THE TIGRINYA *ZI-* PREFIX: A MORPHOLOGICAL REFLEX OF SUCCESSIVE-CYCLIC MOVEMENT[1]

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Abstract

Head-final languages are not expected to display verbal prefixes. However, in Tigrinya - a consistent SOV Ethio-Semitic language - the "relative marker" is a prefix that precedes the subordinate verb. Taking an antisymmetric and LCA approach to head-finality, I challenge the idea that what have been traditionally called prefixes in head-final languages have an intrinsic "prefixal morphological property". Instead, I argue that prefixes are elements that are subject to specific syntactic constraints that result in them appearing in front of verbs. I therefore propose a new syntactic analysis of relative clauses in Tigrinya that explains not only the appearance of the prefix *zi-* on the left of the subordinate verb, but also its occurrence on both the verb and the auxiliary in periphrastic verbal forms expressing progressive aspect: I suggest that *zi-* is a marker of successive-cyclic movement.

Keywords: Tigrinya, Ethio-Semitic, relative clauses, successive-cyclic movement, verbal prefixes

1. Setting the Scene

From the theoretical standpoint of a syntactician, looking at the morphology of a language inevitably entails taking into consideration the structure and word order of that language. Consequently, when dealing with the prefix-suffix issue in Afroasiatic - namely the investigation of the phonological, morphological, and syntactic properties of verbal agreement affixes - the syntactician cannot stop herself from going beyond word formation and investigating the architecture of sentences. An Afroasiatic language whose morpho-syntax has not received proper attention up to the present day is Tigrinya, spoken in Eritrea and northern Ethiopia. Tigrinya has been described as a "lesser studied Semitic language" and the family to which it belongs, Ethio-Semitic, has also been "largely neglected in both descriptive and theoretical studies" (Gebregziabher 2013: 16).

[1] I would like to thank two anonymous reviewers for their very helpful comments and suggestions. I am extremely grateful to my Ph.D. supervisor, Ur Shlonsky, for our fruitful discussions about Tigrinya and to my consultants, Tekleweini W., Tewelde Z., Solomon H. and Hagos A., for their precious help. I would also like to give special thanks to Ruth Kramer for her valuable feedback.

If not specified otherwise, the data presented in this paper was gathered in fieldwork with four Eritrean native speakers of Tigrinya. All examples were checked with two consultants. Glosses of the examples follow the *Leipzig Glossing Rules*, except for the φ-features in the PC verbal conjugation which are hyphenated in front of verbs, as demanded by the reviewers.

Phonology being outside the scope of the present study, I acknowledge and apologize for the possibility of mistakes in the transliterations of vowels.

Tigrinya has standard Semitic morphology: it possesses a tri-consonantal root system in which roots constitute the "semantic core" of the words (Kifle 2011: 16) and its verb system, schematized in Table 1 below, presents conjugations found across Semitic languages.

	gɛbɛrɛ (*do*)[2]		
	Prefixal Conjugation	**Suffixal Conjugation**	New Suffixal Conjugation[3]
1s	**ji**-gɛbb**i**r[4]	gɛbɛr-**ku**	gɛir-**ɛ**
2ms	**ti**-gɛbb**i**r	gɛbɛr-**ka**	gɛir-**ka**
2fs	**ti**-gɛbr-**i**	gɛbɛr-**ki**	gɛir-**ki**
3ms	**ji**-gɛbb**i**r	gɛbɛr-**ɛ**	gɛir-**u**
3fs	**ti**-gɛbb**i**r	gɛbɛr-**ɛt**	gɛir-**a**
1p	**ni**-gɛbb**i**r	gɛbɛr-**na**	gɛir-**na**
2mp	**ti**-gɛbr-**u**	gɛbɛr-**kum**	gɛir-**kum**
2fp	**ti**-gɛbr-**a**	gɛbɛr-**kin**	gɛir-**kin**
3mp	**ji**-gɛbr-**u**	gɛbɛr-**u**	gɛir-**om**
3fp	**ji**-gɛbr-**a**	gɛbɛr-**a**	gɛir-**in**

Table 1: The Verb System in Tigrinya

As shown in the table above, the verb system of Tigrinya comprises three conjugations: the Semitic Prefixal and Suffixal Conjugations (Hetzron 1997) serve to express imperfective (i.e., non-past) and perfective tense (i.e., past) respectively; the New Suffixal Conjugation, introduced in the language through contact with Cushitic languages (Appleyard 2015) is currently used in the spoken language and has replaced the Suffixal Conjugation in affirmative declarative clauses to express perfective actions (Bulakh 2019: 186)[5]. However, this conjugation seems to not be available when prefixes - such as the ones that will be discussed in the following sections and the circumfixal verbal negation *ʔay-…-n* - occur in a sentence; in this case, the Suffixal Conjugation is used instead[6]. The conjugations will be glossed as PC (for Prefixal Conjugation), SC (for Suffixal Conjugation) and NSC (for New Suffixal Conjugation) in the examples.

Many of the prefixes of Tigrinya are cognate with Standard Semitic prefixes. As illustrated in (1a), the prefix *b(ɨ)-* (like *bi-* in Standard Arabic) is equivalent to the *by-phrase* in English passive constructions and the prefix *n(ɨ)-*, found in (1b), optionally marks the direct object. Alongside prefixes, Tigrinya also has prepositions. Example (2) shows the use of the prepositions *mɨs* 'with', in (2a), *nab* 'to', in (2b), and *kab* 'from', in (2c). The prefixes and the prepositions are shown in boldface.

[2] The choice of transliterating the first order vowel in Tigrinya with [ɛ] instead of [ä] or [æ] (as also found in the literature) is personal and was made after an exchange on the subject with Sharon Rose.

[3] Term taken from Bulakh (2019); traditionally known as *gerund(ive)* or *converb*.

[4] Notice the syncretic form *ji-gɛbbir* in (Eritrean) Tigrinya of the first person singular and third masculine singular.

[5] Notice that present statives in Tigrinya are conjugated following the NSC. The copula *ʔiju* (used in the context of individual-level predicates) also follows the NSC in present tense; whereas the auxiliary *ʔallo* (used to mark progressive aspect and used as the copula in the context of stage-level predicates) follows the SC in present tense. *ʔiju* and *ʔallo* share a single past form *nɛbɛrɛ* as hypothesized by Ferguson (1969: 110).

[6] Cf. section 3.2 for a possible explanation of this phenomenon with regards to the prefix *zɨ-*.

(1) a. *ʔɨta* *finistra*[7] ***b-ɨtom*** *sɨrɛʁʕti* *tɨ-sɛyra*
DEM[8].3fs window.fs PREP-DEM.3mp thief.mp PASS-break.NSC.3fs
'The window was broken by the thieves.'

b. *Tɛsfay* ***(n)-ɨti*** *sɛbʔay* *qɛtil-wo*
Tesfay.ms (ACC)-DEM.ms man.ms kill.NSC.3ms-OM[9].3ms
'Tesfay killed the man.'

(2) a. *ʔanɛ*[10] ***mɨs*** *dəm-ay* *jɨ-ʦ'awɛt* *ʔallɛxu*
I PREP cat.ms-POSS.1s 1s-play.PC AUX.SC.1s
'I am playing with my cat.'

b. *ʔanɛ* ***nab*** *bɛt tɨmɨhrti* *jɨ-xɛjɨd*
I PREP school 1s-go.PC
'I go to school.'

c. *ʔɨti* *wɛdi* ***kab*** *ʔertra* *mɛʦ'iu*
DEM.ms boy.ms PREP Eritrea come.NSC.3ms
'The boy comes from Eritrea.'

Verbal prefixes are used in Tigrinya to introduce subordinate clauses: in example (3), *kɨ-* appears on the embedded verb preceding the copula serving as the modal *have to*; example (4) illustrates that the prefix *kɨmzɨ-* is found when the matrix verb of a sentence is one of perception (such as *see, hear* or *feel*) or a verb of thoughts and cognition such as *think* and *forget*; finally, example (5) shows the use of the prefix *zɨ-* to introduce a relative clause[11].

(3) *Sɛgɛn* *ʕɛyo gɛza* ***kɨ-tɨ-sɛrəħ*** *nɛyr-wa*
Segen.fs homework.ms KI-3fs-work.PC COP.NSC.3fs-OM.3fs
'Segen had to do her homework.'

(4) *ʔanɛ* *Tɛsfay* *tmali* ***kɨmzɨ-mɛtsʼɛ*** *rɛsiɛ-yo*
I Tesfay.ms yesterday KIMZI-come.SC.3ms forget.NSC.1s-OM.3ms
'I forgot that Tesfay came yesterday.'

[7] Notice that in Tigrinya nouns for inanimate objects (either material or abstract) do not have a stable grammatical gender: in fact, gender assignment appears to be flexible and even arbitrary (Mason 1996, Kogan 1997, Kifle 2011). However, gender agreement is regular.

[8] Because Tigrinya uses distal demonstratives to serve the function of definite articles (Kogan 1997, Bulakh 2019), the latter are glossed as DEM.

[9] Object Marker: a case/agreement marker (according to Gebregziabher 2021) or a doubled clitic; discussion left to further research. Cf. Kramer (2014) for a similar investigation in Amharic.

[10] Tigrinya is a pro-drop language. Personal pronouns are included in the examples to indicate the position of the subject.

[11] The prefix *kɨmzɨ-* is illustrated in the example as a single word. This is also done by my informants in writing and found in grammars (Leslau 1941, Kogan 1997) and articles (Overfelt 2009, Spadine 2020). However, it is possible that *kɨm* is a free morpheme (a real complementizer) that requires *zɨ-* to be prefixed to the verb as suggested by Mason (1996) and Bulakh (2019). Note that nothing can intervene between *kɨm* and *zɨ-*. This issue will be left to further research.

(5) *ʔɨta* *nsxa* ***zɨ-habka-ni*** *mɛʦ'ħaf* *ʔatfiʔɨ-ja*
DEM.3fs you.ms ZɪH-give.SC.2ms-POSS.1s book.fs lose.NSC.1s-OM.2fs
'I lost the book that you gave me.'

The examples above indicate that Tigrinya employs prefixes and prepositions despite having a head-final clausal system and a SOV word order. This fact calls in question the fourth Universal put forth by Greenberg which states that languages with normal SOV order are postpositional (Greenberg 1963). Putting aside prepositions and the question of the accuracy of Greenberg's postulate, another question that arises is therefore: how is it possible that a head-final language such as Tigrinya presents a substantial use of prefixes? Or, in simpler terms, how does the prefixal system of Tigrinya work?

My assumption is that head-finality is derived from a head-initial structure in which elements have undergone leftward movement from their argument positions to higher functional projections, as proposed by Kayne (1994). Therefore, by taking an antisymmetric and LCA approach to head-finality, I would like to challenge the idea that what have been traditionally called *prefixes* in head-final languages have an intrinsic 'prefixal morphological property'. Instead, I propose that prefixes are elements that are subject to specific syntactic constraints that result in them appearing in front of verbs (see also Shlonsky this issue for a similar approach). In this paper, I will investigate the nature of the syntactic mechanisms that trigger the movement of constituents resulting in prefixes occurring on the left of verbs and I begin by analyzing the prefix mentioned in example (5): *zɨ-*.

The importance of providing an analysis and explaining the characteristics and nature of this element, does not only lie in the fact that it is a prefix in a head-final language; additionally, it can shed light on its very peculiar behavior. Indeed, the prefix *zɨ-* appears attached to the subordinate synthetic verbal form in relative clauses, as in (6a); but, when the verbal form is periphrastic, and thus the verb occurs along with an auxiliary, *zɨ-* is prefixed to both, as shown in (6b).

(6) a. *ʔɨtom* *ʔanɛ* ***z-ɛ-nbəb-om*** *mɛʦ'ħafti* *ʔazɛnagaʕi* *ʔɨjom*
DEM.mp I ZɪH-1s-read.PC-OM.3mp book.mp amusing.ms COP.NSC.3mp
'The books that I read are amusing.' (Lit.: 'The I that-read-them books amusing are.')

b. *ʔɨti* *ʔanɛ* ***z-ɛ-nbəb-o*** ***z-ɛllɛxu*** *mɛʦ'ħaf* *ʔazɛnagaʕi* *ʔɨju*
DEM.ms I ZɪH-1s-read.PC-OM.3ms ZɪH-AUX.SC.1s book.ms amusing-ms COP.NSC.3ms
'The book that I am reading is amusing.' (Lit.: 'The I that-reading-it that-am book amusing is.')

This phenomenon was first noted by Palmer (1962) and subsequently by Bulakh (2019), but has never received proper attention and, more importantly, has never been analyzed syntactically.[12]

In the following sections, I will therefore suggest a new analysis of (restrictive) relative clauses in Tigrinya and I will argue that the prefix *zɨ-* is a morphological reflex of successive-cyclic movement of the relativized head. This investigation is preliminary, and many questions

[12] A reviewer pointed out that a similar phenomenon is investigated in Baker & Kramer (2014). In this study, it is observed that in Amharic (a sister language of Tigrinya), prepositions can appear on two adjectives that modify the same noun head (Baker & Kramer 2014: 146, (23)). The authors claim that these elements behave like case markers in Amharic and therefore "participate in DP-internal doubling/concord" (146). Because Tigrinya does not have preposition repetition in DPs like Amharic and because I assume that morpho-phonological operations do not occur post-syntactically (as, in contrast, Baker & Kramer do), I must deviate from the writers' conclusion.

remain open; nevertheless, it represents a first attempt at a syntactic analysis of the *zɨ-* prefix taking into account the doubling pattern.

This paper will include the following: in section 2, I will provide an analysis for declarative clauses in Tigrinya that will be used as a basis for deriving restrictive relative clauses with a head-initial structure. Section 3 will, firstly, present the data gathered on relative clauses; secondly, it will provide some morpho-phonological details about the realization of the *zɨ-* prefix; and thirdly, it will focus on the analysis proposed to explain the nature of this element as a prefix. Section 4 will discuss some additional data and ideas for further research before the conclusion.

2. Declarative Clauses in Tigrinya

Before turning to the analysis of relative clauses in Tigrinya and to the investigation of the *zɨ-* prefix, I provide a derivation of declarative clauses in Tigrinya that presents a SOV and SOVAux order of constituents, taking an LCA approach to head-finality.

In declarative clauses in Tigrinya, habitual present tense is expressed with a synthetic verb form conjugated in PC, as in (7). Notice that Tigrinya is a pro-drop language, hence the first-person subject pronoun *ʔanɛ* is optional. The copula, which can be omitted, has the function of intensifying the assertiveness of the speaker, similar to the *ʔinna* particle in Classical Arabic[13]. The order of the main constituents is SOV.

(7) *ʔanɛ kullu gɨziɛ ʔɨndʒɛra jɨ-bɛlʕ (ʔɨjɛ)*
1s all.ms time.ms injera 1s-eat.PC COP.NSC.1s
'I always eat *injera*.'

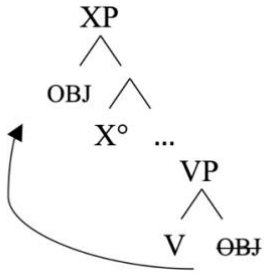
In contrast, present progressive is necessarily expressed with a periphrastic verb form: the verb conjugated in PC occurs along with the auxiliary *ʔallɛxu* (the inflected form of the auxiliary *ʔallo*), which marks progressive aspect in Tigrinya. The order of the constituents in (8) is SOVAux.

(8) *ʔanɛ ħɨdʒi ʔɨndʒɛra jɨ-bɛlʕ ʔallɛxu*
I now injera 1s-eat.PC AUX.SC.1s
'I am eating *injera* now.'

As mentioned in the introduction, to derive declarative clauses in Tigrinya I adopt an anti-symmetric approach to head-finality, as proposed by Kayne (1994). Kayne proposes that - because complements always follow heads - the order OV is obtained by leftward movement of the complement (the object) to a projection XP higher than the one hosting the head V (p. 48), as shown in (9).

[13] The occurrence of the copula along with the PC was previously inadequately described as "actual present" by grammarian Conti Rossini (1940). Notice that the copula plays the role of intensifier only in affirmative clauses, and it agrees with the subject.

(9)



I take the projection in which the object lands to be vP. I take the external argument to be base-generated in Spec,VoiceP as suggested by Legate (2014) among others. To my knowledge, the only previous study that explains SOVAux order from an antisymmetric perspective using these same two premises is Danckaert (2018) on Latin. In this approach, vP moves to the outer specifier of VoiceP (its inner specifier hosts the subject of the clause), and VoiceP moves consequently to Spec,TP (the auxiliary is merged in T°). This results in the linear order OVSAux (Danckaert 2018: 13). To obtain the SOVAux order, Danckaert suggests that the subject moves to SubjP. However, this analysis cannot account for declarative clauses in Tigrinya because it does not take into consideration the fact that verbs in this language express aspect and, moreover, that the auxiliary marks progressive. Furthermore, it is important to point out that Danckaert's account violates the Anti-Locality Constraint (Abels 2003: 12) according to which the complement of a head cannot move to the specifier of its projection (Kayne 1994).[14]

I therefore take an approach similar to that of Cinque (1999) and posit a more articulated syntactic structure that presents aspectual projections between VP and TP[15]. Cinque (1999: 106) proposes a hierarchical sequence of functional projections in which adverbs are ordered in a rigid structure and morphemes follow the same sequence universally (Shlonsky & Bocci 2019). As explained by Cinque, $Asp_{PROGRESSIVE}$ appears low in the hierarchy, whereas $Asp_{IMPERFECTIVE}$ is found in a higher position[16].

[14] If one were to straightforwardly add aspectual projections to Danckaert's approach in order to account for Tigrinya (as suggested by a reviewer), the Anti-Locality Constraint would still be violated.

[15] Notice that previous syntactic analyses of Tigrinya clause structure (Overfelt 2009, Spadine 2020) do not include aspectual projections between the verb phrase (VP or vP) and TP.

[16] Actually, called $Asp_{HABITUAL}$ by Cinque (1999: 91). Note that the Prefixal Conjugation in Tigrinya is used to express imperfective/habitual aspect.

Assuming the existence of only one specifier position per projection, the sentential order SOVAux can be obtained by base-generating the auxiliary in $Asp_{PROG}°$ (contra Kramer this issue a.o. in which the auxiliaries are in T) and moving the verb from V° to v°, from v° to Voice° and then to $Asp_{IMPF}°$[17]. VoiceP, which contains both the subject and the object moves to Spec,TP; from this follows a concluding movement of the subject to the specifier of a SubjP[18] projection as mentioned above.

The derivation I propose is schematized in a list of thirteen steps in (10) and illustrated in a tree diagram in (11).

(10) 1. Merge V and OBJ → project VP
2. Merge VP and v°
3. Move V to v°
4. Move OBJ to Spec,vP → project vP[19]
5. Merge vP and Voice°
6. Move V to Voice° → project VoiceP with SUBJ base-generated in Spec,VoiceP
7. Merge VoiceP and Aux → project $Asp_{PROG}P$
8. Merge $Asp_{PROG}P$ and $Asp_{IMPF}°$
9. Move V to $Asp_{IMPF}°$ → project $Asp_{IMPF}P$
10. Merge $Asp_{IMPF}P$ and T
11. Move VoiceP (containing SUBJ and OBJ) to Spec,TP → project TP
12. Merge TP and Subj°
13. Move SUBJ to Spec,SubjP → project SubjP

[17] The verb must move to v° before landing in $Asp_{IMPF}°$, because the phase vP would prohibit its extraction (Chomsky 2004, 2008).

Notice that the V head crosses over the auxiliary after leaving v° and moving towards $Asp_{IMPF}°$. A reviewer touched on the fact that the head movement of the verb to $Asp_{IMPF}°$ violates the Head Movement Constraint proposed in Travis (1984), because it skips over the $Asp_{PROG}°$ head. However, one can consider that the auxiliary being conjugated in SC (i.e., perfective aspect) would not be able to land in the head position of $Asp_{IMPF}P$, avoiding intervention effects. In other words, this could be explained in terms of feature-based Relativized Minimality (Rizzi 1990):

(1) Y is in a Minimal Configuration (MC) with X iff there is no Z such that
(i) Z is of the same structural type as X,
and (ii) Z intervenes between X and Y (Rizzi 2001: 90)

Because V° and Aux° do not share the same features and are not of the same structural type, Aux° cannot be treated as an intervener and there is therefore no syntactic violation.

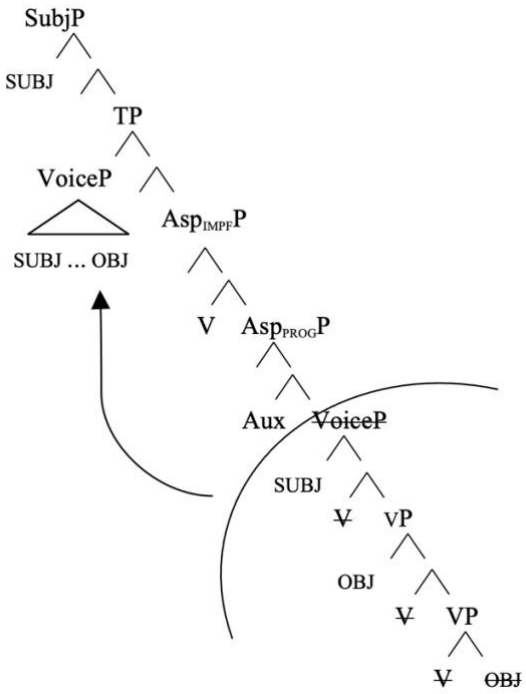
Another way to avoid the violation of the Head Movement Constraint would be to posit that there is no head movement at all: it is not V° that moves to $Asp_{IMPF}°$, but vP (containing the object and the verb, in this order) moves to Spec,$Asp_{IMPF}P$. The order would still result in SOVAux. Another possibility would be that the verb does not move to v° and VP (containing only the verb) moves to Spec,$Asp_{IMPF}P$. I leave this to further research.

[18] I take Spec,SubjP as proposed by Cardinaletti (2004: 121) to be the canonical subject position. See also Rizzi (2005) for the restatement of the EPP (Chomsky 1993) as "Subject Criterion" (Rizzi 2005: 212).

[19] A reviewer touched on the fact that the object movement in vP is string-vacuous. I posit this movement for two reasons: the first one is for the sake of consistency with previous seminal literature - namely, Kayne (1994) claims that the order OV is obtained because the object moves out of VP; the second one, for consistency with the derivation proposed for relative clauses in (22), where the object needs to move in the phasal edge Spec,vP before continuing raising.

Moreover, notice that the internal argument moves to Spec,vP and not Spec,VP following the *Anti-Locality constraint* (Kayne 1994, Abels 2003).

(11)



The order SOV (cf. example (7)) can be obtained by simply not merging $Asp_{PROG}P$. When a declarative clause in Tigrinya expresses perfective aspect, therefore making use of a verb conjugated in SC, an $Asp_{PRF}P$ would be merged instead of $Asp_{IMPF}P$. With regards to verbs conjugated in NSC, I propose that this verbal form is not aspectual and therefore its head would not move in the head of a projection higher than the auxiliary: it would be smuggled by VoiceP along with the subject and the object of the clause still resulting in a SOV order.

Now that I have established the syntactic architecture of declarative clauses in Tigrinya, I can turn to the analysis of relative clauses.

3. Relative Clauses in Tigrinya

In this section, I will provide a novel analysis for relative clauses in Tigrinya. Section 3.1 provides the data and section 3.2 the theoretical tools used and the analysis.

3.1 The Data

As already mentioned in the introduction, Tigrinya relative clauses are marked by what has been defined in the literature as the relative prefix *zi-* (Leslau 1941, Palmer 1962, Mason 1996, Kogan 1997, a.o.) and they most commonly appear prenominally, between the demonstrative and the noun. Hence, their surface position conforms with the claim that relative clauses are universally pre-nominally merged (Bianchi 2002, Cinque 2008).

When the subordinate verb expresses habitual present tense, *zi-* is prefixed to it as in the two examples below: example (12a), - (6a) in the introduction - illustrates an object relative clause; whereas (12b) a subject relative clause.

(12) a. *ʔɨtom* *ʔanɛ* ***z-****ɛ-nbəb-om* *mɛʦ'ħafti* *ʔazɛnagaʕi* *ʔɨjom*
DEM.mp I ZŁ-1s-read.PC-OM.3mp book.mp amusing.ms COP.NSC.3mp
'The books that I read are amusing.'

b. *ʔɨti* *ʃəkolata* ***z-****i-bɛlʕ* *wɛdi* *Tɛklɛ* *jɨ-bhal*
DEM.ms chocolate.fs ZŁ-3ms-eat.PC boy.ms Tekle.ms 3ms-call.PC
'The boy who eats chocolate is called Tekle.'

When the relative clause is in present progressive, the verb is followed by an auxiliary. In this case, *zɨ-* is prefixed to both the verb and the auxiliary, appearing twice in the clause, as shown in the examples below. Example (13a) - (6b) in the introduction - contains an object relative clause; whereas (13b) a subject one.

(13) a. *ʔɨti* *ʔanɛ* ***z-****ɛ-nbəb-o* ***z-****ɛllɛxu* *mɛʦ'ħaf* *ʔazɛnagaʕi* *ʔiju*
DEM.ms I ZŁ-1s-read.PC-OM.3ms ZŁ-AUX.SC.1s book.ms amusing-ms COP.NSC.3ms
'The book that I am reading is amusing.'

b. *ʔɨti* *ʃəkolata* ***z-****i-bɛlʕ* ***z-****ɛllo* *wɛdi* *Tɛklɛ* *jɨ-bhal*
DEM.ms chocolate.fs ZŁ-3ms-eat.PC ZŁ-AUX.SC.3ms boy.ms Tekle.ms 3ms-call.PC
'The boy who is eating chocolate is called Tekle.'

The *zɨ-* prefix has probably developed etymologically from demonstrative roots (Dillman 1974), such as the demonstrative masculine singular accusative *zə-* in Ge'ez (Butts 2019). Notice that *zɨ-* neither inflects for φ-features nor for aspect/tense. It is the outermost prefix in the verb stem: it precedes all other prefixes, including inflectional prefixes like the φ-features prefixes on the verb in (14); derivational prefixes like the passive prefix *t(ɨ)-* as in (15); and clausal prefixes (Kifle 2011) like verbal negation in (16)[20].

(14) *ʔɨti* *Tɛwɛldɛ* ***z-****i-sɛti-jo* ***z-****ɛllo* *may* *t'əʕum* *ʔiju*
DEM.ms Tewelde.ms ZŁ-3ms-drink.PC-OM.3ms ZŁ-AUX.SC.3ms water.ms delicious COP.NSC.3ms
'The water that Tewelde is drinking is delicious.'

(15) *ʔɨti* *b-Tɛwɛldɛ* ***zɨ-****ti-sɛtɛjɛ* *may* *t'əʕum* *ʔiju*
DEM.ms PREP-Tewelde.ms ZŁ-PASS.drink.SC.3ms water.ms delicious COP.NSC.3ms
'The water that was drunk by Tewelde is delicious.'

(16) *ʔɨti* *ʃəkolata* ***z-****ɛy-bɛlʕ* *wɛdi* *Tɛwɛldɛ* *jɨ-bhal*
DEM.ms chocolate.fs ZŁ-NEG-eat.PC.3ms boy.ms Tewelde.ms 3ms-call.PC
'The boy who does not eat chocolate is called Tewelde.'

The *zɨ-* prefix plays a role in the phonological realization of the first phoneme of the verb to which it is attached. If it is prefixed to a verb conjugated in PC starting with [j] (first person singular, third person masculine singular and third person plural), the prefixal φ-feature is realized as [i] as in *z-****i****-sɛti-jo* in (14). If it is prefixed to a verb conjugated in SC whose first root consonant is [ʔ], such as the auxiliary *ʔallo* in (14), the glottal stop is dropped, and the first vowel becomes [ɛ].

[20] Notice that the suffix of verbal negation *-n* is dropped when *zɨ-* is prefixed to the verb. This phenomenon is also present in Amharic, in which the circumfixal *ʔa(l)-...-m* loses its suffix *-m* in the presence of the prefixal relative marker *yɛ-* (Leslau 1995, Edzard 2019).

Furthermore, preceding the [t] phoneme of PC second singular and third feminine singular persons and the [n] phoneme of PC first person plural, it has been claimed that *zɨ-* is realized as *ʔɨ-* (Leslau 1941, Mason 1996, Kifle 2010). However, my consultants do not produce the glottal stop (neither in oral nor written language) and simply drop the prefix, as shown in (17)[21]:

(17) a. *ʔɨti* *nsxa* *tɨ-sɛti-jo* ***z**-ɛllɛxa* *may* *t'əʕum* *ʔɨju*
DEM.ms you.ms 2ms-drink.PC-OM.3ms ZɪH-AUX.SC.2ms water.ms delicious COP.NSC.3ms
'The water that you are drinking is good.'

b. *ʔɨti* *nɨħna* *nɨ-sɛti-jo* ***z**-ɛllɛna* *may* *t'əʕum* *ʔɨju*
DEM.ms we 1p-drink.PC-OM.3ms ZɪH-AUX.SC.1p water.ms delicious COP.NSC.3ms
'The water that we are drinking is good.'

Finally, to conclude this short overview of the main properties of the prefix *zɨ-*, it is important to mention that it is present in all types of relative clauses, as illustrated in the examples below.

(18) *Indirect Object Relatives*
ʔɨti n-ɨza t'ɨrɨmuz **z**-i-hɨb-o **z**-ɛllɛxu wɛdi
DEM.ms OM-DEM.fs bottle.fs ZɪH-1s-give.PC-OM.ms ZɪH-AUX.SC.1s boy.ms
ħaw-a n-Ruth ʔɨju
brother.ms-POSS-3fs OM-Ruth.fs COP.NSC.3ms
'The boy to whom I am giving this bottle is Ruth's brother.'

(19) *Free Relatives*
ʔɨti *nɨħna* ***zɨ**-dalɨna-jo* *nɨ-bɛlʕ-jo* *(ʔɨna)*
DEM.ms we ZɪH-prepare.SC.1P-OM.ms 1p-eat.PC-OM.ms COP.NSC.1p
'We eat what we prepared.'

(20) *Amount/Maximalizing Relatives*
n-ɨta ***zɨ**-wɛdɛqa-ya* *wɛini* *k-i-sɛti* *mɨ-dɛlɛxu*
OM-DEM.fs ZɪH-drop.SC.2ms-om.3fs wine.fs KɪH-1s-drink.PC MɪH-want.SC.1s
'I would like to drink the wine that you dropped on the floor.'

(21) *Non-restrictive Relatives*
Solomon *ʔab* *salsaidɛrbi* ***z**-i-qmɛt* *kab* *ʔɨrtra* *mɛʦ'iʔu*
Solomon.ms PREP third floor.ms ZɪH-3ms-live.PC PREP Eritrea come.NSC.3ms
'Solomon, who lives on the third floor, comes from Eritrea.'

To my knowledge, the only previous detailed analysis of relative clauses in Tigrinya is in Overfelt (2009). This work argues that *zɨ-* is a relative marker/complementizer base-generated under C°. No other constructions containing this prefix are mentioned, making *zɨ-* specific to relative clauses. In this approach - that uses a head-final structure to derive the word order found in relative clauses - prefixation is obtained through I-to-C head-movement of the verb (Overfelt 2009: 50). Because the verb (in PC or SC) moves under C°, it is "able to carry the

[21] A reviewer indicated that this phenomenon could be just the phonological dropping of *zɨ-* or true allomorphy. I propose that the phenomenon illustrated in (17) must be accounted for by morphology, not phonology. If the dropping of *zɨ-* was a consequence of a phonological rule - truncating it in front of [t] - it would be expected that it were also dropped in front of the passive prefix in (15), contrary to fact.

relative prefix" (Overfelt 2009: 51). Overfelt mentions that *zɨ-* appears on the subordinate verb or on the auxiliary when the subordinate verb is in NSC (because *zɨ-* cannot be prefixed to a verb in NSC, cf. section 3.2). In this latter case, it is the auxiliary that moves under C° and carries the prefix[22]. However, the analysis does not account for the presence of *zɨ-* on both the verb and the auxiliary when they co-occur in the clause to express progressive aspect[23]. Therefore, a different analysis must be sought for.

3.2 The Analysis

I propose that *zɨ-* is a morphological reflex of successive-cyclic movement of the relativized nominal Head[24] (McCloskey 2002, Abels 2003, Müller 2011, Van Urk 2015, Georgi 2017, a.o.) that raises from its argument position to an A'-position in the left periphery.

Let us assume that Tigrinya relative clauses are formed through movement of the head-raising kind and let us thus adopt the raising analysis of relative clauses (Vergnaud 1974). This means that in a subject relative clause, the external argument moves from its external merge position (in Spec,VoiceP) to Spec,RelP. In an object relative clause, it is the internal argument that ends up in Spec,RelP. Hence, the relativized Head moves from its argument position to the CP domain because it carries a [wh] feature: this movement must be an instance of *wh*-movement and must apply successive-cyclically (Chomsky 1977:74)[25]. In other words, movement to Spec,RelP is not carried out in one fell swoop, but via intermediate positions: it is local and takes place in successive stages or cycles (Chomsky 1973, 1977, 2000, Müller 1995), otherwise locality requirements are neglected (Müller 2011).

In several languages, successive-cyclic A'-movement leaves reflexes along the structure (Georgi 2017). McCloskey has looked at this phenomenon in Irish: in this language, finite complement clauses are introduced by the particle *go*, but finite clauses out of which movement applies to an A'-position are introduced by the particle a^L (McCloskey 2002: 185). Finite complementizers in this language are therefore morphologically sensitive to the presence of A'-binding relationships (p. 185): the particle that introduces finite complement clauses

[22] A reviewer commented that if one were to extend Overfelt's analysis to account for the doubling of *zɨ-* in progressive constructions, a second (unmotivated) CP would be needed. There would therefore be a prefix under both C heads and both the verb and the auxiliary would undergo I-to-C movement to be both able to carry a prefix. Notice that this would make Tigrinya relative clauses (and declarative clauses) expressing progressive aspect bi-clausal. This is not what I want to assume.

[23] Jason Overfelt (p.c.) did not come across this phenomenon, presumably because clauses in progressive aspect were not investigated.

[24] Notice the difference between the *Head* of a relative clause (capitalized) and the *head* of a phrase (non-capitalized) as done by Cinque (2008).

[25] Notice that Tigrinya does not have *wh*-movement, as expected from its SOV word order. The examples below show interrogative clauses with *wh*-in-situ:

(3) a. *nsxa ʔintay bɛliʕika*
you.ms what eat.NSC.2ms
'What did you eat?'

a'. * *ʔintay nsxa bɛliʕika*
what you.ms eat.NSC.2ms
Intended: 'What did you eat?'

b. *nsxa n-mɛn riʔika-yo*
you.ms OM-who see.NSC.2ms-OM.ms
'Who did you see?'

b'. * *n-mɛn nsxa riʔika-yo*
OM-who you.ms see.NSC.2ms-OM.ms
Intended: 'Who did you see?'

As predicted by the current proposal, *zɨ-* does not appear in *wh*-questions in Tigrinya: given that there is no movement in these clauses, the morphological reflex of movement is absent.

changes when movement of an XP to an A'-position occurs. McCloskey takes into consideration also sentences that present non-local A'-connections and claims that an XP moves from Spec,CP to Spec,CP establishing a relation between the moved phrase and the head C (p. 186): this relation is a Spec-head Agree relation between the head C and XP which has moved to Spec,CP (Georgi 2017: 594). This results in morphological reflexes of the Spec-head relationship.

Alongside Irish, other languages investigated in the literature to illustrate the phenomenon of morphological reflexes of A'-movement are Seereer, Dinka and Wolof[26]. Baier (2014) has shown that, in Seereer, verbal morphology is also extraction-sensitive: in cases of A'-movement, "each verb along the path of [a] *wh*-dependency displays a suffix [-*u*]" (Baier 2014: 2). Van Urk (2015) and Van Urk & Richards (2015) have looked at a similar phenomenon in Dinka: in this language, the extraction of a plural DP from its argument position triggers the appearance of the element *ké* next to every verb crossed along the path of movement. Torrence (2012) has suggested that in Wolof the successive-cyclic movement of a *wh*-expression triggers the occurrence of multiple class markers (called *u-forms* by the author because they appear with -*u* suffixes).

I therefore propose that the prefix *zɨ-* is not a relative marker, but a marker of the intermediate landing site positions of the relativized Head and therefore a reflex of successive-cyclic movement. Moreover, I propose that the two aspectual projections present in Tigrinya ($Asp_{PROG}P$ and $Asp_{IMPF/PRF}P$) delimit two cyclic domains: the presence of the *zɨ-* prefix is thus what licenses the movement of the relativized Head to the next cycle[27].

Notice that the phenomenon in Tigrinya is obviously different than the one presented by McCloskey for Irish, but also somewhat similar. On the one hand, it is different because in Irish the intermediate landing site positions of the raising XP are claimed to be the specifiers of C projections; in Tigrinya this cannot be the case because XP raises from its argument position to the CP domain in a relative clause with no multiple CP layers, but multiple aspectual projections. On the other hand, Tigrinya seems to behave like Irish in the fact that *zɨ-* does not appear in contexts with no extraction: in other words, one kind of complementizer is used when there is A'-extraction (*zɨ-*) and a different kind - *kɨ-* as in (3) or *kɨmzɨ-* as in (4) (but cf. footnote 10 for the suggestion of *kɨmzɨ-* as *kɨm* + *zɨ-*) - when there is not[28].

As mentioned above, in previous literature on reflexes of successive-cyclic movement, these reflexes are generally considered to be markers of an Agree relationship between the extracted XP and the head in whose specifier the XP has landed. However, I propose that *zɨ-* is a marker that projects its own phrase(s), in accordance with the "one property, one feature, one head" (Rizzi & Cinque 2016: 155) working hypothesis adopted by the Cartographic approach taken in this study. In other words, because *zɨ-* is a functional element that carries a feature, it "giv[es] rise to independent syntactic projections and tak[es] other phrases as complements or specifiers" (Rizzi & Cinque 2016: 155)[29].

[26] This list is obviously not exhaustive.

[27] Even though these two aspectual projections look like phases as described in the literature (Chomsky 2004, 2008), I want to emphasize the fact that at this stage of research I cannot ascertain whether they are indeed phrasal nodes or simply *cyclic domains* for movement. As pointed out by an anonymous reviewer, if the aspectual projections were in fact phases, not only would the relativized Head need to move in their specifier positions (and not in the specifier positions of ziP), but also all the other moving elements (e.g VoiceP).

[28] I thank Ruth Kramer for bringing this last point to my attention.

[29] The feature carried by the *zɨ-* prefix could be a [wh] feature, a [Rel] feature (Rizzi & Bocci 2017), a "*pseudo wh*-feature - movement-driving feature" (McCloskey 2002: 186) or a "criterial feature" (Rizzi 2006: 110).

I therefore implement the derivation of relative clauses in Tigrinya in the following way: I propose that *zi-* is generated in the head of a projection that I call ziP (for lack of a better term) whose specifier is an A'-position. The ziP projection always takes an aspectual projection as its complement. There are two ziP projections in the structure: one merged right above $Asp_{PROG}P$, the other above $Asp_{IMPF}P$. When zi° is merged, the relativized Head can be extracted from the (cyclic) aspectual domain and be raised to the specifier position of the ziP projection[30].

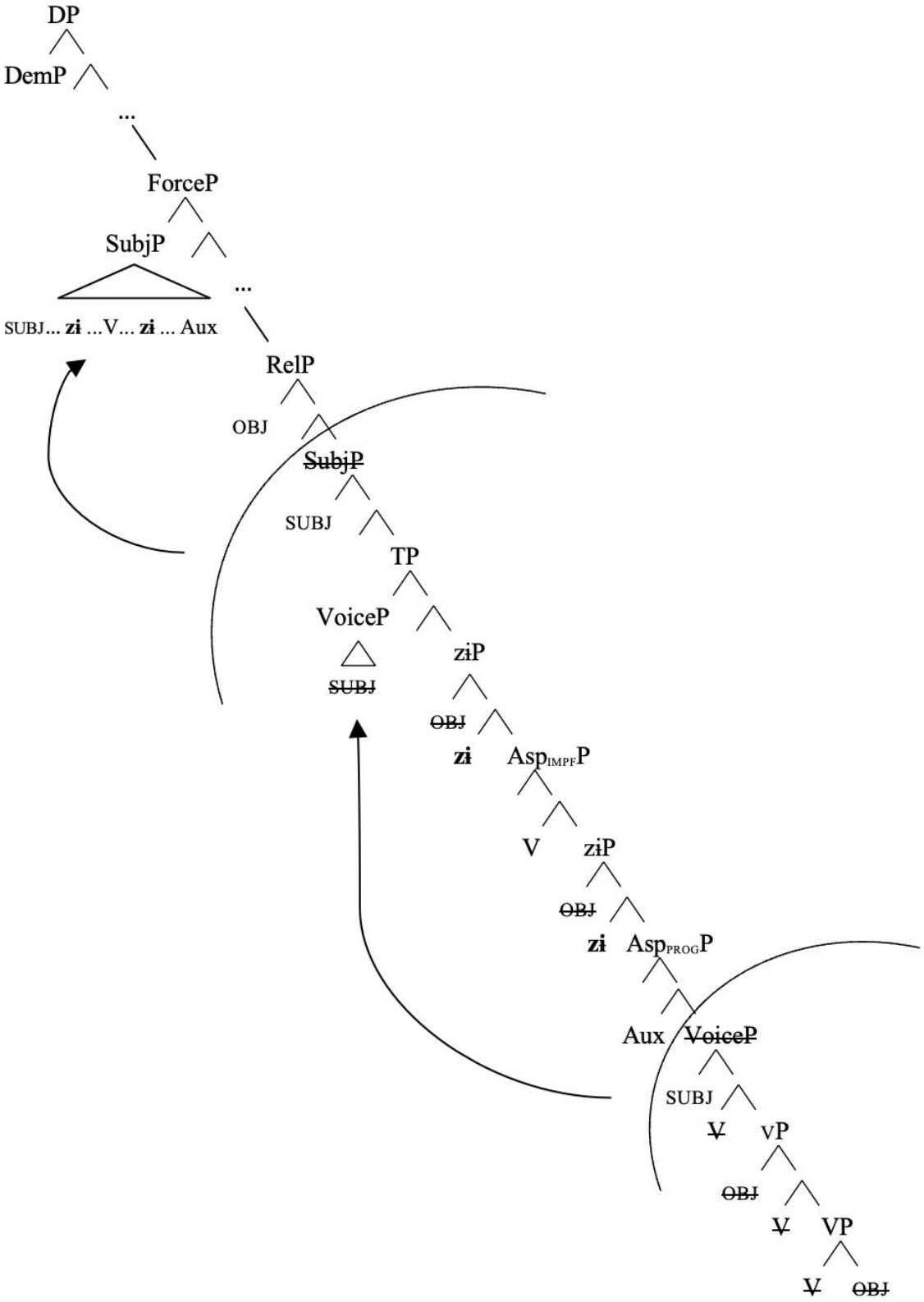
With all this in mind, I propose two derivations, one for object restrictive relative clauses and a parallel one for subject relative clauses. The principles and operations underlying the two derivations are the same. The derivation I propose for object relative clauses is schematized in (22) and illustrated in (23); the one for subject relative clauses is only illustrated in (24) for simplicity. The key steps that differ from the derivation of declarative clauses in Tigrinya are in boldface.

(22) 1. Merge V and OBJ → project VP
2. Merge VP and v°
3. Move V to v°
4. Move OBJ to Spec,vP → project vP
5. Merge vP and Voice°
6. Move V to Voice° → project VoiceP with SUBJ base-generated in Spec,VoiceP
7. Merge VoiceP and Aux → project $Asp_{PROG}P$
8. Merge Asp_{PROG}P and zi
9. Move obj to Spec,ziP → project ziP[31]
10. Merge ziP and Asp_{IMPF}°
11. Move V to Asp_{IMPF}° → project $Asp_{IMPF}P$
12. Merge Asp_{IMPF}P and zi
13. Move obj to Spec,ziP → project ziP
14. Merge ziP and T°
15. Move VoiceP (**containing SUBJ**) to Spec,TP → project TP
16. Merge TP and Subj°
17. Move SUBJ to Spec,SubjP → project SubjP
18. Merge SubjP and Rel°
19. Move OBJ to Spec,RelP → project RelP
20. Move SubjP in Spec,ForceP
21. DemP is base-generated in Spec,DP

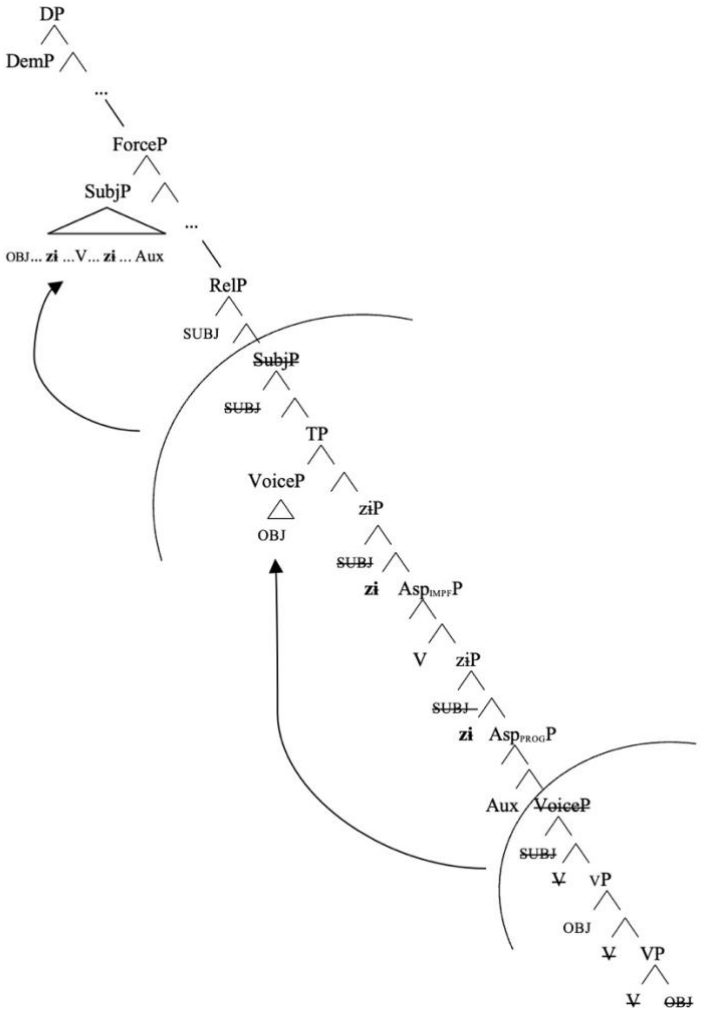
[30] Notice that I claim that *zi-* projects its own phrase instead of being a marker of an agreement relation between the noun (the relativized Head) and the verb/auxiliary, because this latter case does not generate the correct head-final order from a head-initial structure. In other words, in a minimalist approach (Chomsky 1995) the lack of A'-positions (the specifiers of VoiceP, of the two *zi-* phrases, of the two aspectual phrases, of ForceP and RelP) and the treatment of *zi-* as a head merged in an already occupied head (by V° and/or Aux°) cannot derive the correct word order (S-*zi*V-*zi*Aux-O in object relative clauses and O-*zi*V-*zi*Aux-S in subject relative clauses) in relative clauses in Tigrinya.

[31] The object moving from Spec,vP to Spec,ziP could cause intervention effects given by the presence of the subject in VoiceP. However, this movement is also present in Cinque's analysis of relative clauses (2008, 2020) and Cinque does not discuss this issue.

(23)


DP
DemP
...
ForceP
SubjP
...
SUBJ... zi ...V... zi ... Aux
RelP
OBJ
SubjP
SUBJ
TP
VoiceP
SUBJ
ziP
OBJ
zi
Asp$_{IMPF}$P
V
ziP
OBJ
zi
Asp$_{PROG}$P
Aux
VoiceP
SUBJ
V
vP
OBJ
V
VP
V
OBJ

(24)



When in relative clauses the verbal form is synthetic (as shown in example (12), for example) and *zɨ-* appears only on the verb, the syntactic derivation would be the same as the one presented above, except for the absence of AspPROGP and the lower ziP phrase[32].

Note that it is also possible to have a relative clause in which the subordinate verb is conjugated in NSC and *zɨ-* does not appear prefixed to it. *zɨ-* only occurs on the auxiliary:

(25) *ʔɨta* *ʔɨti* *sɛbʔay* *ʦɨħifu-wa* ***z**-ɛllo* *dɛbdabɛ* *nɨwaħ* *ʔɨja*
DEM.fs DEM.ms man.ms write.NSC.3ms-OM.fs ZɨH-AUX.SC.3ms letter.fs long.fs COP.NSC.3fs
'The letter that the man wrote is long.'

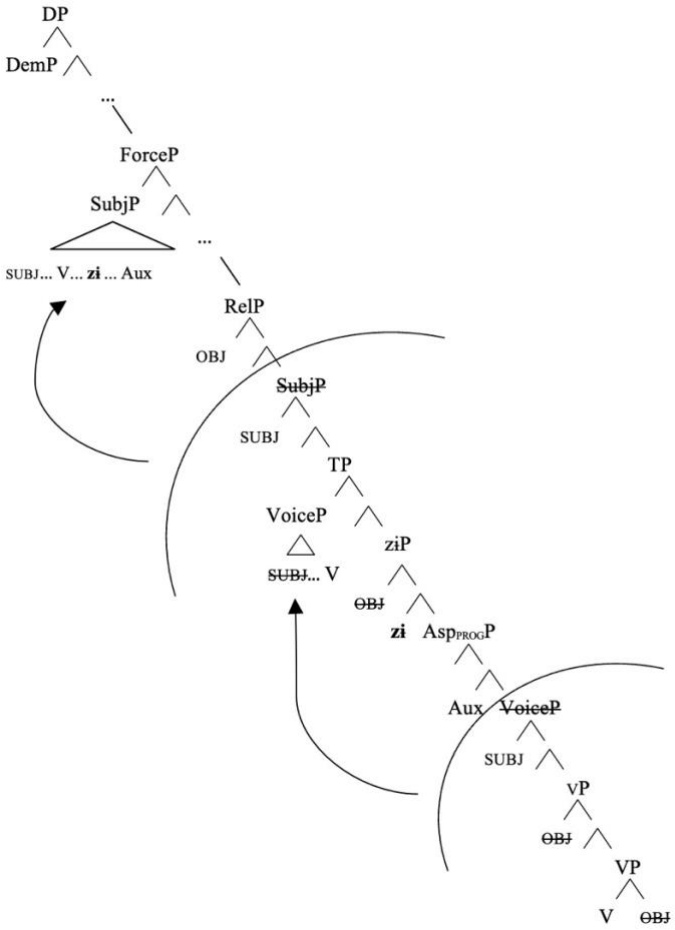
In the example above, the auxiliary does not mark progressive aspect, but has been inserted as a support to carry *zɨ-*[33]. The sentence would be ungrammatical if the prefix appeared on the verb. I explain this phenomenon once again using the derivation of relative clauses presented above in (22), (23) and (24) and the treatment of the NSC as mentioned in section 2. Not being

[32] There is no lower ziP when there is no AspPROGP because the former always takes the latter as complement.

[33] The insertion of the auxiliary in the presence of a verb in NSC to carry the *zɨ-* prefix is still under investigation; therefore, it will not be developed in this paper and will be part of further research. Notice that Overfelt (2009) calls this phenomenon an instance of *do*-insertion (Overfelt 2009: 36).

aspectual in nature, verbs conjugated in NSC do not move in the head of an aspectual projection but stay in V° (or v° or Voice°) and are smuggled by VoiceP to Spec,TP. This explains why *zɨ-* cannot be found prefixed to a verb in NSC. This is illustrated in (26) below:

(26)



Notice that the meaning of the sentence in (25) can also be obtained with (27) in which the verb is in SC and *zɨ-* appears as predicted:

(27) *ʔɨta* *ʔɨti* *sɛbʔay* ***zɨ-***ʦ'ɨħafɨ-wa *dɛbdabɛ* *nɨwaħ* *ʔɨja*
DEM.fs DEM.ms man.ms ZɪI-write.SC.3ms-OM.fs letter.fs long.fs COP.NSC.3fs
'The letter that the man wrote is long.'

The analysis presented above shows why the prefix *zɨ-* appears on both the verb (in PC and SC) and the auxiliary in periphrastic verbal forms and why it does not appear on NSC.

A reviewer observed that the analysis presented does not answer the question of why *zɨ-* is a prefix instead of an independent word to the left of the verb. Like many monosyllabic particles in the language, *zɨ-* is a weak element that must be attached to a morphophonological word. Note that its weakness is evidenced by the fact that nothing can intervene between it and the verb, which is the case (except for verbal negation; cf. example (16)). Moreover, the phonological changes that the verb and the auxiliary undergo in the presence of *zɨ-* (cf. example (14)) could also be an argument in favor of *zɨ-* as a bound morpheme. In my opinion, the question of whether an element is a bound or free morpheme can be generalized to all affixes in all languages and therefore is beyond the scope of this study.

4. Additional Data for Further Research

After having proposed a novel analysis to derive relative clauses in which *zɨ-* occurs, it is very important at this point to mention that this prefix is also present in other types of clauses, namely in comparatives - as shown in (28) - and what have been called raising constructions in Tigrinya (Yohannes 2016, Spadine 2020) - as in (29).

(28) *Tɛsfay* *kab-ti* *ʔanɛ* ***zɨ-ħasɨbɛxu-wo*** *jɨ-ʕabi*
Tesfay.ms PREP-DEM.ms I ZɁ-think.SC.1s-OM.3ms 3ms-'be tall'.PC
'Tesfay is taller than I thought.' (Lit.: "Tesfay than what I thought is taller.")

(29) *Kidanɛ* *ʔiti* *mɛʦ'ħaf* ***z-ɛ-nbɨb-o*** ***z-ɛllo*** *jɨ-mɛsɨl*[34]
Kidane.ms DEM.ms book.ms ZɁ-1s-read.PC.-OM.3ms ZɁ-AUX.SC.3ms 3ms-seem.PC
'Kidane seems to be reading the book.'

It is long-established that movement is involved in comparative and raising constructions: the linear order in the former type of clause results from *wh-* or A'-movement (Chomsky 1977, Donati 1997, Kennedy 2002, McCoy 2017). The current proposal predicts that when this type of movement takes place in a clause, *zɨ-*must be prefixed to the verb (and the auxiliary if there is one). The occurrence of *zɨ-* in (28) is therefore expected. However, it is surprising to find the prefix in the raising construction in (29), because in the literature it has been argued that these clauses result from A-movement (Rosenbaum 1967, Postal 1974, Hornstein 1999). It is even more surprising that there is not a third *zɨ-* on the matrix verb *jɨmɛsɨl*[35].

To solve this puzzle, I suggest an alternative analysis and propose that example (29) does not illustrate a raising construction, but a *tough*-construction[36]. These constructions have been analyzed in the literature as involving A'-movement of a phonologically null *wh*-operator (Chomsky 1977, Wilder 1991, Rezac 2006, Hicks 2009). For example, the sentence *John is tough to please* is analyzed as the following:

(30) a. John$_i$ is tough [$_{CP}$ Op$_i$ [$_{TP}$ PRO to please t_i]]. Hicks (2009: 536, (4))

[34] Notice that Tigrinya does not have expletives. In (29), *Kidanɛ* must be the subject of *jimɛsl*, since a different subject would result in a different form of the conjugated verb (in boldface). This is shown in (4):

(4) a. *ʔitɨn* *ʔanɨsti* *mɛʦ'ħafti* *z-ɛ-nbɨb-a* *z-ɛllɨwa* *jɨ-mɛsl-**a***
DEM.fp woman.fp book.fp ZɁ-read.PC.3fp-OM.fp ZɁ-AUX.SC.3fp seem.PC-**3fp**
'The women seem to be reading the books.'

b. * *ʔitɨn* *ʔanɨsti* *mɛʦ'ħafti* *z-ɛ-nbɨb-a* *z-ɛllɨwa* *jɨ-mɛsɨl*
DEM.fp woman.fp book.fp ZɁ-read.PC.3fp-OM.fp ZɁ-AUX.SC.3fp 3ms-seem.PC

Intended: 'The women seem to be reading the books.'

[35] This has been pointed out by an anonymous reviewer. Given that the subject *Kidanɛ* raises over both the subordinate verb (and auxiliary) and the matrix verb, the current proposal treating *zɨ-* as a marker of movement predicts that it should be also found attached to the latter.

[36] I thank Dominique Sportiche for a discussion on this matter. I am aware that I am advancing the idea of considering the sentence in (29) as a *tough*-construction without presenting evidence in favor of this, other than the presence of *zɨ-* on the subordinate verb and its absence on the matrix verb and the lack of an expletive. I will leave this to further research.

I suggest that the sentence in (29) also involves movement of a silent *wh*-operator that triggers the appearance of *zɨ-* on the verb and the auxiliary. As the relativized Head in relative clauses, the *wh*-operator moves in the specifier position of the zɨP projections in a successive-cyclic manner; it crosses over the subordinate verb, but not the matrix verb (that is why *zɨ-* does not appear on *jɨmɛsɨl*).

Therefore, the example in (28) - and (29) if my tentative analysis of it as a *tough*-construction is correct - supports the analysis of *zɨ-* as a reflex of successive-cyclic movement in which the prefix attracts the constituent that has been extracted and undergoes A'-movement. The phenomenon also implies that the *wh*-movement in comparatives (and *tough*-constructions) takes place in very local steps in Tigrinya. Obviously, these constructions and their derivation need to be examined more closely and I intend to do so in further investigation.

Another issue for further research would be to look at relative clauses in which the Head has been extracted from a subordinate clause, as shown in example (31).

(31) ʔɨti ʔanɛ Tɛsfay **kɨmzɨ**-gɛzɨɛ-o **zɨ**-ħasb-o
DEM.ms 1s Tesfay KɨMZɨ-buy.SC.3ms-OM.3ms Zɨ-think.PC.1s-OM.3ms
kɛlbi wɨdɨddɨr tɨ-ʕawitu
dog.ms competition win.NSC.3ms
'The dog that I think Tesfay bought won the competition.'

The current analysis predicts *zɨ-* to occur on the embedded verb *jɨħasɨb*, which is the case. Note the presence of the prefix *kɨmzɨ-* (triggered by *jɨħasɨb*) on the verb *gɛzɨɛ*. As mentioned in footnote 11, it would be interesting to investigate the prefix *kɨm(-)zɨ-*, but also its interaction with *zɨ-*.

In further research, it would be also worth deriving other prefixes with the same logic behind the analysis presented above for *zɨ-*. For example, the prefix *kɨ-* (already mentioned in example (3) in the introduction) that is found in (32) below as a marker of temporal adverbial subordination is prefixed on both the verb and the auxiliary as *zɨ-* is. These prefixes can also occur in the same clause, as in (33):

(32) *ʔanɛ* ***k**-i-bɛlʕ* ***k**-ɛllɛxu* *nsu* *rɨʔɨyu-ni*[37]
I Kɨ-1s-eat.PC Kɨ-AUX.SC.1s 3ms see.NSC.3ms-OM.1s
'While I was eating, he saw me.'

(33) *ʔɨti* ***k**-i-dalɨw-o* ***z**-i-xɨʔɨl* *ħɨbɨsti* *ʔindʒɛra* *ʔɨju*
DEM.ms Kɨ-1s-prepare.PC-OM.ms Zɨ-1s-can.PC cake/bread injera COP.NSC.3ms
'The bread that I can prepare is the *injera*.'

Upon scrutiny of the data, several questions arise: why do *zɨ-* and *kɨ-* have the same distribution in (32)? How should one differentiate them? Why is *kɨ-* prefixed to the verb (and auxiliary) in both modal clauses - as in (3) - and temporal adverbial clauses - as in (32)? How to derive the linear order of the sentence in (33)? These and other issues related to prefixes in Tigrinya will be investigated in further research.

[37] Notice that *zɨ-* cannot appear instead of *kɨ-* in example (32):

(5) * *ʔanɛ* ***z**-i-bɛlʕ* ***z**-ɛllɛxu* *nsu* *rɨʔɨyu-ni*
I Zɨ-1s-eat.PC Zɨ-AUX.SC.1s he see.NSC.3ms-OM.1s
Intended: 'While I was eating, he saw me.'

5. Conclusion

In this paper, I proposed a new syntactic analysis of (restrictive) relative clauses in Tigrinya that takes into consideration the appearance of the prefix *zi-* on both the verb and the auxiliary in periphrastic verbal forms expressing progressive aspect. I disputed the idea that prefixes in head-final languages have an intrinsic prefixal morphological feature by suggesting that *zi-* is a marker of successive-cyclic movement that is found on the left of verbs because of specific syntactic constraints.

I showed that any treatment of *zi-* as inherently related to relative clauses (e.g., Leslau 1941, Overfelt 2009, a.o.) would miss the generalization that it occurs in other A'-clauses, namely comparatives (and *tough*-constructions). The analysis of *zi-* as a reflex of successive-cyclic movement suggests firstly, that *wh-*, and A'-movements must be more local than what has been proposed in standard phase theory (Chomsky 2000, 2001, 2004, 2008), and secondly, that the notion of cyclicity must be further developed.

Lastly, the LCA approach to head-finality taken in this study to derive declarative and relative clauses in Tigrinya offers a novel way of looking at head-final languages and provides a new perspective on the treatment of Semitic prefixes.

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