

Semantic locative inversion and predication in Zulu

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1. Introduction

This paper is concerned with a particular type of locative inversion that is attested in the Bantu language Zulu (Nguni; S 42). An example is provided in (1b):¹

- (1) a. Abantu aba-dala ba-hlal-a ku-lezi zindlu. [Buell 2007: 107-8]
people2 ADJ2-old SM2-stay-Fv at-DEM10 house10
'Old people live in these houses.'
b. Lezi zindlu zi-hlal-a abantu aba-dala.
DEM10 house10 SM10-stay-Fv people2 ADJ2-old
'Old people live in these houses.'

(1a) is a sentence with a pre-verbal subject NP and a VP-internal locative argument. In the inverted sentence (1b), the locative argument is in sentence-initial position and triggers noun class agreement with the verb, while the logical (thematic) subject NP appears post-verbally. Importantly, whereas the locative in (1a) is realised as a PP, the preposed locative in (1b) is a simple NP. In this respect, (1b) differs from the well-studied cases of locative inversion in Bantu in which a fronted constituent is formally marked as a locative by means of a preposition or locative noun class morphology (see e.g. Bresnan & Kanerva 1989; Demuth 1990; Marten 2006; Buell 2007; Khumalo 2010, and many others). In order to distinguish examples such as (1b) from formal locative inversion, Buell (2007) refers to the former as "semantic" locative inversion.

The scope of this paper is twofold. In the first part (section 2), I investigate the empirical properties of semantic locative inversion in Zulu. Here, my study builds on and extends the work presented in Buell (2007). The second part of the paper outlines an analysis of semantic locative inversion that explains its properties. My main claim is that examples such as (1b) establish a non-canonical subject-predicate relation between a locative subject and a VP that denotes a "situative" property of locations. The VP in (1b), for example, expresses a property that can truthfully be predicated of any location that "has old people live in it", and the NP-subject denotes an appropriate argument for this predicate.

In section 3, I develop this proposal by suggesting that the syntax of semantic locative inversion is based on the projection of a functional category Pr (for *predication*; cf. Bowers 1993) that selects the VP (including the logical subject) as a predicative complement and introduces the locative NP as its subject. In sections 4 and 5, I extend this analysis to non-verbal predicate and expletive constructions in

¹ All examples are from Zulu, unless otherwise indicated. Morphemes are glossed as follows: ADJ = adjective marker; APPL = applicative; AUX = auxiliary; BP = basic prefix; COP = copulative particle; DEM = demonstrative pronoun; DIS = disjoint verb form; EXPL = expletive; FV = final vowel; HAB = habitual; LOC = locative marker; NEG = negation; OM = object marker; PASS = passive; PAST = past tense; PL = plural; POSS = possessive marker; PRON = absolute pronoun; REL = relative marker; SG = singular; SM = subject marker; SUBJ = subjunctive suffix. I have occasionally adjusted the glosses of examples that I adopted from the literature to my system. I have not marked the examples for tone, unless tone marking was part of an original example.

Zulu and argue that the syntactic properties of these constructions also follow from the presence of a Pr-projection. Based on the theory of cyclic derivations articulated in Chomsky (2000, 2001, 2008), I suggest in section 6 that the Pr-projection constitutes a *phase*, an idea which explains why the post-verbal NP-arguments in semantic locative inversion constructions cannot be attracted by higher functional heads and move out of the VP. Section 7 is concerned with some further possible extensions of, as well as questions arising from, my proposal, and section 8 offers a brief conclusion.

2. The empirical properties of semantic locative inversion

2.1 Predicates that license semantic locative inversion

Buell (2007) notes that semantic locative inversion works best with stative² unaccusative verbs such as those in examples (1b) above and (2) and (3b) below:

- (2) Ipulatifomu i-m-a abantu aba-win-il-e. [Buell 2007: 111]
 platform9 SM9-stand-FV people2 REL2-win-DIS-PAST
 'The winners stand on the platform.'
- (3) a. Ukudla ku-hlez-i e-tafule-ni.
 food15 SM15-sit-FV LOC-table5-LOC
 'The food is sitting on the table.'
 b. Itafula li-hlez-i ukudla.
 table5 SM5-sit-FV food15
 'The food is sitting on the table.'; 'The table has food on it.'

Furthermore, Buell (2007) observes that semantic locative inversion is also possible with agentive intransitive verbs (unergative intransitives and transitive verbs whose object argument is implicit). Importantly, for this possibility to be realised, the applicative marker *-el-* must be attached to the verb stem:

- (4) Lesi sikole si-fund-el-a izingane ezi-khubazekile.
 DEM7 school7 SM7-study-APPL-FV child10 ADJ10-handicapped
 'Handicapped children study at this school.' [Buell 2007: 110]
- (5) a. La madoda a-sebenz-a ku-lesi sitolo.
 DEM6 men6 SM6-work-FV at-DEM7 store7
 'These men work at this store.'
 b. Lesi sitolo si-sebenz-el-a la madoda.
 DEM7 store7 SM7-work-APPL-FV DEM6 men6
 'These men work at this store.', 'This store is where these men work.'

² According to Buell (2007), unaccusative verbs of motion do not license semantic locative inversion:

(i) ?*Le ndawo i-z-a izivakashi ezi-ningi. [Buell 2007: 112]
 place9 SM9-come-FV visitor10 REL10-many
 'Many visitors come to this place.'

By and large, the contrast found by Buell was confirmed by my informants, although some speakers do indeed accept semantic locative inversion with verbs of motion. Interestingly, the example in (i), which Buell marks as ill-formed, was accepted by the majority of the speakers I consulted.

- (6) a. Umama u-pheka e-khishi-ni.
 mother1a SM1a-cook-FV LOC-kitchen5-LOC
 b. Ikishi li-phek-el-a umama.
 kitchen5 SM5-play-APPL-FV mother1a
 'The kitchen is where mother is cooking.'

Notice that semantic locative inversion with the agentive verbs in (4), (5b) and (6b) is not possible if the applicative marker is omitted. In contrast, as was shown in (1)-(3) above, the applicative is not required for semantic locative inversion with stative unaccusative verbs.

Interestingly, because the applicative marker in Zulu can introduce thematically different types of arguments, examples such as those in (4)-(6) are in fact ambiguous. For example, according to the translation given for (5b), the subject NP *lesi sitolo*, 'the store', is interpreted as a locative, and the post-verbal NP *la madoda*, 'these men', is the logical subject. Alternatively, however, *-sebenzela* in (5b) can also be understood as an applied verb meaning 'work for', in which case *lesi sitolo* is an agentive subject and *la madoda* is the benefactive object introduced by the applicative. This meaning of (5b) can be paraphrased as "The store benefits (works for) these men." Similar alternative readings can also be construed for other examples, as long as a sensible interpretation for the applied verb and the subject and object NPs is available.

While unaccusative and unergative intransitive verbs clearly license semantic locative inversion, the situation is less clear with transitive verbs. Compare Buell's (2007) example in (7) to (4) above:

- (7) (*)Lesi sikole si-fund-el-a izingane izilimi eza-hlukene.
 DEM7 school7 SM7-study-APPL-FV child10 languages10 ADJ10-different
 'Children study different languages at this school.'

[Buell 2007: 112]

In (7), both the logical subject *izingane*, 'children', and its logical object, the theme argument *izilimi eza-hlukene*, 'different languages', appear in post-verbal position. According to Buell (2007), examples such as (7) are ungrammatical. However, in contrast to the judgment reported by Buell, the speakers I consulted did not all reject this type of construction. In fact, the majority of my informants accepted semantic locative inversion with transitive verbs, including Buell's example in (7) (note that the applicative marker is again required in the inverted constructions (8b) and (9b)): ³

- (8) a. Abafundi be-be-fund-a incwadi e-Library ngo-6.
 student2 SM2-Aux-read-FV book9 LOC-library9 at-6
 'The students were reading the book in the library at 6 o'clock.'
 b. I-Library i-bi-fund-el-a abafundi incwadi ngo-6.
 library9 SM9-Aux-read-APPL-FV student2 book9 at-6
 'The library was the place where the students were reading the book at 6 o'clock.'

³ Some of the speakers who accepted semantic locative inversion with (mono)transitive verbs even accepted it with ditransitives, although the occurrence of three adjacent post-verbal NP-arguments produced parsing difficulties. Halpert (2011) provides examples of ditransitive expletive constructions in Zulu, which show that three postverbal NPs are possible in Zulu, at least for some speakers.

- (9) a. Umama u-phek-a ukudla e-khishi-ni.
 mother1a SM1a-cook-APPL-FV food15 LOC-kitchen-LOC
 'Mother cooks food in the kitchen.'
 b. Ikishi li-phek-el-a umama ukudla.
 kitchen5 SM5-cook-APPL-FV mother1a food15
 'The kitchen is the place where mother cooks food.'

Although the acceptability of (8b) and (9b) contradicts the finding reported by Buell (2007), this data conflict is not entirely unexpected. Judgments about the acceptability of inversion constructions with transitive verbs are notoriously inconclusive in Southern Bantu languages. For example, similar speaker variation has also been reported with respect to transitive expletive constructions in Zulu and Northern Sotho (see e.g. Van der Spuy 2001: 281; Zerbian 2006: 49; Buell 2008: 35, and section 5). Although constructions such as those in (7), (8b) and (9b) are not unanimously accepted, I conclude that for at least some Zulu speakers, semantic locative inversion is also possible with transitive verbs.

Finally, given that stative unaccusative verbs allow for semantic locative inversion, one might expect that this construction is also possible with non-verbal stative predicates. Buell (2007) does not investigate this possibility, but the judgments of my informants unequivocally show that semantic locative inversion with adjectival or nominal predicates is ruled out:⁴

- (10) a. Izinhlanzi a-zi-zin-kulu ku-lo mfula.
 fish10 NEG-SM10-BP10-big in-DEM3 river3
 'The fish aren't big in this river.'
 b. *Lo mfula a-wu-m-khulu (i)zinhlanzi.
 DEM3 river3 NEG-SM3-BP3-big fish10
 intended: 'This river is where the fish aren't big.'
- (11) a. Izingane zi-ng-abafana ku-lesi sikole.
 child10 SM10-COP-boy2 in-DEM7 school7
 'The children are boys at this school.'
 b. *Lesi sikole si-ng-abafana izingane.
 DEM7 school7 SM7-COP-boy2 child10
 intended: 'This school is where the children are boys.'

In (10b) and (11b), the locative NP precedes and agrees with the adjectival or nominal predicate, whose theme argument is postponed. The word order of (10b) and (11b) is therefore analogous to the word order of the examples in (1)-(3) which illustrate semantic locative inversion with stative unaccusative verbs. However, (10b) and (11b) show that, in contrast to verbal predicates, semantic locative inversion in Zulu is not possible with non-verbal predicates.

⁴ "True" adjectives in Zulu consist of the adjectival root plus the so-called basic prefix, which agrees with the subject in noun class (but not in person). The subject marker is typically attached to the derived adjectival stem, but is omitted in the affirmative third person present tense. Therefore, in order to present examples with the subject marker, I use negated sentences with adjectival predicates in this paper.

2.2 The locative NP

The discourse properties of semantic locative inversion are similar to those that have been reported for the well-known cases of formal locative inversion (cf. Bresnan & Kanerva 1989). The fronted locative is typically interpreted as a topic, and the post-verbal logical subject provides new information. However, as was noted in the introduction, there is an important morpho-syntactic difference between these two types of inversion constructions. In contrast to formal locative inversion, the fronted argument in semantic locative inversion is not grammatically identified as a locative, but is instead realised as a plain NP.

This NP has all the characteristics of a grammatical subject. The examples discussed so far have already demonstrated that the locative NP triggers noun class subject agreement with the verb. The following example shows that the locative subject can also be pro-dropped:

- (12) ITheku li-y-idolobha eli-hle. Li-hlal-a abantu aba-ningi.
Durban5 SM5-COP-city5 ADJ5-pretty SM5-stay-FV people2 ADJ2-many
'Durban is a pretty city. Many people live there.'

The second sentence in (12) lacks an overt subject, but the subject marker *li-* shows anaphoric agreement with the locative subject NP *ITheku*, 'Durban', from the previous sentence, which gives rise to a pronominal locative reading.

Furthermore, locative subject NPs can undergo raising and left dislocation:

- (13) a. Ku-fanele lesi sikole si-sebenz-el-e othisha aba-ningi.
EXPL17-must DEM7 school7 SM7-work-APPL-SUBJ teacher1a ADJ2-many
'It's necessary that many teachers work at this school.'
b. Lesi sikole si-fanele si-sebenz-el-e othisha abanangi.
DEM7 school7 SM7-must SM7-work-APPL-SUBJ teacher1a ADJ2-many
'This school is where many teachers must work.'
c. Lesi sikole ku-fanele si-sebenz-el-e othisha abanangi.
DEM7 school7 EXPL17-must SM7-work-APPL-SUBJ teacher1a ADJ2-many
'This school, many teachers must work at it.'

In (13a), the modal verb *fanele* combines with an embedded subjunctive clause in which semantic locative inversion has taken place. For many Zulu speakers, *fanele* can function as a raising verb and attract the subject of the embedded subjunctive to the subject position of the matrix clause, where it triggers noun class agreement with *fanele* (see Zeller 2006). (13b) shows that locative subjects can undergo this operation. (13c) differs minimally from (13b) in that the fronted locative subject does not trigger agreement with *fanele*. Instead, *fanele* is prefixed with the default subject marker *ku-* that also appears in the non-raising variant (13a). This suggests that (13c) does not involve subject-to-subject raising, but left dislocation of the locative subject, i.e. topic fronting into the left periphery of the main clause.

The locative subject can also be questioned and relativised (see also Buell 2005). The subject question in (14), which is formed by means of a cleft construction, illustrates both possibilities:

- (14) Yiziphi izindlu ezi-hlal-a abantu aba-dala?
which10 houses10 REL10-stay-FV people2 ADJ2-old
'In which houses do the old people live?'

In (14), the wh-phrase *yiziphi izindlu*, 'which houses', is a locative NP modified by a subject relative clause. This demonstrates that semantic locative inversion can also apply within a relative clause.

Finally, the following examples illustrate that grammatical subjecthood is a necessary, but not a sufficient, condition for an NP to bear the thematic role of location. On the one hand, a locative argument cannot be expressed as a bare NP-object in Zulu:

- (15) *Abantu aba-dala ba-hlal-a lezi zindlu.
 people2 ADJ2-old SM2-stay-FV DEM10 house10
 Intended: 'Old people live in these houses.'

On the other hand, inversion does not automatically license a locative interpretation of the fronted NP:

- (16) a. Amadoda a-hlal-a o-tshwale-ni.
 men6 SM6-stay-FV LOC-beer14-LOC
 'The men live by the brewery/in the tavern.'
 b. *Utshwala bu-hlal-a amadoda.
 beer14 SM14-stay-FV men6
 Intended: 'The brewery/the tavern is where the men live.'

The sentence in (16a) is a non-inverted sentence with the VP-internal locative argument *otshwaleni*, lit. "the place of beer", which has been translated by my informants as either "(in the) tavern" or "(near the) brewery". Obviously, the noun *utshwala* by itself does not refer to a location; rather, the locative interpretation results from the noun being formally realised as a locative. In contrast, when *utshwala* is realised as an NP in pre-verbal subject position, as in (16b), no locative interpretation is possible, even though (16b) is the inverted variant of (16a). This demonstrates that inversion alone is not enough to license the locative interpretation of an NP. Rather, semantic locative inversion is only possible with subject NPs that refer to entities that are also possible locations, such as schools, shops, tables, cities etc. Although promotion to subject is necessary in order to realise a locative argument as an NP (cf. (15)), the locative interpretation is not produced "by means of" semantic locative inversion; rather, it is rooted in the semantics of the noun which functions as the head of the subject NP.

2.3 The logical subject

The examples discussed thus far show that the logical subject follows the verb in semantic locative inversion. In Zulu, a post-verbal subject is located in one of two potential syntactic positions: it is either inside the VP-predicate, or it has been extraposed (right-dislocated) to a predicate-external position. The possibility of subject right-dislocation is illustrated by the examples in (17):

- (17) a. I-ya-hlek-a ingane.
 SM9-DIS-laugh-FV child9
 'The child is laughing.'
 b. U-ya-hamb-a umfana.
 SM9-DIS-leave-FV boy1
 'The boy is leaving.'

I now show that in semantic locative inversion constructions, the logical subject is not right-dislocated, but forms part of the VP. The evidence I present is based on well-established tests that exploit systematic differences between constructions with predicate-internal and with right-dislocated subject NPs in Zulu.

A first difference between semantic locative inversion and subject right dislocation shows up in the verbal morphology. In the examples in (17), the verb appears in the so-called "long" or "disjoint" verb form (in (17) realised by the affix *-ya-*). Van der Spuy (1993) and Buell (2005, 2008) show convincingly that a phrase that follows the long form of the verb in Zulu is always predicate-external, while elements immediately following the "short" or "conjoint" verb form are located inside the main predicate.⁵ Hence, the occurrence of the disjoint verb form in the examples in (17) implies that the subject NPs are outside the VP; they therefore must be right-dislocated. In contrast, the verb in semantic locative inversion is always in the conjoint form. This is evidence that the post-verbal subjects in these constructions are VP-internal.

A second difference between subject right-dislocation and semantic locative inversion concerns subject agreement. While the extraposed subjects in (17) agree in noun class with the verb, the post-verbal subjects in semantic locative inversion do not agree (agreement is always with the locative subject NP). Importantly, subject agreement in Zulu, and perhaps in Bantu languages in general, is only possible with VP-external NPs, and never attested with VP-internal subjects (Buell 2005; Baker 2008). This further supports the view that the post-verbal subjects in semantic locative inversion are located inside the VP.

A third difference between extraposed and post-verbal NPs emerges in the context of negation. Consider the examples in (18)-(20):

- (18) UThandi a-ka-bon-i muntu.
Thandi1a NEG-SM1-see-FV person1
'Thandi doesn't see anyone.'
- (19) A-ka-hlek-i umuntu/*muntu.
NEG-SM1-laugh-NEG person1
Only: 'The person isn't laughing.'; not: 'No one is laughing.'
- (20) Lesi sikole a-si-fund-el-i mnntwana.
DEM7 school7 NEG-SM7-study-APPL-FV child1
'No child studies at this school.'

(18) shows that VP-internal objects in the scope of negation can appear without the so-called prevowel (augment) in Zulu and function as negative polarity items. In contrast, the prevowel of a right-dislocated subject in Zulu can never be omitted, (19). However, in negated semantic locative inversion constructions, it is also possible to drop the augment of the post-verbal subject, as the example in (20) demonstrates. This provides evidence that the logical subject in semantic locative inversion, like ordinary object arguments, is part of the VP-predicate.

Finally, this conclusion is also supported by the following example from Buell (2005: 198):

⁵ This obviously applies only in those environments in which the conjoint-disjoint alternation is morphologically expressed in Zulu, such as in the affirmative present tense or recent past.

- (21) Isikole ngasinye_i si-fund-el-a abantwana ba-so_i.
 school7 each7 SM7-study-APPL-FV child2 POSS2-its
 Lit.: 'Each school studies its children.'; 'Each school is studied at by its children.'

(21) shows that a quantificational locative subject NP can bind a pronoun inside the logical subject. This is consistent with the view that the logical subject NP is in a VP-internal position.

The examples demonstrate that, because of its "low" syntactic position inside the VP, the logical subject in semantic locative inversion has certain properties otherwise associated with objects. It is therefore worth asking whether VP-internal subjects also behave like objects with respect to the ability to undergo passivisation or object marking.⁶

First, consider passivisation. On the surface, semantic locative inversion produces what looks like a transitive sentence, with a pre-verbal subject NP (the locative) and a predicate-internal NP-argument (the logical subject). However, (22) shows that passivisation of the VP-internal NP is not possible:

- (22) a. Lesi sitolo si-sebenz-el-a la madoda.
 DEM7 store7 SM7-work-APPL-FV DEM6 men6
 'These men work at this store.', 'This store is where these men work.'
 b. *La madoda a-setshenz-el-w-a yi-lesi sitolo.
 DEM6 men6 SM6-work-APPL-PASS-FV 'by'-DEM7 store7
 Intended: 'This store is where these men work.'

(22a) repeats example (5b) from section 2.1, and (22b) is the corresponding passive, in which the logical subject NP has been promoted to the grammatical subject position while the locative NP is realised as an adjunct "by-phrase". However, with the intended interpretation, (22b) is completely unacceptable.⁷

A second grammatical process that can apply in transitive constructions in Zulu is object marking, illustrated in (23b):

- (23) a. Izingane zi-thand-a ikati.
 children10 SM10-like-FV cat5
 'The children like the cat.'

⁶Another property of object arguments is omissibility. Buell (2007) observes that the logical subject cannot be omitted in semantic locative inversion with unaccusative verbs:

(i) *Lezi zindlu zi-(ya)-hlal-a. [Buell 2007: 111]
 DEM10 house10 SM10-(DIS)-stay-FV
 Intended: 'These houses are lived in.'

Interestingly, Buell (2007) reports a contrast between examples such as (i) and corresponding examples with agentive intransitive verbs. According to Buell, (ii) is grammatical:

(ii) (*Lesi sikole si-ya-fund-el-a. [cf. Buell 2007: 110]
 DEM7 school7 SM7-DIS-study-APPL-FV
 'This school is studied at. (It hasn't been closed down.)'

However, the judgments of my informants were not as clear-cut as Buell's. While some speakers confirmed the contrast between (i) and (ii), others found the omission of the logical subject in semantic locative inversion generally unacceptable and regarded both (i) and (ii) as ill-formed. My data are therefore not reliable enough to draw conclusions here.

⁷ Recall that (5) is ambiguous. The NP *lesi sitolo* can be interpreted as a thematic subject and the NP *la madoda* as an object argument introduced by the applicative ('The store works for/benefits the men.'). Based on this interpretation, (22b) is indeed grammatical (it can mean 'The men are benefited by the store.').

- b. Izingane zi-ya-li-thand-a.
 children10 SM10-DIS-OM5-like-Fv
 'The children like it (e.g. the cat).'

In (23b), the object marker of class 5 is attached to the verb stem, giving rise to a pronominal interpretation of the theme argument. Since the logical subject NP in semantic locative inversion is located inside the VP, one might expect that it can also be realised as an object marker. However, (24) shows that this is not possible:

- (24) a. Lezi zindlu zi-hlal-a abantu aba-dala.
 DEM10 house10 SM10-stay-Fv people2 ADJ2-old
 'Old people live in these houses.'
 b. *Lezi zindlu zi-ya-ba-hlal-a.
 DEM10 house10 SM10-DIS-OM2-stay-Fv
 'They live in these houses.'

In (24b), the logical subject of (24a) has been replaced by the corresponding object marker. The result is clearly ungrammatical.

Note that pronominalisation of postverbal subjects is not generally impossible. Zulu also has full pronominal NPs (sometimes called "absolute" or "emphatic" pronouns). (25) shows that when the logical subject in (24a) is replaced by a full pronoun, semantic locative inversion is still acceptable:

- (25) Lezi zindlu zi-hlal-a bona.
 DEM10 house10 SM10-stay-Fv PRON2
 'They live in these houses.'

The data show that the logical subject in semantic locative inversion cannot be realised as an object marker or promoted to subject position in a passive. This observation perhaps does not come as a surprise – after all, the post-verbal NP in semantic locative inversion is a logical *subject*, which means that it is thematically the highest-ranked argument in these constructions. The question is therefore whether the grammatical operations of object marking and passivisation in inversion constructions are applicable to NPs that are lower in the thematic hierarchy. In order to answer this question, I now return to examples of semantic locative inversion with transitive verbs.

2.4 Object NPs

Recall that for at least some Zulu speakers, semantic locative inversion is possible with transitive verbs. (26) repeats example (9b) from section 2.1:

- (26) Ikishi li-phek-el-a umama ukudla.
 kitchen5 SM5-cook-APPL-Fv mother1a food15
 'The kitchen is the place where mother cooks food.'

In (26), both arguments of the verb (the logical subject *umama*, 'mother', and the logical object *ukudla*, 'food') are realised inside the VP. However, passivisation of the object-NP is not possible, although this NP is a theme-argument and thematically ranked below the logical subject:

- (27) *Ukudla ku-phek-el-w-a umama (y-ikishi).
 food 15 SM15-cook-APPL-PASS-FV mother1a 'by'-kitchen5
 Intended: "The kitchen is where the food is cooked (by mother)."

In (27), the logical subject *umama* has remained inside the VP, while the logical object has been promoted to the pre-verbal subject position. The grammatical subject of (26), the locative NP *ikishi*, 'kitchen', is realised as a *by*-phrase in (27). However, speakers who accept the active construction in (26) nevertheless find (27) ungrammatical.

The same observation can be made with respect to object marking:

- (28) a. Lesi sikole si-fund-el-a abantwana ulimi.
 DEM7 school7 SM7-study-APPL-FV child2 language11
 'Children study language at this school.'
 b. *Lesi sikole si-lu-fund-el-a abantwana.
 DEM7 school7 SM7-OM11-study-APPL-FV child2
 'Children study it at this school.'
 c. Lesi sikole si-fund-el-a abantwana lona.
 DEM7 school7 SM7-study-APPL-FV child2 PRON17
 'Children study it at this school.'

The NP *ulimi*, 'language', in (28a) represents the object argument of the verb and follows the logical subject. However, (28b) shows that this argument cannot be realised as an object marker, although pronominalisation by means of an absolute pronoun is again possible, (28c). The contrasts depicted in (28) are robust and have been confirmed by all speakers who consider examples such as (28a) well-formed.

My data thus show that VP-internal NPs in semantic locative inversion, regardless of their thematic properties, can neither be passivised nor object-marked – they seem to be syntactically "inactive" and unable to participate in basic grammatical operations. In section 6 I will argue that this is a consequence of the syntax of semantic locative inversion, to which I now turn.

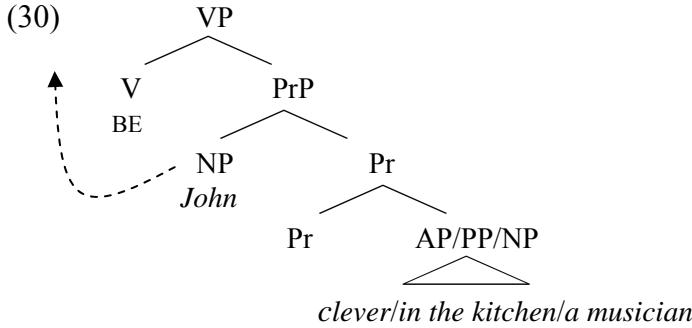
3. Semantic locative inversion and the syntax of predication

The analysis that I present in this and the following sections is based on the idea that in semantic locative inversion constructions, the pre-verbal locative NP and the remaining part of the sentence (the VP, including the verb and its thematic arguments) stand in a subject-predicate relation. To implement this idea, I adopt a proposal made in Bowers (1993) and extended in Hazout (2004) regarding the syntactic representation of adjectival, prepositional and nominal predicate constructions:

- (29) a. John is [AP clever].
 b. John is [PP in the kitchen].
 c. John is [NP a musician].

According to Bowers (1993) and Hazout (2004), the syntax of subject-predicate constructions is based on the projection of a functional category *Pr* (for predication) which in the English examples in (29) is selected by the copula verb *be*. The head of *Pr* is responsible for establishing a predication relation between its predicative

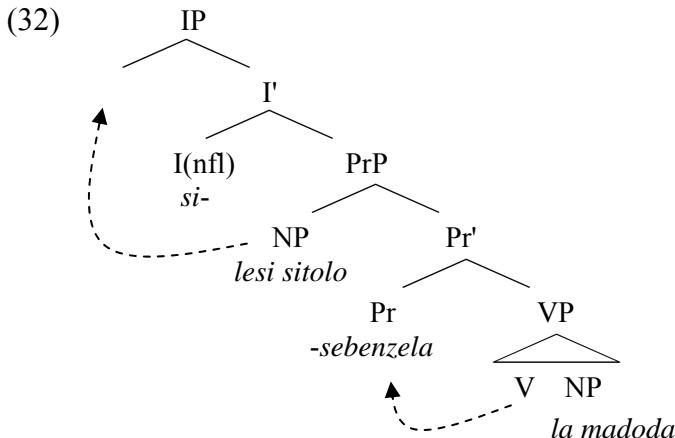
complement (an AP in (29a), a PP in (29b) and an NP in (29c)) and a subject NP introduced in [Spec, Pr] (*John* in all examples) which moves to [Spec, Infl]:



In the theory proposed by Bowers (1993), the XP-complement of Pr denotes a property (the property of being clever, of being in the kitchen etc.). The semantic function of Pr is to map this property into a "propositional function", i.e. into a predicate that combines with an argument to yield a proposition.⁸

I now propose that semantic locative inversion also involves a Pr-projection, but crucially, I suggest that PrP in Zulu is not selected by a copula verb. Rather, Pr appears higher in the structure. I assume that the predication phrase PrP in Zulu is selected by the inflectional head Infl and that Pr in turn takes the VP as its complement. In semantic locative inversion, the locative NP is introduced as a subject NP in [Spec, Pr]:

- (31) Lesi sitolo si-sebenz-el-a la madoda.
 DEM7 store7 SM7-work-APPL-FV DEM6 men6
 'These men work at this store.', 'The store is where the men work.'



It is generally assumed that the verb in Bantu languages leaves the VP and undergoes head movement to a higher functional head position (see e.g. Baker 2008). As (32) shows, I adopt this assumption here and assume that the verb moves out of the VP, at least as high as Pr, but possibly all the way up to Infl. Furthermore, I assume that the logical subject, like all arguments of the verb, originates inside the VP. However, since the highest NP in (32) is the locative NP introduced in [Spec, Pr], it is this NP

⁸ In the semantic framework adopted by Bowers (1993), properties are basic types (π). In order to predicate a property of an entity e to form a proposition p , the property therefore first needs to be translated into a predicate of type $\langle e, p \rangle$. The semantics of Pr corresponds to an operator that maps π -type elements onto predicates of type $\langle e, p \rangle$.

that moves to [Spec, Infl] and becomes the grammatical subject. The logical subject remains inside the VP and consequently follows the verb. In this position, it can be bound by the locative NP and is in the scope of higher functional categories such as negation.

Like Bowers, I assume that the semantic function of Pr is to establish a predication relation between its complement and its specifier. Since Pr maps properties onto predicates, the denotation of the VP in semantic locative inversion must be regarded as a "situative property" of locations, i.e. the VP refers to a situation that characteristically takes place in a certain location. Note that properties can be expressed in set-theoretical terms (e.g. the property of being clever is the set of individuals who are clever, etc.). According to this view, the VP in semantic locative inversion denotes the set of locations in which the event or state expressed by the VP takes place. Pr then maps this property into a propositional function that can combine with the location expressed by the NP in [Spec, Pr] to yield a proposition. In (31), for example, the VP denotes a particular property of locations X, namely the property of having men work (in X). By combining the VP with Pr, this property can be predicated of the locative subject NP introduced in [Spec, Pr].

From a theta-theoretical point of view, the PrP-analysis requires the complement of Pr to be a constituent with one unsaturated theta role. In the English examples in (29), this theta role corresponds to the theme argument of the adjectival, prepositional or nominal predicate head. In semantic locative inversion, the unsaturated theta role of the VP is a location. I assume that this thematic information is inherently associated with the argument structure of stative unaccusative verbs such as *-hlala*, 'live', or *-ma*, 'stand', which lexically assign locative theta roles. However, the lexical argument structure of unergative or transitive verbs does not include a location. This explains why semantic locative inversion is only possible with these verbs when an applicative marker appears (see section 2.1). The applicative marker adds a location to the argument structure of unergative or transitive verbs in Zulu; if this locative theta role is not assigned to a VP-internal element, then it remains unsaturated at the level of VP. The VP then qualifies as a suitable complement of Pr, and the missing locative argument is introduced in [Spec, Pr].

According to this analysis, the proposition expressed by a sentence with semantic locative inversion is the same as that of the corresponding sentence without inversion. However, the internal composition of the proposition is different. Rather than predicing a property of an individual-type entity, semantic locative inversion predicates a situation of a location. In this way, the construction changes what Borschev & Partee (2001) call the "perspectival center" of a sentence. The perspectival center determines from which perspective one looks at a situation. In canonical, non-inverted constructions with or without locatives, the perspectival center is the thematic subject, and the content of the rest of the clause is expressed "about" the subject. In contrast, semantic locative inversion shifts the perspectival center to the location. The event or state expressed by the VP is seen as providing information about what happens in the location referred to by the subject. This shift of perspective is obviously related to the abovementioned fact that the locative subject is typically the topic of the sentence. It is nicely reflected by the translations that my informants provided for sentences with semantic locative inversion: they often used inverted pseudoclefts such as "The school is where the children study". In these constructions, the wh-relative also expresses a situative property of locations which is then predicated of a subject NP with a locative meaning.

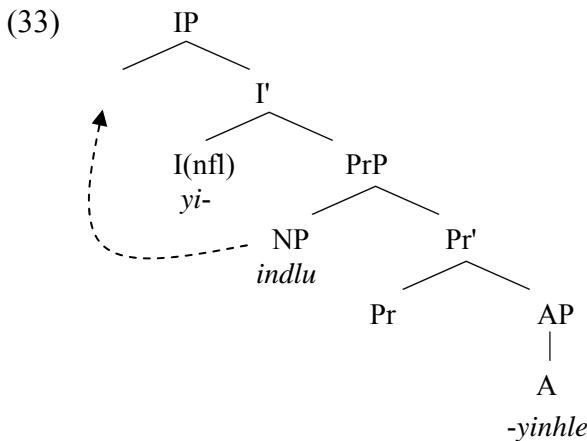
In non-inverted sentences with S-V-O word order, Pr is *not* part of the structure. In those standard constructions, all thematic roles of the verb are assigned to syntactic

arguments within the VP. The highest NP in the clause is the logical subject, and consequently, it is this NP that moves to [Spec, Infl]. This means that a sentence such as (31) can be represented by two different structures, each with a different interpretation. While the syntax in (32) gives rise to the interpretation provided in (31), (31) can also be represented by a structure without Pr, in which *lesi sitolo*, 'this shop', is the logical subject and *la madoda*, 'these men', is an internal argument introduced by a (benefactive) applicative marker. As was discussed in section 2, this structure corresponds to the alternative meaning "The shop benefits the men". According to my proposal, therefore, a sentence such as (31) is syntactically ambiguous.

In the following sections I show how the proposed analysis can be extended to other inversion constructions and ultimately can explain the basic properties of semantic locative inversion discussed in section 2.

4. Non-verbal predicates

In the preceding section, I have adopted Bowers' (1993) Pr-projection and suggested that in semantic locative inversion, Pr in Zulu selects a VP-complement. I now propose that adjectival, prepositional and nominal predicate constructions in Zulu are also based on the PrP-syntax. As proposed by Bowers (1993) and Hazout (2004), AP-, PP- or NP-predicates are complements of Pr, and their theme arguments originate in [Spec, Pr]. I adopt this view for Zulu, but I argue that, in contrast to English, PrP is never selected by a copula verb in Zulu. Instead, I assume that the syntactic environment of PrP in non-verbal predicate constructions in Zulu is the same as in semantic locative inversion: PrP is selected by Infl. Non-verbal predicate constructions in Zulu are therefore based on the syntax in (33) ((33) represents the structure that underlies the adjectival predicate construction in (34a) below):



As in the case of semantic locative inversion, I assume that the subject argument NP of non-verbal predicates is introduced in [Spec, Pr] and moves to [Spec, Infl]. Possibly, the head of the non-verbal predicate (the adjective *yinhole*, 'beautiful', in (33)) also moves to Pr, just like the verb in semantic locative inversion, but I do not represent this possibility in (33).

Importantly, (33) implies that adjectival, prepositional, and nominal predicate constructions in Zulu do not include a verb or a VP. This may appear to be an unconventional assumption, but note that there is no evidence whatsoever that Zulu uses a verbal element as a copula in these constructions (cf. Van der Spuy 2001; Buell

2008 for detailed discussion of non-verbal predication in Zulu). In adjectival predicate constructions, for example, the agreement morphology attaches directly to the adjectival stem:

- (34) a. Indlu a-yi-yin-hle.
house NEG-SM9-BP9-beautiful
'The house isn't beautiful.'
- b. A-si-ba-dala.
NEG-1stPL-BP2-old
'We aren't old.'

The same is true for locative predicates, which are PPs in Zulu (see Buell 2008):⁹

- (35) a. Abafana ba-s-en-kamelwe-ni.
boy2 SM2-s-LOC-room-LOC
'The boys are in the room.'
- b. Abafundi ba-ku-le ndlu.
student2 SM2-in-DEM9 house9
'The students are in this house.'

The absence of a copula verb in the examples in (34) and (35) follows from the proposed syntax in (33), which does not include a verbal projection. Agreement is established directly between the grammatical subject NP (introduced in [Spec, Pr]) and the head of the complement of Pr.

Finally, consider nominal predicate constructions in Zulu:

- (36) a. UThandi u-ng-umfundi.
Thandi1a SM1a-COP-student1
'Thandi is a student.'
- b. UThemba u-y-indoda.
Thembala SM1a-COP-man9
'Themba is a man'

(36) shows that the agreement morphology is not directly prefixed to nominal predicates in Zulu. Rather, a segmental copulative particle intervenes between the NP-predicate and its subject in (36).¹⁰ Importantly, however, these copulative particles are clearly non-verbal; they are affixal elements which lack the typical morphological properties of verbs in Zulu (see Van der Spuy 2001: 219f. for discussion). Therefore, rather than treating the copulative particles as morphologically defective verbs, I suggest that they are overt realisations of the Pr-head that links a nominal predicate to its argument in [Spec, Pr].

According to the representation in (33), the thematic argument of non-verbal predicates originates in the same position as the locative NP-argument of "situative" VPs in semantic locative inversion constructions, namely in [Spec, Pr]. Importantly, this explains why semantic locative inversion is not possible with adjectival or

⁹ Note that the *-s-* in (35a) is epenthetic, inserted to avoid vowel hiatus.

¹⁰ The segmental copulative morpheme has three allomorphs in Zulu (*ng(a)-*, *y(i)-* and *w(u)-*). There is also a non-segmental copula which is expressed with a depressor tone (breathy voice) on the initial syllable of the nominal predicate (Buell 2008). The situation is more complex with negated nominal predicate constructions, which involve the use of pronominal forms in addition to the NP-predicate. Crucially, none of these constructions involves a verbal copula. For detailed discussion of nominal predication in Zulu, see Buell (2008).

nominal predicates (see section 2.1). The word order NP_{Loc}-Adj/N-NP_{Theme} can never be produced because the theme argument of adjectival and nominal predicates never appears predicate-internally. Instead, it is introduced predicate-externally in [Spec, Pr], i.e. in the same position as the locative NP in semantic locative inversion constructions. A locative subject NP can therefore never co-occur with the theme argument of a non-verbal predicate.

An important implication of this analysis is that semantic locative inversion and non-verbal predication in Zulu are different instances of the same syntactic configuration, in which an XP denoting a property combines with an appropriate NP-argument of which this property is predicated. To the best of my knowledge, this parallel between inversion and non-verbal predication has not yet been noted in studies on Bantu syntax. However, it emerges as an interesting consequence of the idea that the functional category Pr, which projects as a complement of Infl in Zulu, can take NP, AP, PP and VP-complements – a selectional property that gives rise to both non-verbal and non-canonical verbal predication relations.

5. Expletive constructions

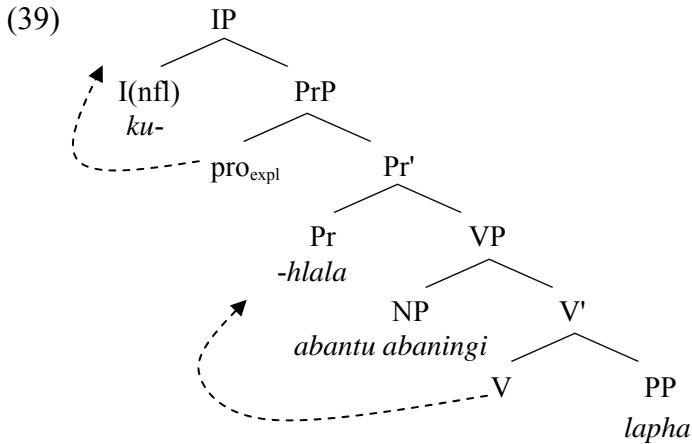
The analysis developed thus far opens a new window into the syntax of expletive constructions in Zulu. Examples are provided in (37):

- (37) a. Ku-hlal-a abantu aba-ningi lapha.
EXPL17-live-FV person2 ADJ2-many here
'There are many people living here.'
- b. Ku-hlek-a umfana.
EXPL17-laugh-FV boy1
'A boy is laughing.', lit. "There laughs a boy.'

The empirical tests that I used above to determine the syntactic position of post-verbal NPs in Zulu (see section 2.3) demonstrate clearly that the post-verbal subjects of expletive constructions are part of the VP. First, observe that the logical subjects in examples (37a-b) do not agree with the verb. Instead, the verb is always prefixed with the invariant subject marker *ku-* in expletive constructions, regardless of the noun class of the logical subject. Second, the verb appears in the conjoint verb form in these constructions. And third, the augment of the post-verbal subject can be dropped when an expletive construction is negated:

- (38) A-ku-hlal-i muntu lapha.
NEG-EXPL17-live-FV person1 here
'Nobody lives here.'

I now propose that the syntax of expletive constructions in Zulu also includes a Pr-projection between Infl and VP. However, in contrast to the constructions discussed in sections 3 and 4, [Spec, Pr] in expletive constructions is not filled with a referential argument NP. Rather, I assume that [Spec, Pr] in examples such as (37a-b) and (38) is a non-theta position and filled with a non-referential expletive pronoun. For the sake of the following discussion, I take expletives in Zulu to be phonologically null elements that trigger the appearance of the prefix *ku-* as a default subject marker (but note that other approaches are possible and compatible with the analysis that follows). The syntax of expletive constructions in Zulu hence looks like (39):



As (39) shows, the verb moves to Pr and consequently precedes the logical subject, which remains inside the VP. This derives the V-S word order attested in the examples in (37) and (38).

It is often noted that expletive constructions in Zulu and other Southern Bantu languages typically express "presentational focus" on the event described by the VP (see, e.g., Buell 2008 for Zulu; Khumalo 2010 for Ndebele; Zerbian 2006 for Northern Sotho). I now suggest that this interpretation arises directly as a consequence of the syntax in (39). My claim is based on the theory of predication and expletive constructions proposed in Hazout (2004, 2010). Hazout's (2004) analysis of English examples such as (40a) and (40b) is again based on Bowers' (1993) PrP-structure:

- (40) a. There is [_{NP} food] (on the table).
 b. It is [_{AP} hot] (in Durban).

(40a) is an existential statement, and (40b) is a related expletive construction with what Hazout (2004, 2010) calls an "atmospheric" interpretation. According to Hazout, the syntax of these English expletive constructions is similar to that of the nominal and adjectival predicate constructions in (29a) and (29c) above. The NP *food* in (40a) and the AP *hot* in (40b) combine with Pr and therefore, according to Hazout, are syntactically construed as predicates.¹¹ The expletive elements *there* and *it* are introduced in [Spec, Pr].

In Hazout's (2004) theory, the *syntactic* status of an XP as a predicate is simply determined by its structural environment – any XP-complement of Pr counts as a syntactic predicate. However, whether or not a syntactic predicate is also interpreted as a predicate *semantically* depends on the nature of the subject in [Spec, Pr], i.e. on whether it is an expletive or a referential argument. When [Spec, Pr] provides the predicative complement of Pr with an appropriate referential argument, a semantic predication relation is established. However, when [Spec, Pr] includes a non-referential expletive, then an alternative meaning must be construed. According to Hazout (2004, 2010), this is how the existential and atmospheric interpretation of expletive constructions such as (40a) and (40b) come about: the combination of a syntactic predicate and a non-referential subject is interpreted as *asserting the existence* of the entity or atmospheric quality expressed by the complement of Pr.

This idea can now be applied to expletive constructions in Zulu. I follow Hazout (2004) and assume that the VP-complement of Pr is always a syntactic predicate, but

¹¹ See also Williams (1994) for evidence that postverbal NPs in existential constructions are predicates.

that it can only be translated into a semantic predicate if [Spec, Pr] contains an appropriate referential argument. If [Spec, Pr] is filled with an expletive, then the only interpretation available is an existential interpretation of the situation expressed by the VP. Consequently, sentences such as (37a-b) and (38) express presentational focus: "There is a situation s, such that [[VP]](s)".¹²

According to this analysis, both semantic locative inversion and expletive constructions in Zulu are based on a structure in which Pr selects a VP as a complement and turns it into a syntactic predicate. When [Spec, Pr] is filled with a locative argument, Pr establishes the predication relation characteristic of semantic locative inversion; when [Spec, Pr] is filled with an expletive, the result is a presentational focus construction.

Given the syntactic parallels between expletive and semantic locative inversion constructions, it is not surprising to discover that these two types of inversion constructions also share other properties. First, it was noted in section 2.1 that semantic locative inversion in Zulu is possible with unaccusative and unergative verbs, but that there is speaker variation regarding its acceptability with transitive verbs. Interestingly, the same holds for expletive constructions in Zulu. While the grammaticality of examples such as (37a-b) and (38) with unaccusative and agentive intransitive verbs is uncontroversial, not all Zulu speakers accept transitive expletive constructions such as (41a) and (41b):

- (41) a. (*Ku-phek-a umama inyama e-kishi-ni.
EXPL17-cook-FV mother1a meat9 LOC-kitchen5-LOC
'Mother is cooking meat in the kitchen.';
lit.: 'There cooks mother meat in the kitchen.'
- b. (*Ku-bhal-a abafundi izincwadi.
EXPL17-write-FV student2 letter10
'The students are writing letters.';
lit. 'There write the students letters.'

Importantly, those speakers who accept constructions such as those in (41) still reject expletive constructions such as (42a) and (42b), in which the logical object is an object marker:

- (42) a. *Ku(-ya)-yi-phek-a umama ekishi-ni.
EXPL17-(DIS)-OM9-cook-FV mother1a LOC-kitchen5-LOC
Intended: 'Mother is cooking it in the kitchen.'
- b. *Ku(-ya)-zi-bhal-a abafundi.
EXPL17-(DIS)-OM10-write-FV student2
Intended: 'The students are writing them.'

(42a-b) shows that it is impossible to realise the object argument of a transitive expletive construction as an object marker (but note that pronominalisation is possible by means of absolute pronouns). This is a second parallel between expletive

¹² Recall that according to Bowers (1993), the complement of Pr must denote a property. However, the VP-complements of Pr in expletive constructions denote complete propositions, since all arguments of the verb are saturated inside the VP. I assume that the semantics solves this problem by interpreting the VP in such constructions as expressing a property of situations. Pr then maps this property onto an eventive or stative predicate ($\lambda s[[VP](s)]$) whose situation variable is existentially bound by the expletive.

constructions and semantic locative inversion, where the same restriction was observed.

Finally, expletive constructions and semantic locative inversion behave similarly when it comes to non-verbal predicates. Non-verbal predicates can appear with expletives in Zulu, but only in existential or adjectival atmospheric sentences, i.e. when no referential argument is present:¹³

- (43) Ku-khona ukudla oku-ningi e-tafuleni.
EXPL17-be food 15 ADJ15-many LOC-table5-LOC
'There's a lot of food on the table.'

- (44) Ku-mnyama.
EXPL17-dark
'It's dark.'

However, when the referential argument of a non-verbal predicate is present, an expletive construction cannot be formed:¹⁴

- (45) *A-ku-ku-ncane izindlovu. [Buell 2008: 12]
NEG-EXPL17-BP17-small elephant10
Intended: 'Elephants aren't little.'
- (46) *Kw-a-ku-ng-umngane we-thu wonke umfana [Buell 2008: 18]
EXPL17-PAST-EXPL17-COP-friend1 POSS1-our every1 boy1
o-m-azi-yo.
REL2ndSG-OM1-know-REL
Intended: 'Every boy you know was our friend.'
- (47) *Ku-s-e-dolobhe-ni uSipho. [Buell 2008: 23]
EXPL17-s-LOC-city5-LOC Sipho1a
Intended: 'Sipho is in town.'

The referential arguments of the non-verbal predicate constructions in (45)-(47) appear in post-predicate position. This inverted word order corresponds to the V-S word order of the verbal expletive constructions in (37) and (38), in which the logical subject has remained inside the VP. But in contrast to (37a-b) and (38), (45)-(47) are ungrammatical. If the referential arguments of non-verbal predicates, like those of verbs, were introduced predicate-internally, then this ungrammaticality would be puzzling (cf. Buell 2008). However, the impossibility of expletive constructions such as (45)-(47) follows directly from my proposal, according to which expletive pronouns and the referential arguments of non-verbal predicates are introduced in the same (predicate-external) position, namely in [Spec, Pr]; they can therefore never co-

¹³ Existential constructions such as (43) in Zulu are formed with the locative pronoun *khona*. It is not clear whether *khona* should be treated as a copulative element (a realisation of Pr), or as part of the predicate. What is clear is that *khona* is not a verb. Recall that the NP *ukudla okuningi*, 'a lot of food', in (43) is not an argument, but (part of) the predicate (Williams 1994, Hazout 2004).

¹⁴ Note that some constructions with nominal predicates and overtly realised theme NPs are compatible with *ku*-agreement in Zulu. However, Buell (2008) shows that in these constructions, *ku*-agreement is not triggered by an expletive, but by a silent referential pronoun which is linked to a dislocated NP. These constructions are therefore consistent with my claim that the arguments of non-verbal predicates originate in the same position as expletives in Zulu. The reader is referred to Buell's (2008) paper for empirical details and discussion.

occur. As was discussed above, the same fact explains why semantic locative inversion is not possible with non-verbal predicates: the locative argument NP is also introduced in [Spec, Pr], and hence competes with the referential arguments of non-verbal predicates for this position. The observation that neither locative NP-subjects nor expletives can occur together with the referential arguments of non-verbal predicates therefore supports the idea that all three types of subjects are introduced in the same syntactic position.

6. PrP as a phase

According to Chomsky (2000, 2001, 2008), syntactic derivations proceed in a strictly cyclical fashion. The operations Merge and Move recursively combine elements to form syntactic objects, but at certain points in the derivation, a syntactic object that has thus far been constructed is transferred to the LF and PF interfaces for interpretation. The stage of the derivation at which such a transfer applies is called a *phase*. Once a phase α is completed, the complement of the head H of α is transferred, while α and H remain available for further syntactic computations. Crucially, transferred material is no longer accessible for operations triggered by elements that are introduced in the next phase. This is known as the *Phase-Impenetrability Condition* (PIC):

- (48) *Phase-Impenetrability Condition* (Chomsky 2000: 108)

In phase α with head H, the domain of H is not accessible to operations outside α , only H and its edge are accessible to such operations.

- (49) a. *domain* of H = everything c-commanded by H
 b. the *edge* of H = [Spec, H]

In Chomsky (2000, 2001), phase-hood is in part determined by semantic criteria: according to Chomsky, phases are "propositional", i.e. a phase corresponds to a syntactic object in which all theta roles are assigned.

Based on this "propositional" view of phases, and given the role of the category Pr discussed above, I now suggest that PrP constitutes a phase (cf. Den Dikken 2006 for the same claim regarding Small Clauses). As argued above, when Pr is merged with VP, it turns VP into a predicate, and the NP introduced in [Spec, Pr] functions as the argument of this predicate. In this sense, PrP is propositional; it expresses a complete functional complex. Therefore, once PrP has been constructed, the complement of its head Pr, the VP, is transferred to the interfaces.

Importantly, the assumption that PrP is a phase explains why the post-verbal logical subject and object in semantic locative inversion constructions cannot participate in syntactic processes such as object marking or passivisation (see sections 2.3 and 2.4). It is a standard assumption in generative syntactic theories that a VP-internal argument becomes a grammatical subject by moving to the specifier of a functional head in the Infl-domain (T, or Agr-S). Similarly, the process of object marking in Bantu is often assumed to involve movement of the object to the specifier of a functional category Agr-O above the VP (see e.g. Woolford 2000; Julien 2002; Buell 2005). These movement operations must be triggered by the respective functional heads, which are assumed to agree with and then attract the relevant NP-arguments. In an ordinary derivation without Pr, in which functional heads merge

directly above VP, agreement, attraction, and NP-movement are unproblematic. However, when the phase head Pr is introduced in the derivation, its VP-complement is transferred to the interfaces as soon as PrP is complete. This means that VP-internal arguments are no longer accessible when functional heads such as Agr-O and Agr-S are merged into the structure above PrP. Consequently, passivisation and object marking can never apply in inversion constructions, because the necessary agreement and movement relations between functional categories in the inflectional domain and VP-internal NPs are blocked by the projection of Pr and the PIC.

Notice that agreement between NPs and functional heads is traditionally considered to be a necessary condition for Case assignment. A further consequence of viewing PrP as a phase which blocks this operation is therefore that VP-internal arguments in inversion constructions lack Case. Interestingly, this conclusion is independently reached by Hazout (2004). As discussed above, Hazout (2004) treats the complement of the head Pr as a syntactic predicate, even when the relevant XP is not interpreted as a predicate semantically. Importantly, in Hazout's theory, the identification of an XP as a syntactic predicate has a crucial consequence for the licensing of XP-internal NPs. According to Hazout (2004), an NP included in the predicative complement of Pr does not need Case. Instead, it is grammatically licensed by virtue of its structural environment: since it forms part of a syntactic predicate, it counts as a "predicate nominal" and therefore "lacks a specification for a structural Case feature" (Hazout 2004: 409). Hazout's claim that predicate-internal NPs are not formally licensed by Case is motivated by his analysis of the agreement properties of predicative and existential constructions in English. These properties are not overtly manifest in Zulu, but as I have shown, the inability of VP-internal NP-arguments to undergo operations like the passive or object-marking can be interpreted as a symptom of the same structural situation. The projection of the category Pr turns its XP-complement into a predicate and, by causing XP to be transferred to the interfaces before further functional material can be added, blocks grammatical agreement relations between functional categories and these XP-internal NPs. As a result, the VP-internal arguments in inversion constructions are syntactically inert.

7. Extensions and open questions

I have argued that constructions with "inverted" subjects in Zulu are based on the projection of the functional category Pr, which selects the VP as its complement and introduces the grammatical subject (a locative NP or an expletive) in its specifier. Since the logical subject remains in the VP in these constructions, the order of verb and subject is inverted. I now suggest that this analysis can be extended to cover related inversion constructions that exist in Bantu languages other than Zulu.

(50) is an example of formal locative inversion that is attested in languages such as Chichewa and Herero (see e.g. Bresnan & Kanerva 1989; Marten 2006 and references therein):

- (50) Pò-ndjúwó pé-tjáng-èr-à òvánàtjè òmbàpírà. [Herero; Marten 2006: 115]
 LOC16-house9 SM16-write-APPL-FV child2 letter9
 'At the house write (the) children a letter.'

In constructions such as (50), an NP marked as locative noun class 16 is realised as the grammatical subject of the sentence, triggering class 16 agreement with the verb. The logical subject has remained inside the VP.¹⁵

I suggest that the syntactic derivation of formal locative inversion constructions such as (50) is essentially identical to that proposed for semantic locative inversion in Zulu. The VP in (50) expresses a "situative" property of locations, Pr turns the VP into a predicate, and the locative argument is introduced in [Spec, Pr]. The only difference between Zulu and languages with formal locative inversion, such as Herero, is that the latter type of language has productive locative noun classes. Therefore, a locative NP in [Spec, Pr] cannot be realised as an ordinary NP, but appears with locative noun class morphology and consequently triggers locative agreement on the verb.

A second construction type which is also not attested in Zulu, but that exists in Bantu languages such as Kinyarwanda and Kirundi, is subject-object reversal:

- (51) Amatá y-á-nyôye abâna.
 milk6 SM6-PAST-drink child2
 'Children (not parents) drank milk.' (Lit. 'Milk drank children.')
 [Kirundi; Ndayiragije 1999: 400]

(51) shows that in subject-object reversals, the logical object appears in the grammatical subject position and agrees with the verb, while the logical subject appears in a post-verbal position. Note that (51) is not in the passive voice, although its interpretation is comparable to that of a passive.

Subject-object reversal bears an obvious similarity to semantic locative inversion, and the Pr-analysis can also be applied to this construction. I assume that (51) involves the projection of a PrP whose head selects the VP. Since the theme argument of the verb is not part of the VP in (51), the VP denotes the property of "having been drunk by children". Pr turns this property into a predicate which combines with the NP in [Spec, Pr] to yield a proposition. Note that the post-verbal NP in subject-object reversal cannot be passivised or object-marked, which supports the view that this construction is related to those discussed in this paper.

However, although the Pr-analysis can account for subject-object reversals, the existence of these constructions also raises an important question. Given that Pr can select VP in Zulu, why is subject-object reversal not possible in this language? Why can Pr only turn a VP with an unassigned locative role into a new predicate in Zulu, but not when the missing argument is a theme, as in (51)?

At present, I do not have an interesting answer to this question. The (rather uninteresting) answer that I can offer at this stage is that the selectional properties of Pr may vary from language to language. The lexical entries of individual Pr-elements may determine with what sort of VP Pr can combine. Notice that according to this approach, the absence of constructions such as (51) in Zulu is merely due to a gap in the lexicon. From a purely syntactic point of view, Zulu has what it takes to implement subject-object reversals (namely the ability to combine Pr with VP), but it

¹⁵ Zulu has constructions that on the surface look similar to (50):

(i) Ku-lezi zindlu ku-hlal-a abantu aba-dala. [Buell 2007: 108]
 at-DEM10 house10 EXPL17-stay-Fv people2 ADJ2-old
 'In these houses live old people.'

However, Buell (2007) shows that the fronted locative in formal locative inversion in Zulu is not a grammatical subject. Rather, examples such as (i) are expletive constructions with topicalised PPs.

lacks a lexical item of category Pr that could select a VP with a missing theme argument.

The analysis of another type of inversion construction, this time again observed in Zulu, may have a bearing on this issue:

- (52) Isipuni si-dl-a uJohn.
spoon7 SM7-eat-FV John1a
'John is eating with a spoon.' (Lit. 'The spoon is eating John.')

(52) is an example of what could be labelled "instrument inversion": the grammatical subject NP refers to a tool with which the event expressed by the VP is carried out. While the Pr-analysis can explain the syntactic properties of (52), the thematic properties of this example pose a challenge for my analysis. Recall that in semantic locative inversion and subject-object reversal, as well as in non-verbal predicate constructions, the argument introduced in [Spec, Pr] always saturates a theta role of the verb that has not been assigned VP-internally. However, the NP *isipuni*, 'spoon', in (52) is not an argument of the verb; rather, it is the equivalent of an adjunct. It is not clear how the instrumental subject NP in (52) is integrated into the semantics of the sentence without being lexically licensed as an argument of the verb, particularly given that this option is *not* available for locative adjuncts in semantic locative inversion (recall that semantic locative inversion is only possible with verbs that assign locative theta roles; if the location is not lexically part of the argument structure, it needs to be added by means of the applicative).

Despite these open questions, I believe that extending the analysis developed in this paper to the constructions discussed in this section is the right approach. Not only does a proposal based on the Pr-syntax constitute a first step towards a uniform theory of inversion constructions in Bantu languages, it also defines a theoretical domain within which solutions for the outstanding problems and open questions identified here can be sought, and hopefully be found.

8. Conclusion

The main claim of this paper is that semantic and formal locative inversion, expletive and non-verbal predicate constructions, and potentially also subject-object reversal and instrument inversion, all have an important structural property in common. Their syntax includes the projection of a functional category Pr which establishes a non-canonical predication relation between its complement and an NP in its specifier. In this respect, these constructions have to be distinguished from canonical forms of verbal predication, in which the verb combines with its VP-internal arguments in the order determined by a universal thematic hierarchy (e.g. agent < theme < locative ...). The empirical characteristics of the inversion constructions discussed in this paper support the view that the grammar of Zulu and other Bantu languages licenses these different types of predication relations, each with its own characteristic syntactic and semantic properties.

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