a.   nommese
       na-   u-   mmese
       with- AUG- 1.knife
       "with a knife"

   b.   ngenyanga
       nga- i-   nyanga
       per-   AUG- month
       "per month"

This is not the only way to form adverbial phrases in Zulu. Another way is by forming something that is called locatives in Zulu grammars. A locative is an adverbial phrase formed from a DP or a noun with a locative meaning. An example is (2).

2.   emfuleni
      e-   mfula-   ini
      LOC- river-   LOC

The exact meaning of such locatives depends on the context. *Emfuleni* can mean "in the river", "at the river" "from the river" or "to the river".

A locative can be formed in several ways. I will explain these below. Sometimes a thing that looks like a preposition, *ku-* is used. Sometimes Zulu employs affixes that behave very unlike prepositions. All these ways are in complementary distribution

7.1.1 e/o-ini

One way to form a locative is to prefix a noun with *e-* or *o-* depending on the noun class and the noun class prefix and suffix the noun with *-ini*. This is the usual way for nouns that don't belong to noun class 1, 1a, 2, 2a or 3a. The locative prefix is *e* for most noun classes as in (3a), but for noun class 11 it is *o* as in (3b). However, in some

formal registers of the language the old noun prefix -lu- is used for noun class 11. If a noun of noun class 11 has this noun prefix -lu-, the locative prefix is e- as in (3c). For nouns of noun class 14 the form of the noun class is dependent on the shape of the noun prefix, if the noun prefix is bu- then the locative prefix is e as in (3d), if the noun prefix is -tsh-, then the locative prefix can be either e or o as in (3e).

3   a.   etafuleni
         e-   tafula-   ini
         LOC- 5.table- LOC
         "on the table"

    b.   odongeni
         o-   donga-   ini
         LOC- 11.wall- LOC
         "on the wall"

    c.   eludongeni
         e-   ludonga- ini
         LOC- 11.wall- LOC
         "on the wall"

    d.   ebuntwini
         e-   buntu-   ini
         LOC- 14.humanity- LOC
         "out of humanity"

    e.   otshwaleni
         o-   tshwala- ini
         LOC- 14.beer- LOC
         etshaleni
         e-   tshwala- ini
         LOC- 14.beer- LOC
         "in the beer"

The locative suffix -ini fuses with the last vowel of the noun stem. If the noun stem ends in an a or e, the resulting suffix is -eni, if the noun stem ends in an i the suffix remains -ini. If the noun stem ends in an o the resulting suffix is -weni and if the noun stem ends in an u the suffix is -wini.

4.   a.   endleleni
         e-   ndlela- ini
         LOC- 9.path-   LOC
         "on the path"

b. embuzini
   e-   mbuzi-   ini
   LOC-   9.goat-   LOC
   "on the goat"

c. esihlalweni
   e-   sihlalo-   ini
   LOC-   7.chair-   LOC
   "in the chair"

d. ezulwini
   e-   zulu- ini
   LOC-   5.sky-LOC
   "in the sky"

Following a bilabial the *w* of the suffix -*weni* and -*wini* the *w* disappears and the bilabial changes into a palatal. (5) gives some examples.

5. a. empushini
      e-   mpuphu-   ini
      LOC-   9.meal-   LOC
      "in the flour"

   b. entanyeni
      e-   ntamo-   ini
      LOC-   9.neck-   LOC
      "in the neck"

7.1.2 e/o

The locatives of some nouns lack the locative suffix -*ini* and have only the locative prefix *e/o-* as in (6). These nouns have all more or less a locative or a temporal meaning, but by no means do all nouns that have a locative meaning lack the locative suffix, as (7) shows.

6.   esitolo
               e-   sitolo
               LOC-   7.store
               "in the store"

7.   endaweni
               e-   ndawo-ini
               LOC-   place -LOC
               "at the place"

7.1.3 ku-

Nouns of noun class 1, 1a 2, 2a and 3a do not have the locative prefix *e/o* and the locative suffix *-ini*. Nouns from noun class 1, 1a 2 and 3a loose their augment after *ku-*, nouns of noun class 2a retain their augment.

8.   a.   ku-   muntu
             LOC-   1.person
             "near somebody"

       b.   kobaba
             ku-   o-   baba
             LOC-   AUG- 2a.fathers
             "near the fathers"

Also some nouns in noun class 9 have *ku-* instead of *e/o* and *-ini*. These nouns are all very recent loans. These nouns retain their augment.

9.   kwiconfederations cup
       ku-   i-   confederations cup
       LOC-   AUG- confederations cup
       "at the confederations cup"

If a noun has a prenominal determiner the locative is formed by prefixing *ku-* to that determiner.

10.   ku-   lolu   hlobo
       LOC-   this.11-   summer
       "in this summer"

Independent possessives, relatives and adjectives have a locative that is formed by prefixing *ku-*.

11. kwabakhulu
ku-   a-   ba-   khulu
LOC-   AUG-   2.-   big
"near the big ones"

Pronouns have locatives formed by prefixing *ku-*. But the personal pronouns for 1st person singular and 1st and 2nd person plural form their locatives by prefixing *ki-*.

10. a.   ku-   yo
           LOC-   PN9
           "at it"

     b.   ki-   mi
           LOC-   PN1s
           " near me"

7.2 Explanation

The question is how we can analyze these different locatives and how we can explain the distribution of these different locatives. Let's first take a look to the different locatives, and how they can be analyzed.

7.2.1 e/o–ini

One of our assumptions it that morphology is part of the syntax, and that every morpheme is an independent head. If that is the case then *–ini* must be an independent head as well. *e-/o-* is also a morpheme and must be an independent head. This means that there are two locative heads in this construction. I will explore later what the label is of these locative heads. For now I will call them E/O and INI.

The noun appears to the left of *-ini* so it makes sense to say that there is an NP in the specifier position of INI. There are two questions that need to be answered: is it a DP or just an NP in SpecINI and was it base-generated there or has it raised from a lower position. There is no augment or any other prenominal determiner in this locative construction. That suggests that the constituent in the SpecINI is not a DP. It could be argued that there is an augment but that it is fused with the locative prefix. So in (2) *emfuleni* the *e-* would be a fusion of the locative prefix and the augment. If that is the case then the alternation between *e-* and *o-* might have a phonological explanation. The locative prefix would be the result of a fusion of a locative prefix and the augment. The locative prefix would be the same for all cases, but because the augment is not same for every noun class the resulting surface form of the locative prefix is not the same for every noun class. There are a few reasons for saying that

59

this is probably not the case. For a start, it is hard to imagine what the underlying prefix is if it forms e- when it is fused with u-. There is also the case with the locative prefix for noun class 14 . The locative prefix for noun class 14 is usually *e-*, but it may be *o-* in some other cases as is shown in (3d) and (3e). The augment on the other hand is always a short *u-*. This is unexpected if the locative prefix is the result of a fusion of an underlying locative prefix and the augment.

There is more evidence that what appears in the SpecINI is an NP and not a DP. If a noun is modified with an adjective or possessive the modifier always appears to the right of *-ini.*

11. a.   emotweni   yakho
            e-   moto- ini   ya-   kho
            LOC-   9.car- LOC   POSS9- PN2S
            "in your car"

     b.   *emoto   yakhweni
            e-   moto ya-   kho- ini
            LOC-   9.car POSS9- PN2S- LOC

Example (11) shows that possessives always appear to the right of the locative suffix *-ini*. If a full DP were in SpecINI the possessive would precede *-ini*, since the possessive is part of the DP. (11) Can be easily explained if we assume that the whole possessive construction is base-generated as the complement of INI and only the head NP is moved to SpecINI as in (12).

12.
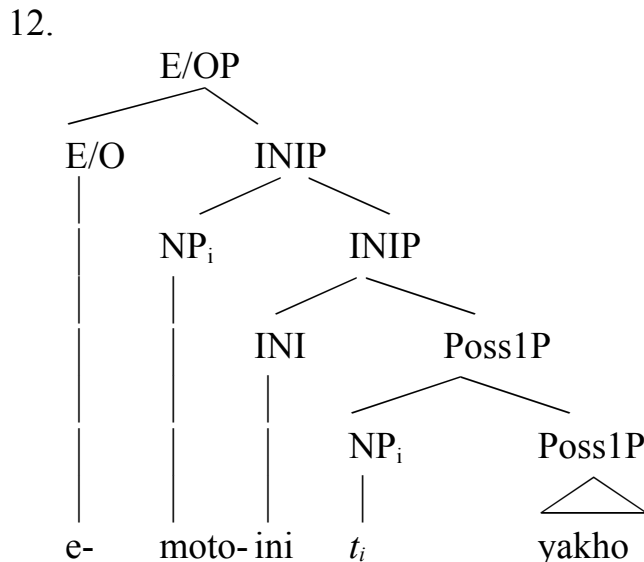
We still need to explain the distribution of *e-* and *o-*. It cannot be a matter of simple noun class agreement. In noun classes 11 and 14 the shape of the locative prefix varies with the noun class prefix. In noun class 11, if the noun prefix *-lu-* is present the locative prefix is *e-*, if it is not present it is *o-,* as in example (13a) and (13b). In

noun class 14, if the noun prefix is *-bu-*, the locative prefix is *e-*, as in example (13c) if the noun prefix is *-tsh-* the locative prefix is either *o-* or *e-* in (13d).

13   a.   odongeni

o-	donga-	ini
LOC-	11.wall-	LOC

"on the wall"

          b.   eludongeni

e-	ludonga-	ini
LOC-	11.wall-	LOC

"on the wall"

          d.   ebuntwini

e-	buntu-	ini
LOC-	14.humanity-	LOC

"out of humanity"

          d.   otshwaleni

o-	tshwala-	ini
LOC-	14.beer-	LOC

etshwaleni

e-	tshwala-	ini
LOC-	14.beer-	LOC

"in the beer"

    The best way to explain this is to assume that the locative prefix agrees with the noun prefix. In most cases, with the noun prefixes of noun class 3, 4, 6, 7, 8, 9, 10, 15, and the noun prefix *lu* of noun class 11, the locative prefix is *e-*. If the noun prefix is *-tshw-* as in noun class 14 the locative prefix is either *e-* or *o-*. If the noun prefix is null the is *e-* if the noun class is 5, and *o-* if the noun class is 11. This means that the phonological shape of the noun prefix is not sufficient to determine the locative prefix, and that the noun class plays a role as well. There are two ways to implement this. We could assume that the locative prefix agrees with both the noun prefix and the noun class, or we could say that the noun prefix has noun class features. The latter option means that the null noun prefixes of noun class 5 and 11 differ despite both being null. One has noun class 5 features and the other has noun class 11 features. The locative prefix *e-* agrees with the null prefix with noun class 5 features and the locative prefix *o-* agrees with the null prefix with the noun class 11 features.

7.2.2 e/o-

Not every locative that has *e/o-* as a locative prefix has *-ini* as a locative suffix. Some nouns lack *-ini.* All of these nouns have some sort of locative meaning. The e/o- precedes the noun so the noun must be in the complement of the E/O projection. Just like the variant with *-ini* there is no augment or any other determiner. The phonological objections to the idea that the locative prefix is a fusion of an underlying prefix with an augment that I have put forward above are also valid for the locatives that lack *-ini.* This means there is no determiner. There is no reason to make the structure of this kind of locative any more complicated than (14)

14.

```
          E/OP
        /      \
    E/O          NP
    e-           sitolo
```
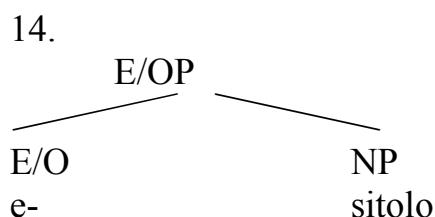
The question is why other locatives don't have such simple structures. Why is there the need for an extra INI layer? The fact that all nouns that don't have -ini have a locative meaning might help us. Suppose that these nouns have a [+locative] feature. Suppose also that the E/O needs a complement that has this feature. Nouns that have the [+locative] feature can be direct complements of E/O and their locatives have the structure of (13). Nouns that do not have that feature need an extra functional projection that has that feature. INI might be that functional projection.

Now we will return to the exact labels of E/O and INI. Since locatives have more or less the same distribution as PP's I will assume that locatives are PP's. Since E/O is the head of the locative construction E/O has the label P. The label of INI is less clear. Koopman (2000), Den Dikken (2006) and Svenonius(2004) have proposed that what is traditionally considered a PP can consist of multiple projections. In Zulu E/O can be one projection and INI another. An example is Koopman's structure (15), (as given by Den Dikken)

15.

[$_{CP(Place)}$ Spec$_{[+R]}$ [C(Place) [$_{DegP(Place)}$ MOD [Deg(Place) [$_{PlaceP}$ Spec$_{[+R]}$ [Place [$_{PP}$ P$_{Loc}$ DP]]]]]]]

However, the projections proposed by Den Dikken and Svenonius have a clear semantic meaning, something that INI and E/O are lacking. It could be, however, that E/O is the same as Koopman's C(Place), or Deg(Place).

7.2.3 ku-

Let's now take a look at the locatives that have *ku-* as a locative prefix. There are five different kinds of these locatives. One type of locative consists of *ku-* followed by a noun without its augment as in(16a), a second type consists of *ku-* followed by a noun with its augment (16b), a third type consists of *ku-* an a noun with a prenominal determiner (16c), the fourth type is *ku-* followed by a pronoun (16d), and the last type is *ku-* followed by an independent adjective, relative or possessive (16e).

16.   a.   ku-   bantu
              LOC- 2.person
              "near people"

       b.   kobaba
              ku-   o-   baba
              LOC- AUG- 2a.fathers
              "near the fathers"

       c.   ku-   lolu   hlobo
              LOC- this.11-   summer
              "in this summer"

       d.   ku-   yo
              LOC- 9.PRON
              "at it"

       e.   kwabakhulu
              ku-   a-   ba-   khulu
              LOC- AUG- 2.-   big
              "near the big ones"

For all these cases I will explain why they use the *ku-* prefix as a means to form a locative.

First I will tackle the nouns without an augment. At least nouns of noun class 2 lack their augment when they are preceded by the locative. Whether nouns from noun class 1 or 1/3a have their augment is less clear, since their augment is *u-* and because the result of the fusion of *ku-* and the *-u-* would be *ku-* the augment is not easily detectable. The only way to detect the augment is to look at the tonal properties of a locative such as *kumuntu*, but because I do not know the tonal properties of *ku-*and I do not have access to a native speaker, I don't know if the augment is present or not in locatives formed from nouns of noun class 1 and 1/3a.

Locatives formed from nouns of noun class 2 (and possibly of noun class 1 and 1/3a) have the following structure.
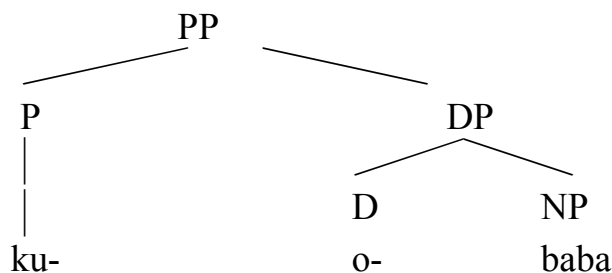
17.

```
              PP
        _____/_____
       /              \
      P                NP
     ku-              bantu
```
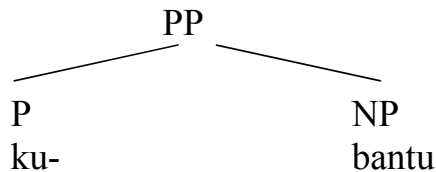
Because these locatives appear in the same syntactic and semantic environments as the locatives with *e/o-*, it is natural to assume that *ku-* is of the same category as *e/o-*, that is, a preposition or an extended projection of a preposition.
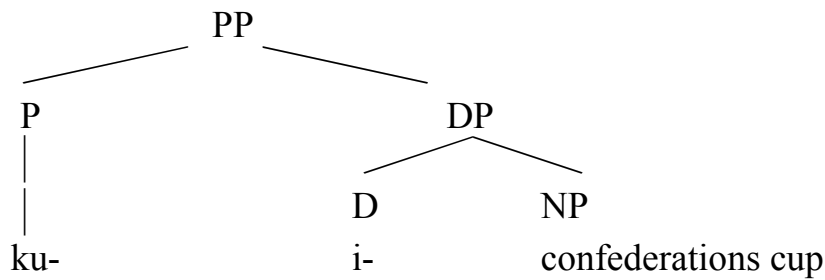
Locatives of noun class 2a (and possibly locatives formed from noun class 1 and 1/3a) as well as recent loans retain their augment after the locative prefix *ku-*. The question is why that is. We have to assume that there are two kinds of *ku-*. One kind agrees with noun class 2 and possibly with noun class 1 and 1/3a. This *ku-* can have an NP as a complement. The other *ku-* does not agree with any particular noun class and has a DP as a complement. Noun class 2a nouns cannot form an *e/o- (-ini)* locative because neither *e-* nor *o-* agrees with the null prefix of noun class 2a. Neither can they form their locative by prefixing *ku-* directly to their noun stems without the augment, because the *ku-* that can have a bare NP as a complement does not agree with noun class 2a. The only way to form a locative for noun class 2a is by prefixing *ku-* to the augmented noun. The structure of *kobantu* is given in (18)

18.

```
              PP
        _____/_____
       /                \
      P                   DP
      |              ____/\____
      |             /          \
      |            D            NP
     ku-          o-           baba
```
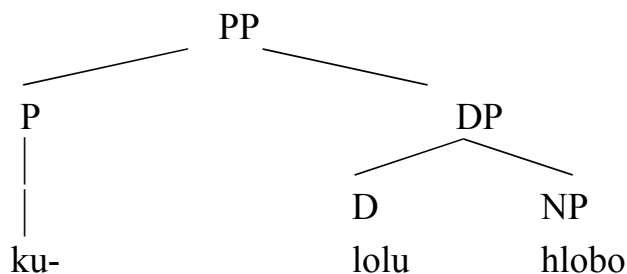
Recent loans that don't have a locative meaning cannot form their locative by prefixing *e/o-* because they lack the feature [+locative]. They cannot form their locative by prefixing *e/o-* and suffixing *-ini* because they have not been adapted to the Zulu phonology. Remember that the suffix *-ini* triggers some very complicated phonological changes and Zulu speakers do not know how to apply those changes to words not fully integrated in the Zulu phonology. Recent loans cannot directly prefix their nouns with *ku-* because the *ku-* that can have an NP as a complement does not agree with the noun class of those nouns. So the only option for recent loans is to prefix *ku-* to the augmented noun. A structure for these locatives is given in (19).

19.

```
              PP
           /      \
         /          \
       P              DP
       |           /      \
       |         /          \
       |        D            NP
      ku-       i-        confederations cup
```

Nouns that have a prenominal determiner and pronouns are DP's. That means that they cannot form their locatives an *e/o- -ini* locative because *-ini* must have a bare NP as its specifier. Neither can they form a locative by prefixing *e/o-* because *e/o-* must have an NP as a complement, if it does not have INIP as its complement. So the only way to form a locative is by prefixing the DP with *ku-* as is shown in (20).

20.

```
              PP
           /      \
         /          \
       P              DP
       |           /      \
       |         /          \
       |        D            NP
      ku-      lolu         hlobo
```

Personal pronouns of 1st person singular and plural and 2nd person plural have *ki-* instead of *ku-*. I assume that that is a form of vowel agreement in Zulu. These pronouns are the only pronouns to have an *i*. So this is the only case where the locative *ku-* is directly followed by a monosyllabic stem that has an *i* in it. A structure of this kind of locatives is given in (21)

21.

```
            PP
          /    \
        /        \
       P          DP
      ki-         mi
```
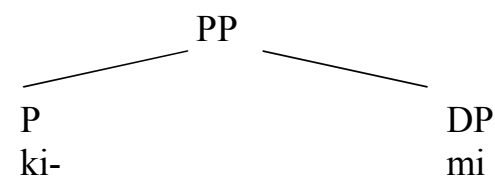
Finally, independent adjectives, possessives and relatives cannot form their locatives in any way involving the *e/o-* prefix because they have no noun prefix where the *e/o-* prefix can agree with. This means that they have to form their locatives with the prefix *ku-*. An example of such a structure is given in (22).

22.

```
                  PP
        _____/_____
       P                        CP
      ku-                      abadala
```
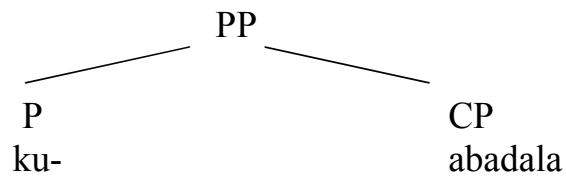
7.3 Conclusion

We have seen that it is possible to explain the distribution of the different locatives using structures that obey Kayne's antisymmetry. In order to do that we had to assume that *e/o-* agrees with the noun prefix, and it needs a complement that has the feature [+locative]. If an NP does not have a noun prefix that *e/o-* can agree with, or if the feature [+locative] is lacking, an alternative strategy using *ku-* is used.

8. Conclusion

I have shown that it is possible to analyze the Zulu DP following Kayne's antisymmetry and following the idea that morphemes and not words are the terminals in a tree-structure. In order to do that we have to give up the idea that words are heads. We saw in chapter 2 that we had to assume that nouns in Zulu are phrases rather than heads. I have shown in chapter 3 that we can explain the distribution of the augment in Zulu if we assume that it is a head of its own, a determiner. This is confirmed in the absence of the augment in nouns modified by a pre-nominal demonstrative, as I have shown in chapter 4. In chapter 5 we saw that the relative *a* is a complementizer. The possessive agreement is a functional head as well, as I have explained in chapter 6. In chapter 7 I showed that the locative affixes head a functional category as well. All these structures involve words that are not heads, not even complex heads. In some cases the words do not even correspond to a syntactic constituent.

This all points to the conclusion that in Zulu, word is not a syntactic concept, but rather a phonological concept.

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Appendix; Agreement affixes in Zulu

	Augment + noun class prefix	normal subject agreement	Subjunctive subject agreement (class1=*a*)	Participial Subject agreement (=subj. agreement but with *a=>e*	relative subject agreement	Relative indirect subject agreement	Relative *a-*	recent past agreement	recent past relative agreement (= relative a- + recent past agreement)
1st person sg		ngi-	ngi-	ngi-	engi-	engi-	e-	bengi-	e-bengi
1st person pl		si-	si-	si-	esi-	esi-	e-	besi-	e-besi
2nd person sg		u-	u-	u-	o-	o-	o-	ubu-	o-bu
2nd person pl		ni-	ni-	ni-	eni-	eni-	e-	beni-	e-beni
Class 1	u-m(u)-u- (class 1a)	u-	a-	e-	o-	a-	o-	ube-	o-be
Class 2	a-ba-o:-(Class 2a)	ba-	ba-	be-	aba-	aba-	a-	bebe-	e-bebe
Class 3	u-m(u)-u- (class3a)	u-	u-	u-	o-	o-	o-	ubu-	o-bu
Class 4	i-mi-	i-	i-	i-	e-	e-	e-	ibi-	e-bi
Class 5	i:- (older: i-li-)	li-	li-	li-	eli-	eli-	e-	beli-	e-beli
Class 6	a-ma-	a-	a-	e-	a-	a-	a-	abe-	a-be
Class 7	i-si-	si-	si-	si-	esi-	esi-	e-	besi-	e-besi
Class 8	i-zi	zi-	zi-	zi-	ezi-	ezi-	e-	bezi-	e-bezi
Class 9	i-(N)-	i-	i-	i-	e-	e-	e-	ibi-	e-bi
Class 10	i-zi(N)-	zi-	zi-	zi-	ezi-	ezi-	e-	bezi-	e-bezi
Class 11	u:- (older: u-lu-)	lu-	lu-	lu-	olu-	olu-	o-	belu-	o-belu-
Class 14	u-bu-	bu-	bu-	bu-	obu-	obu-	o-	bebu-	o-bebu-
Class 15	u-ku-	ku-	ku-	ku-	oku-	oku-	o-	beku-	o-beku-
Class 17		ku-	ku-	ku-	oku-	oku-	o-	beku-	o-beku-

	Augment + noun class prefix	Relative *a-*	Predicative adjective agreement	Adjective agreement (=relative *a-*+ predicative adjective agreement	Possessive Agreement (subject agreement +a)	possessive agreement for 1a nouns	Independent possessive agreement (=relative *a-* +possesive agreement)	Independent possessive agreement for 1a nouns (=relative *a-* + possesive agreement for 1a nouns)
1st person sg		e-	ngi-m(u)-					
1st person pl		e-	si-ba-					
2nd person sg		o-	u-m(u)-					
2nd person pl		e-	ni-ba-					
Class 1	u-m(u)-u- (class 1a)	o-	m(u)-	o-m(u)-	wa-	ka-	o-wa-	o-ka
Class 2	a-ba-o:-(Class 2a)	a-	ba-	a-ba-	ba-	baka-	a-ba-	a-baka
Class 3	u-m(u)-u-(class 3a)	o-	m(u)-	o-m(u)-	wa-	ka-	o-wa-	o-ka
Class 4	i-mi-	e-	mi-	e-mi-	ya-	ka-	e-ya-	e-ka
Class 5	i:- (older: i-li-)	e-	li-	e-li-	la-	lika-	e-la-	e-lika
Class 6	a-ma-	a-	ma-	a-ma	a-	ka-	a-wa-	a-ka
Class 7	i-si-	e-	si-	e-si-	sa-	sika-	e-sa-	e-sika
Class 8	i-zi	e-	zin-	e-zin-	za-	zika-	e-za-	e-zika
Class 9	i-(N)-	e-	in-	en-	ya-	ka-	e-ya-	e-ka
Class 10	i-zi(N)-	e-	zin-	e-zin-	za-	zika-	e-za-	e-zika
Class 11	u:- (older: u-lu-)	o-	lu-	o-lu-	lwa-	luka-	o-lwa-	o-luka
Class 14	u-bu-	o-	bu-	o-bu-	ba-	buka-	o-ba-	o-buka
Class 15	u-ku-	o-	ku-	o-ku-	kwa-	kuka-	o-kwa-	o-kuka
Class 17		o-	ku-	o-ku-	kwa-	kuka-	o-kwa-	o-kuka