

## Locative inversion in Bantu and predication\*

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### Abstract

In generative grammar, locative inversion in Bantu languages is typically analysed in terms of A-movement of the locative from a VP-internal position to the subject position. I present an alternative analysis, according to which the locative subject-DP is introduced above the vP/VP, in the specifier of a functional category whose head selects the vP/VP as its complement. I suggest that this category is Pr (for “predication”), i.e. the same category that also introduces the subject argument of adjectival or nominal predicates in non-verbal predication constructions (see Bowers 1993, and especially Baker 2003a for Bantu). In locative inversion, Pr establishes a non-canonical predication relation between a vP/VP that expresses a state or event, and a DP that denotes the location of which this state/event is predicated as a property. My analysis is developed on the basis of a detailed discussion of “semantic” locative inversion in the Bantu language Zulu (Buell 2007), a construction in which the inverted subject-DP is not formally marked as a locative, but receives its interpretation solely by virtue of the locative semantics of its head noun.

### 1. Introduction

This paper is concerned with locative inversion in Bantu, a phenomenon which has received a fair amount of attention in the literature and whose properties are well described for many individual Bantu languages (see e.g. Bresnan 1994; Bresnan and Kanerva 1989; Buell 2007; Demuth 1990; Demuth and Mmusi 1997; Diercks 2010, 2011; Khumalo 2010; Marten 2006; Zerbian 2006, and many others). My main focus is on a particular type of locative inversion that is attested in the Bantu language Zulu, a

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member of the Nguni group of languages spoken in South Africa. An example is given in (1b):<sup>1</sup>

- (1) a. *U-tshani bu-mil-a e-n-gadi-ni.*  
AUG-14.grass 14.SM-grow-FV LOC-9-garden-LOC  
'Grass grows in the garden.'
- b. *I-n-gadi i-mil-a u-tshani.*  
AUG-9-garden 9.SM-grow-FV AUG-14.grass  
'In the garden grows grass.'

The word order in (1a) is S-V-O, which is the canonical order in Bantu. The logical subject (class 14 *utshani*, '(the) grass') is in pre-verbal position and shows noun class agreement with the verb. The locative *engadini*, 'in the garden', follows the verb. In (1b), the order of the logical subject and the locative has been inverted; the latter is now in pre-verbal position and agrees with the verb, while the logical subject appears post-verbally. Importantly, whereas the locative in (1a) is also formally marked as such by means of locative affixes, the preposed locative in (1b) is not: although *ingadi* in (1b) still receives a locative interpretation, there is no corresponding locative morphology. In this respect, (1b) differs from the well-studied cases of locative inversion in Bantu in which the inverted pre-verbal constituent is still formally marked as a locative by means of a preposition or locative noun class affixes. (2b) is an example of this latter type of inversion from Chicheŵa:

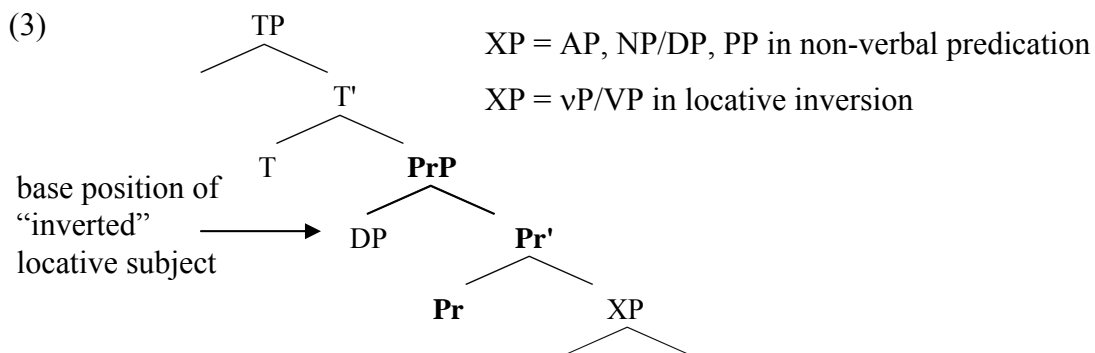
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<sup>1</sup> All examples in this paper are from Zulu, unless otherwise indicated. Nouns in Bantu languages belong to noun classes that determine gender and number properties. Following Meinhof's (1906) numbering system of Proto-Bantu, I mark Bantu noun class prefixes and corresponding agreement markers through numbers. Morphemes are glossed as follows: 1S = first person singular; ADJ = adjective marker; APPL = applicative; AUG = augment; 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; PERF = present perfect; POSS = possessive marker; PRON = absolute pronoun; REL = relative marker; 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.

- (2) a. *A-nyani a-a-khal-a m-mi-tengo.*  
 2-baboon 2.SM-PERF-sit-FV 18-4-tree  
 ‘Baboons are sitting in the trees.’  
 (Chicheŵa; Diercks 2011: 703)
- b. *M-mi-têngo mw-a-khal-a a-nyăni.*  
 18-4-tree 18.SM-PERF-sit-FV 2-baboon  
 ‘In the trees are sitting baboons.’  
 (Chicheŵa; Bresnan and Kanerva 1989: 3)

Both the post-verbal locative in (2a) and the inverted locative in (2b) carry the class 18 locative noun class marker *m(u)-*, which is prefixed to the class 4 noun *mitengo*, ‘tree’. In order to distinguish the Zulu-type of locative inversion shown in (1b) from constructions such as (2b), Buell (2007) refers to the former as “semantic” (as opposed to “formal”) locative inversion.

My aim in this paper is to offer a detailed analysis of semantic locative inversion in Zulu. I intend to show that the properties of this construction challenge the standard generative account of locative inversion, according to which the fronted locative has undergone A-movement from a VP-internal position to the grammatical subject position ([Spec, T]). Rather, I defend an analysis according to which the locative subject originates in the specifier of a functional category which projects *above* the vP/VP. Crucially, I argue that this category is the same category that also introduces the subject argument of *non-verbal* predicates in Bantu (see Baker 2003a). Following Bowers (1993), I call this category Pr, for “predication”:



The idea underlying (3) is that locative inversion establishes a non-canonical subject-predicate relation between a locative subject and a vP/VP, in which the situation (i.e. state or event) denoted by the vP/VP is construed as a property of the subject in [Spec,

Pr]. The VP in (1b), for example, expresses the situation of “grass growing”, and the DP-subject denotes an entity of which this situation is predicated as a property.

In Section 2 of the paper, I investigate the empirical properties of semantic locative inversion in Zulu. Here, my study builds on and extends the work presented in Buell (2007). Section 3 develops my analysis of this construction. I discuss the parallels between non-verbal predication and semantic locative inversion, and I provide syntactic evidence for the existence of Pr by showing that the Pr-projection constitutes a *phase* (cf. Chomsky 2000, 2001, 2008) which blocks Agree-relations between vP-internal DP-arguments and higher functional heads. In Section 4, I argue that my analysis can also be extended to formal locative inversion constructions of the type shown in (2b). Section 5 provides a brief conclusion. In the Appendix, I present a formalisation of the semantics corresponding to the structure in (3), based on the neo-Davidsonian theory of event composition developed in Kratzer (1996).

## 2. Semantic locative inversion in Zulu

### 2.1. *Predicate types that license semantic locative inversion*

As observed in Buell (2007), semantic locative inversion in Zulu is possible with stative unaccusative verbs. Directional verbs of motion typically do not participate in semantic locative inversion:<sup>2</sup>

- (4) a. *A-ba-ntu aba-dala ba-hlal-a ku-lezi zin-dlu.*  
 AUG-2-person 2.ADJ-old 2.SM-stay-FV LOC-10.DEM 10-house  
 ‘Old people live in these houses.’
- b. *Lezi zin-dlu zi-hlal-a a-ba-ntu aba-dala.*  
 10.DEM 10-house 10.SM-stay-FV AUG-2-person 2.ADJ-old  
 ‘Old people live in these houses.’  
 (Lit.: ‘These houses live old people.’)  
 (Buell 2007: 107–108)

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<sup>2</sup> By and large, the contrast found by Buell was confirmed by my informants, although there are some speakers who accept semantic locative inversion with verbs of motion (see e.g. (41) in Section 3.2.2).

- (5) ?\**Le n-dawo i-z-a i-zi-vakashi ezi-ningi.*  
 9.DEM 9-place 9.SM-come-FV AUG-8-visitor 8.REL-many  
 ‘Many visitors come to this place.’  
 (Buell 2007: 112)

A locative interpretation of an unmarked DP is only available when the DP is in pre-verbal position, as in (4b). A post-verbal DP without locative morphology cannot refer to a location:

- (6) \**A-ba-ntu aba-dala ba-hlal-a lezi zin-dlu.*  
 AUG-2-person 2.ADJ-old 2.SM-stay-FV 10.DEM 10-house  
 Intended: ‘Old people live in these houses.’

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

- (7) a. *La ma-doda a-sebenz-a ku-lesi si-tolo.*  
 6.DEM 6-man 6.SM-work-FV LOC-7.DEM 7-store  
 ‘These men work at this store.’  
 b. *Lesi si-tolo si-sebenz-el-a la ma-doda.*  
 7.DEM 7-store 7.SM-work-APPL-FV 6.DEM 6-man  
 ‘These men work at this store.’
- (8) a. *U-mama u-phek-a e-khishi-ni.*  
 AUG-1a.mother 1.SM-cook-FV LOC-5.kitchen-LOC  
 ‘Mother is cooking in the kitchen.’  
 b. *I-khishi li-phek-el-a u-mama.*  
 AUG-5.kitchen 5.SM-cook-APPL-FV AUG-1a.mother  
 ‘Mother is cooking in the kitchen.’

Semantic locative inversion in (7b) and (8b) is not possible if the applicative marker is omitted. In contrast, as is shown by (1b) and (4b) above, the applicative is not required for semantic locative inversion with stative unaccusative verbs.

As was the case with unaccusative verbs, a locative interpretation of a “bare” DP is not available if the DP follows the agentive verb, even if the verb is modified with an applicative marker:

- (9) a. *Lesi si-kole si-fund-el-a i-zin-gane ezi-khubazekile.*  
 7.DEM 7-school 7.SM-study-APPL-FV AUG-10-child 10.ADJ-handicapped  
 ‘Handicapped children study at this school.’  
 (Buell 2007: 110)

- b. \**I-zin-gane ezi-khubazekile zi-fund-el-a lesi si-kole.*  
 AUG-10-child 10.ADJ-handicapped 10.SM-study-APPL-FV 7.DEM 7-school  
 Ungrammatical with the intended locative reading:  
 ‘Handicapped children study at this school.’

Notice that the example in (9b) is grammatical when interpreted as a benefactive applicative (“Handicapped children study *for* the school.”). This demonstrates that (9b) is not ruled out because of lack of Case for the object-DP. Rather, (9b) is unacceptable because without locative marking, the DP *lesi sikole* cannot be assigned a locative theta role in its post-verbal position.

Finally, although this is not possible for all speakers, many of my informants accepted examples of semantic locative inversion with transitive verbs, (10)-(11). The applicative marker is again required in the inverted constructions (10b) and (11b):<sup>3</sup>

- (10) a. *A-ba-fundi be-be-fund-a i-n-cwadi e-Library ngo-6.*  
 AUG-2-student AUX- 2.SM-read-FV AUG-9-book LOC-9.library at-6  
 ‘The students were reading the book in the library at 6 o’clock.’

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<sup>3</sup> According to Buell (2007), semantic locative inversion is not possible with transitive verbs, but the majority of my informants accepted examples such as those in (10b)-(11b). Some of these speakers even accepted semantic locative inversion with ditransitives, although the occurrence of three adjacent post-verbal DP-arguments produced parsing difficulties. Halpert (2012) provides examples of ditransitive expletive constructions in Zulu, showing that three post-verbal DPs are possible in Zulu, at least for some speakers.

- b. *I-Library i-bi-fund-el-a a-ba-fundi i-n-cwadi ngo-6.*  
 AUG-9.library 9.SM-AUX-read-APPL-FV AUG-2-student AUG-9-book at-6  
 ‘The students were reading the book in the library at 6 o’clock.’

- (11) a. *U-mama u-phek-a u-ku-dla e-khishi-ni.*  
 AUG-1a.mother 1.SM-cook-FV AUG-15-food LOC-5.kitchen-LOC  
 ‘Mother is cooking food in the kitchen.’

- b. *I-khishi li-phek-el-a u-mama u-ku-dla.*  
 AUG-5.kitchen 5.SM-cook-APPL-FV AUG-1a.mother AUG-15-food  
 ‘Mother is cooking food in the kitchen.’

In (10b) and (11b), both the logical subject and the logical object follow the verb, while the location of the event expressed by the verb and its arguments is again realised as an unmarked DP in pre-verbal position.

## 2.2. *The fronted locative DP*

Since Bresnan’s (1994) and Bresnan and Kanerva’s (1989) influential work, it has become a standard assumption that the fronted locative in Bantu locative inversion is the grammatical subject of the sentence. There is strong evidence that the same holds for the locative DPs in semantic locative inversion in Zulu. First, all examples discussed so far demonstrate that the locative DP triggers noun class subject agreement with the verb. Second, when the pre-verbal DP in semantic locative inversion is dropped, the sentence is interpreted as having a locative proform, which shows that the null subject *pro* can also be interpreted as a locative:

- (12) a. *I-Theku li-y-i-dolobha eli-hle.*  
 AUG-5.Durban 5.SM-COP-AUG-5.city 5.ADJ-pretty  
 ‘Durban is a pretty city.’
- b. (pro) *li-hlal-a a-ba-ntu aba-ningi.*  
 5.SM-stay-FV AUG-2-person 2.ADJ-many  
 ‘Many people live *there*.’  
 (Lit.: ‘It lives many people.’)

Third, locative subject-DPs can undergo subject-to-subject raising:

- (13) *Lezi zin-dlu zi-bonakal-a sengathi zi-hlal-a*  
 10.DEM 10-house 10.SM-seem-FV that 2.SM-stay-FV  
*a-ba-ntu aba-dala.*  
 AUG-2-person 2.ADJ-old  
 ‘Old people seem to live in these houses.’

- (14) *I-khishi li-bonakal-a sengathi li-phek-el-a u-mama.*  
 AUG-5.kitchen 5.SM-seem-FV that 5.SM-cook-APPL-FV AUG-1a.mother  
 ‘Mother seems to cook in the kitchen.’

In Zulu, the verb *bonakala*, ‘seem’, licenses A-movement out of finite clauses, a possibility which also exists with other raising verbs (cf. Halpert 2012; Zeller 2006). In (13) and (14), semantic locative inversion has taken place in the embedded clause, and the locative subject has moved to the subject position of the main clause, triggering agreement on both the embedded verb and the matrix raising verb.

Fourth, consider the subject question in (15), formed by means of a wh-cleft:

- (15) *Yi-zi-phi i-zin-dlu ezi-hlal-a a-ba-ntu aba-dala?*  
 COP-10-which AUG-10-house 10.REL-stay-FV AUG-2-person 2.ADJ-old  
 ‘In which houses do the old people live?’

In (15), the wh-phrase *yiziphi izindlu*, ‘(it is) which houses’, is interpreted as a locative and is the head noun of the following subject relative clause in which semantic locative inversion has applied. This demonstrates that locatives in semantic locative inversion can be questioned and relativised like ordinary subject-DPs (see also Buell 2005 for additional data illustrating the same point).

Finally, the interpretation of the fronted locative is also consistent with its role as the grammatical subject. It is well-known that DPs that occupy the pre-verbal subject position in Zulu cannot be focused (see e.g. Buell 2006; Zeller 2008; and (19a) below). The same applies to the fronted DP in semantic locative inversion: the locative is typically interpreted as a topic, while the post-verbal logical subject provides new information. The discourse properties of this construction are therefore similar to those that have been reported for formal locative inversion (see e.g. Bresnan and Kanerva 1989).



### 2.3. *The post-verbal subject-DP*

The examples of semantic locative inversion provided above illustrate that the logical subject appears in post-verbal position. I now show that this position corresponds to the vP- or VP-internal base position of the logical subject by using standard diagnostics that have been established in the literature on Zulu syntax. The first argument is provided by the nominal morphology. Zulu nouns usually appear with a so-called augment, an initial vowel that functions as a determiner-like element. The augment can be omitted when the DP is in the scope of negation, in which case the augment-less DP can function as a negative polarity item (Halpert 2012):

- (16) *U-Thandi a-ka-bon-i mu-ntu*]<sub>vP</sub>.  
AUG-1a.Thandi NEG-1.SM-see-NEG 1-person  
'Thandi doesn't see anyone.'

Only vP-internal DPs can appear without the augment. Although right-dislocated DPs in Zulu are adjoined relatively low in the structure (see e.g. Cheng and Downing 2009) and arguably still in the scope of negation, the initial vowel of a dislocated DP can never be omitted (see Adams 2010; Halpert 2012). In (17), the subject-DP of a negated sentence has been right-dislocated; (17b) shows that the augment is obligatory:

- (17) a. *A-ka-hlek-i*]<sub>vP</sub> *u-mu-ntu*.  
NEG-1.SM-laugh-NEG AUG-1-person  
'The person isn't laughing.'  
b. \**A-ka-hlek-i*]<sub>vP</sub> *mu-ntu*.  
NEG-1.SM-laugh-NEG 1-person  
Intended: 'No one is laughing.'

In contrast, in negated semantic locative inversion constructions, it is possible to drop the augment of the post-verbal subject:

- (18) *Lesi si-kole a-si-fund-el-i m-ntwana*]<sub>VP</sub>.  
 7.DEM 7-school NEG-7.SM-study-APPL-NEG 1-child  
 ‘No child studies at this school.’

The acceptability of (18) provides evidence that the logical subject in semantic locative inversion, like the object argument in (16), is part of the vP.

The second argument in support of this claim is based on the observation that it is not possible in Zulu to focus constituents that are outside the vP. Consequently, wh-subjects, and subject-DPs modified by the focus marker *kuphela*, ‘only’, cannot appear in [Spec, T] and cannot be right-dislocated:

- (19) a. \**O-bani ba-hlal-a ku-lezi zin-dlu?*  
 AUG-2a.who 2.SM-stay-FV LOC-10.DEM 10-house  
 Intended: ‘Who lives in these houses?’  
 b. *Ba-hlal-a ku-lezi zin-dlu a-ba-ntu aba-dala (\*kuphela).*  
 2.SM-stay-FV LOC-10.DEM 10-house AUG-2-person 2.ADJ-old only  
 ‘(\*Only) old people live in these houses.’

However, focussed DPs and wh-phrases can be realised as the logical subjects in semantic locative inversion, which demonstrates that they are part of the vP:

- (20) a. *Lezi zin-dlu zi-hlal-a o-bani?*  
 10.DEM 10-house 10.SM-stay-FV AUG-2a.who  
 ‘Who lives in these houses?’  
 b. *Lezi zin-dlu zi-hlal-a a-ba-ntu aba-dala kuphela.*  
 10.DEM 10-house 10.SM-stay-FV AUG-2-person 2.ADJ-old only  
 ‘Only old people live in these houses.’

Further evidence is provided by the verbal morphology. In the affirmative present and the recent past tense, Zulu verbs may appear in the so-called conjoint (“short”) or in the disjoint (“long”) form. Van der Spuy (1993), Buell (2005, 2006) and Halpert (2012) show convincingly that this alternation is a reflex of syntactic constituency: the conjoint form of the verb is only possible if the verb is followed by an overt vP-internal phrase:

- (21) a. *A-ba-fundi ba-fund-a i-n-cwadi*]<sub>VP</sub>.  
 AUG-2-student 2.SM-read-FV AUG-9-book  
 ‘The students are reading the book.’
- b. *A-ba-fundi ba-fund-a kahle*]<sub>VP</sub>.  
 AUG-2-student 2.SM-read-FV well  
 ‘The students are reading well.’
- c. \**A-ba-fundi ba-fund-a*]<sub>VP</sub>.  
 AUG-2-student 2.SM-read-FV  
 ‘The students are reading.’
- d. *A-ba-fundi ba-ya-fund-a*]<sub>VP</sub>.  
 AUG-2-student 2.SM-DIS-read-FV  
 ‘The students are reading.’

The examples (21a-c) show that the short form of the verb is only licensed when the verb is followed by an object-DP or by a vP-internal low adverb. When used intransitively, the long form of the verb (marked by the prefix *-ya-* in (21d)) must be chosen. Importantly, as all examples discussed thus far illustrate, the verb in semantic locative inversion is always in the conjoint form. This provides another argument that the post-verbal subjects are vP-internal.

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

- (22) *I-si-kole ngasinye<sub>i</sub> si-fund-el-a a-ba-ntwana ba-so<sub>i</sub>*.  
 AUG-7-school 7.each 7.SM-study-APPL-FV AUG-2-child 2.POSS-7.PRON  
 ‘Each school is studied at by its children.’  
 (Lit.: ‘Each school studies its children.’)

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

#### 2.4. *Semantic locative inversion and non-verbal predicates*

Given that stative unaccusative verbs allow for semantic locative inversion, one might expect this construction also to be possible with non-verbal stative predicates. However, the data in (23) and (24) show that semantic locative inversion with adjectival or nominal predicates is completely ruled out:<sup>4</sup>

- (23) a. *I-zin-hlanzi a-zi-zin-kulu ku-lo m-fula.*  
 AUG-10-fish NEG-10.SM-10.BP-big LOC-3.DEM 3-river  
 ‘The fish aren’t big in this river.’
- b. \**Lo m-fula a-wu-m-khulu (i)-zin-hlanzi.*  
 3.DEM 3-river NEG-3.SM-3.BP-big AUG-10-fish  
 Intended: ‘The fish aren’t big in this river.’
- (24) a. *I-zin-gane zi-ng-a-ba-fana ku-lesi si-kole.*  
 AUG-10-child 10.SM-COP-AUG-2-boy LOC-7.DEM 7-school  
 ‘The children are boys at this school.’
- b. \**Lesi si-kole si-ng-a-ba-fana (i)-zin-gane.*  
 7.DEM 7-school 7.SM-COP-AUG-2-boy AUG-10-child  
 Intended: ‘The children are boys at this school.’

In (23b) and (24b), the locative DP precedes and agrees with the adjectival or nominal predicate, which precedes its logical subject argument. The word order of (23b) and (24b) is therefore analogous to the word order of the examples in (1b) and (4b), which illustrate semantic locative inversion with unaccusative verbs. However, the unacceptability of the former examples shows that semantic locative inversion in Zulu is not possible with non-verbal predicates, a fact that seems related to the more general observation, made in Buell (2008) and Buell and de Dreu (forthcoming), that predicate-internal subjects are never possible with non-verbal predicates in Zulu.

One could speculate that the impossibility of (23b) and (24b) is not because the predicates are non-verbal, but because the locatives in these examples are not thematic

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<sup>4</sup> “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.

arguments of these predicates. The examples discussed in Sections 2.1–2.3 may create the impression that the inverted locative DPs are always thematic arguments (introduced by the verb or the applicative morpheme). If argumenthood was a necessary condition for inversion, then the ungrammaticality of (23b) and (24b) would follow. However, the assumption that semantic locative inversion is only possible with locative arguments does not seem to be correct. Speakers also accept semantic locative inversion in examples such as (25), in which the locative is arguably not an argument of the unaccusative verb:

- (25) a. *U-m-lilo u-vuth-a e-khishi-ni.*  
 AUG-3-fire 3.SM-burn-FV LOC-5.kitchen-LOC  
 ‘The fire is burning in the kitchen.’
- b. *I-khishi li-vuth-a u-m-lilo.*  
 AUG-5.kitchen 5.SM-burn-FV AUG-3-fire  
 ‘The fire is burning in the kitchen.’<sup>5</sup>

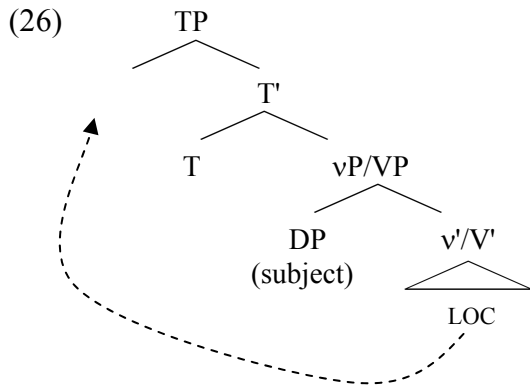
I conclude that the unacceptability of semantic locative inversion in examples such as (23b) and (24b) is due to the non-verbal nature of the predicates.

## 2.5. *Problems and questions*

Most generative accounts of locative inversion analyse the construction in terms of A-movement (see e.g. Baker 2003b; Carstens 2011; Collins 1997; Den Dikken 2006; Diercks 2010, 2011; Henderson 2006). The basic assumption adopted in these accounts is that both the logical subject and the locative originate inside the vP/VP. In the standard, non-inverted, case, the logical subject moves to the specifier position of T and becomes the grammatical subject. In locative inversion, however, it is the locative that moves to the subject position. (26) illustrates this latter type of movement:

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<sup>5</sup> Some of my informants translated (25b) as “The kitchen is on fire”. This interpretation follows from the analysis of semantic locative inversion that I offer in Section 3.2.1 below.



The properties of semantic locative inversion in Zulu raise difficult questions for the idea that locative inversion is the result of A-movement of the locative from a vP-internal position. First, it was shown that a “bare” DP cannot be assigned a locative theta role when inside the vP in Zulu. It is therefore not clear how an A-movement analysis would explain the locative interpretation of the subject-DP in semantic locative inversion, given that [Spec, T] is a non-theta position. Second, semantic locative inversion in Zulu is possible with unergative, and even transitive, verbs. This means that A-movement of a VP-internal DP to [Spec, T] would have to cross the external argument in [Spec, v]. The problem is that a subject-DP in [Spec, v] and a locative in VP are not in the same minimal domain; therefore, the subject-DP is closer to the landing site [Spec, T] than the locative. Consequently, the movement depicted in (26) violates fundamental principles of locality, such as the Minimal Link Condition (cf. Chomsky 1995, 2000; Collins 1997). Furthermore, in unergative and transitive constructions, vP is considered to be a phase, which means that (26) also violates the *Phase Impenetrability Condition*, which prevents movement of constituents from the c-command domain of a phase head to a position outside the phase (see Chomsky 2000, 2001, 2008, and Section 3.3 below). In order to avoid these locality problems, standard accounts of locative inversion have to stipulate an otherwise unmotivated intermediate movement step of the locative to a second specifier of v from where the locative can “escape” the vP-phase. The problem with this idea is that movement to [Spec, v] counts as A-bar movement. Further A-movement of the locative from [Spec, v] to [Spec, T] would constitute improper movement and should therefore still be ruled out.

Finally, the derivation in (26) cannot explain why locative inversion is never licensed with non-verbal predicates. Even if it was possible to move a locative to [Spec, T]

across an intervening subject-DP, why would this movement operation be disallowed in sentences where the main predicate is non-verbal?

In light of these problems and open questions, I suggest that an alternative analysis is called for which avoids the problems raised by the standard generative account illustrated in (26). I present such an alternative analysis in the next section.

### 3. Semantic locative inversion and the syntax of predication

#### 3.1. *Non-verbal predication*

The following examples show that non-verbal predication constructions in Zulu do not include copula verbs:

(27) *I-n-dlu a-yi-yin-hle.*  
AUG-9-house NEG-9.SM-9.BP-beautiful  
'The house isn't beautiful.'

(28) *A-ba-fundi ba-ku-le ndlu.*  
AUG-2-student 2.SM-LOC-9.DEM 9.house  
'The students are in this house.'

(29) *U-Thandi u-ng-u-m-fundi.*  
AUG-1a.Thandi 1.SM-COP-AUG-1-student  
'Thandi is a student.'

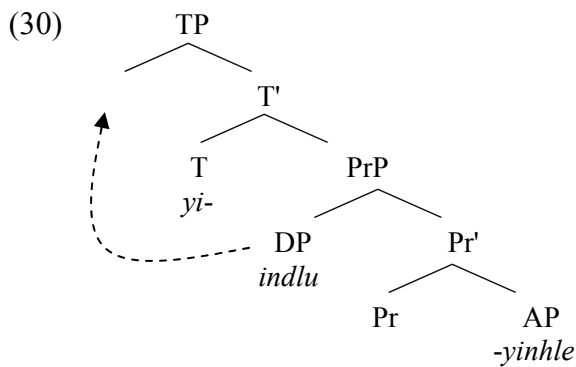
(27) is an adjectival predicate construction; in (28), the main predicate is a locative, and in (29), it is a nominal. The subject agreement marker is attached directly to the adjectival stem *yinhle*, 'beautiful', in (27) and to the locative *kule ndlu*, 'in this house', in (28). (29) shows that a segmental copulative particle intervenes between the NP/DP-predicate and the agreement morphology.<sup>6</sup> Importantly, however, this copulative

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<sup>6</sup> 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; Buell and de Dreu forthcoming). The situation is more complex with negated nominal predicate constructions, which involve the use of pronominal forms in addition to the nominal predicate. Crucially, none of these constructions involves a verbal copula. See Van der Spuy

particle is clearly non-verbal; it is an affixal element which lacks the typical morphological properties of verbs in Zulu (see Van der Spuy 2001: 219f. for discussion).

Baker (2003a) proposes a syntactic representation of non-verbal predication that explains the lack of copula verbs in Bantu languages (which Baker illustrates with data from Chicheŵa). He adopts a proposal made in Bowers (1993), according to which the link between a non-verbal predicate and its subject argument is established syntactically through the functional category Pr(ed) (for predication). The head of Pr selects the non-verbal predicate as its complement and introduces the subject-DP in its specifier. Copulative particles are phonological realisations of Pr. According to this proposal, which has been adopted for Zulu in Zeller (2012) and Buell and de Dreu (forthcoming), the syntax of non-verbal predication in Bantu does not include a verb or verbal projection. (30) represents the structure underlying the example in (27):



(30) shows that the argument of a non-verbal predicate is introduced in [Spec, Pr] and moves to [Spec, T] to become the grammatical subject. The phonological realisation of Pr depends on its selectional properties and can vary from language to language. In Zulu, Pr is realised by a copulative particle in nominal predication constructions, but is phonologically null when it combines with adjectival or locative predicates.

Pr is also responsible for connecting the non-verbal predicate and its subject semantically. In adjectival constructions such as (27), for example, the non-verbal predicate denotes a state (e.g. the state of being beautiful), and the subject argument introduced by Pr denotes an entity of which this state holds as a property. One way in which this interpretation can be captured via the semantics of Pr is to assume that Pr

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(2001), Buell (2008) and Buell and de Dreu (forthcoming) for detailed discussion of non-verbal predication in Zulu.



denotes a predicate that establishes a “Holder”-relation between an entity *x* and a state *s*. While the content of *s* is determined by the meaning of *Pr*’s complement, the DP in *Pr*’s specifier supplies the value of *x*. (See the Appendix for a formalisation of this idea based on the event semantics-framework developed in Kratzer 1996.)

According to Baker (2003a), only non-verbal predicates require *Pr* in order to combine with their subjects. In contrast, verbal predicates (*V* and *v*) have specifiers and select their subjects within their own maximal projections. This means that in canonical transitive sentences in Bantu with S-V-O word order, *Pr* is *not* part of the structure. In these constructions, all thematic roles are assigned to syntactic arguments within verbal projections; internal arguments are merged within the VP, and the external argument is introduced in the specifier of the light verb *v* that takes the VP as its complement (roughly equivalent to the category Voice in Kratzer 1996; see also Larson 1988).<sup>7</sup>

However, one possibility that Baker does not consider is that *Pr* can nevertheless merge with a *vP* or *VP* – not to introduce a subject argument *of the verb*, but a new argument which functions as the subject *of the whole vP/VP*. This, I argue, is the syntax that underlies locative inversion in Bantu.

### 3.2. *Inversion and the category Pr*

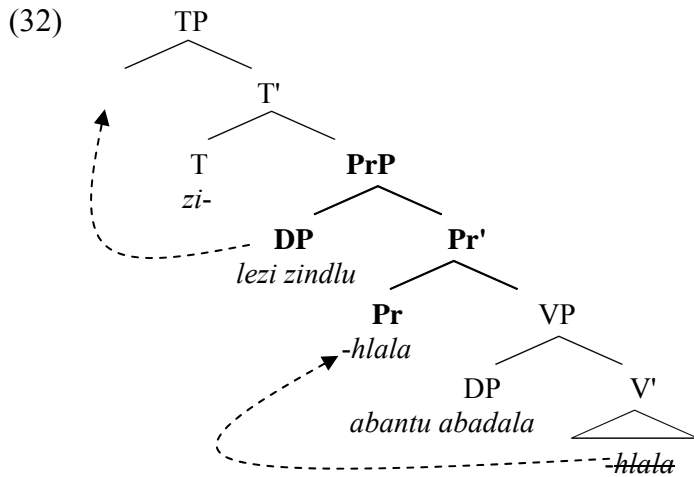
#### 3.2.1. *Semantic locative inversion with stative unaccusative verbs*

I now propose that semantic locative inversion also involves a *Pr*-projection, but that in this construction, the *Pr* head selects a verbal projection (*vP* or *VP*) as its complement. (32) shows the syntax of the example in (31) with a stative verb, which repeats (4b) from Section 2.1:

- (31)      *Lezi      zin-dlu      zi-hlal-a      a-ba-ntu      aba-dala.*  
           10.DEM 10-house    10.SM-stay-FV    AUG-2-person    2.ADJ-old  
           ‘Old people live in these houses.’

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<sup>7</sup> According to Bowers (1993), the external argument of verbs is also introduced by *Pr*. However, see Baker (2003a) for arguments that *Pr* and *v/Voice* are separate categories and that only non-verbal predicates require *Pr*.



The unaccusative VP in (32) is the complement of Pr; the locative subject-DP is introduced in [Spec, Pr]. Therefore, the locative DP is closer to T than the VP-internal logical subject and moves to [Spec, T] to become the grammatical subject (see Section 2.2). Locality issues never arise in semantic locative inversion, because the locative is always introduced in the highest argument position. Furthermore, (32) shows that the verb moves out of the VP, at least as high as Pr, but possibly all the way up to T.<sup>8</sup> Since the logical subject remains inside the VP, it follows the verb, can be bound by the locative subject, and is in the scope of higher functional categories such as negation (see Section 2.3).

According to (32), the locative subject of a semantic locative inversion construction originates in the same position as the thematic argument of non-verbal predicates, namely in [Spec, Pr]. This explains why semantic locative inversion is not possible with adjectival or nominal predicates (see Section 2.4). Even if a non-verbal predicate could be realised in a position from where it would precede its subject (perhaps by moving to a position above [Spec, Pr]), a locative subject can never co-occur with the subject argument of a non-verbal predicate, because these DPs are introduced in, and therefore compete for, the same base position.

My proposal also explains why an unmarked DP can function as the subject argument in semantic locative inversion, whereas the same DP requires locative marking when it appears VP-internally (see Section 2.1):

<sup>8</sup> It is uncontroversial that the verb in Bantu leaves the VP. See e.g. Baker (2008), Diercks (2010) and Kinyalolo (1991), among many others, for arguments and discussion.

- (33) *A-ba-ntu aba-dala ba-hlal-a \*(ku-)lezi zin-dlu.*  
 AUG-2-person 2.ADJ-old 2.SM-stay-FV LOC-10.DEM 10-house  
 ‘Old people live in these houses.’

While the DP *lezi zindlu* is thematically licensed as an argument of Pr in (31), the locative prefix *ku-* is required in (33) to assign a locative theta role to its non-inverted counterpart.

In the preceding section I noted that the semantic function of Pr is to establish a predication relation between its complement and its specifier, so that the state denoted by Pr’s complement can be expressed as a property of the argument in [Spec, Pr]. I now propose that the same applies to semantic locative inversion constructions such as (31): the state expressed by the VP-complement of Pr is presented as a property of the highest argument in [Spec, Pr]. The meaning of (31) can hence be paraphrased as “The state of ‘old people living’ holds of these houses”. (See the Appendix for a formalisation of the semantic computation.)

According to this proposal, the interpretations of (31) and (33) are not identical, although both sentences express the same situation. The meaning of (33) is “old people live *in* these houses”, but (31) expresses the state of “old people living” as a property of these houses. This difference between (31) and (33) is comparable to the difference between (34a) and (34b):

- (34) a. *It is cold **in** this room.*  
 b. *This room is cold.*

The adjective *cold* denotes an “atmospheric” property (cf. Hazout 2004), the “state of coldness”. While (34a) expresses that this state holds *in* this room, (34b) ascribes this property *to* the room. In (34a), the DP *this room* receives a locative theta role, while it is the Holder of the state denoted by the non-verbal predicate in (34b).

Of course, the reason why (34a) and (34b) have similar meanings is because the DP *this room* denotes an entity which can be construed as a location. The same is true of the subject-DPs in the examples of semantic locative inversion – their head nouns always denote possible locations. In fact, if an unmarked DP is not interpretable as a possible location, semantic locative inversion produces an unacceptable result. This is demonstrated by the contrast in (35), which shows that not every DP that can be realised

as a post-verbal locative in Zulu can also appear as the (unmarked) DP-subject in semantic locative inversion:

- (35) a. *A-ma-doda a-hlal-a o-tshwal-eni.*  
 AUG-6-man 6.SM-stay-FV LOC-14.beer-LOC  
 ‘The men live by the brewery/in the tavern.’
- b. \**U-tshwala bu-hlal-a a-ma-doda.*  
 AUG-14.beer 14.SM-stay-FV AUG-6-man  
 Intended: ‘The men live by the brewery/in the tavern.’

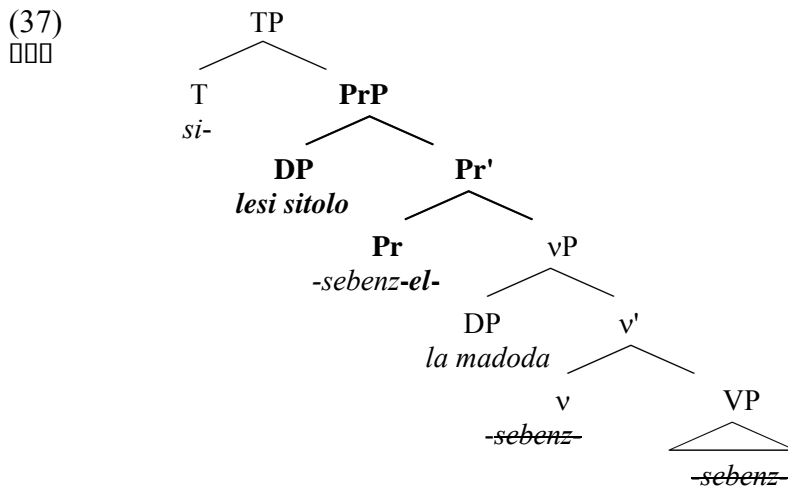
The sentence in (35a) is a non-inverted sentence with the VP-internal locative *otshwaleni*, lit. “at the place of beer”, which has been translated by my informants as either “in the tavern” or “near the brewery”. In contrast, when *utshwala* is realised as an unmarked DP in pre-verbal subject position, as in (35b), no locative interpretation is possible, even though (35b) is the inverted variant of (35a). Semantic locative inversion is only licensed with subject-DPs that refer to entities which are also possible locations, such as schools, shops, tables, cities etc. This follows from my proposal, because it is only with those entities that the semantic relation established by Pr can be construed as meaningful. The locative interpretation of post-verbal DPs can always be established by locative morphology – (35a) is interpretable because the locative prefix assigns a locative theta role to the DP. In contrast, the locative interpretation of the subject-DP in semantic locative inversion constructions must be encoded in the lexical semantics of the DP’s head noun. (35b) is therefore not interpretable, because the unmarked subject-DP cannot be interpreted as the Holder of the state expressed by the VP.

According to my analysis, semantic locative inversion with stative unaccusative verbs and non-verbal predication in Zulu are syntactically and semantically quite similar. In both constructions, Pr combines with a complement which denotes a stative property and introduces the argument of which this property is predicated. The main difference between the two types of construction is the category of the complement. Since Pr in semantic locative inversion selects a VP, the state which is expressed as holding of Pr’s subject is more complex, because it is characterised by a stative verb and its VP-internal argument. As a result, only a DP that refers to a location can appear as the argument of Pr in these constructions.

3.2.2. *Semantic locative inversion with unergative and transitive verbs*

Pr in Zulu can also take vP as a complement, giving rise to constructions in which post-verbal Agents are licensed in semantic locative inversion. The syntax of (36), which repeats example (7b) from Section 2.1, is shown in (37):

- (36) *Lesi si-tolo si-sebenz-el-a la ma-doda.*  
 7.DEM 7-store 7.SM-work-APPL-FV 6.DEM 6-man  
 ‘These men work at this store.’



In (37), Pr selects a vP with the external argument in [Spec, v]; the object argument of a transitive verb would be located inside VP. The locative DP originates in [Spec, Pr] and therefore does not cross the Agent-DP on its way to [Spec, T].

Buell (2005: 204) presents an argument which supports the view that the locative subject is base-generated outside the vP. He shows that quantifier stranding in Zulu is only possible with ordinary subjects, but not with locatives:

- (38) *A-ba-ntwana ba-cul-a bonke.*  
 AUG-2-child 2.SM-sing-FV 2.all  
 ‘The children are all singing.’

- (39) \**I-zi-kole*      *zi-fund-el-a*      *zonke*.  
 AUG-8-school    8.SM-study-APPL-FV    8.all  
 ‘The schools are all studied at.’

According to Buell (2005), the subject quantifier *bonke* in (38) has been stranded in the base position of the subject-DP inside the vP. If the locative subjects of semantic locative inversion constructions such as (36) also originated inside the vP, one would expect quantifier stranding to be possible here as well. The ungrammaticality of (39) supports the view that locative subjects and the external arguments of verbs are base-generated in different positions.<sup>9</sup>

In constructions such as (36), Pr combines with an eventive predicate; the vP in (36), for example, denotes the set of events of “these men working”. In line with the proposal outlined in the previous section, I suggest that the function of Pr is to introduce an argument of which the vP-denotation can be expressed as an “eventive property”. The meaning of (36) can hence be paraphrased (somewhat awkwardly) as “the event of these men working holds of the store”. Again, the thematic relation established by Pr between a complex event (characterised by an agentive verb and its arguments) and the entity denoted by the DP-argument in [Spec, Pr] is only interpretable if the latter entity can be construed as a potential location of the event.<sup>10</sup>

Recall that the applicative marker is obligatory when semantic locative inversion applies to unergative and transitive verbs, while it is not present when the verbal predicate is unaccusative. As with Pr in non-verbal predication constructions, I take this difference to be a reflex of the different selectional properties of Pr in these

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<sup>9</sup> Note that the ungrammaticality of (39) is not caused by the omission of the logical subject. As Buell (2007) shows, post-verbal Agents can be omitted in semantic locative inversion in Zulu:

- (i) *Lesi*      *si-kole*      *si-ya-fund-el-a*.  
 7.DEM    7-school      7.SM-DIS-study-APPL-FV  
 ‘This school is studied at. (It hasn’t been closed down.)’  
 (Buell 2007: 110)

<sup>10</sup> An alternative would be to encode the locative interpretation of the subject explicitly in the semantics of Pr. The difference between this alternative and the version in the text lies in the thematic relation that is established between the event and the argument in [Spec, Pr]: Pr’s specifier can be viewed (more abstractly) as the Holder of an eventive property or (more specifically) as the location in which the event takes place. See the Appendix for a formal representation of both alternatives.

constructions. While Pr is phonologically null when it selects a (stative) VP, I assume that the Pr-head is pronounced as *-el-* in Zulu when Pr selects an (eventive) vP.

In important respects, my proposal is similar to the analysis of semantic locative inversion with applicatives that is proposed in Buell (2005). Buell also suggests that the locative DP is introduced above the vP, in the specifier position of a head that is spelled-out as *-el-*. However, there is a significant difference between Buell’s proposal and mine. While I analyse the relevant head that takes the vP as its complement as Pr, i.e. as the same category that also selects non-verbal predicates, Buell treats it as a genuine applicative category (a “high” locative applicative). There are two problems with Buell’s account. First, Buell (2005) is silent about inversion constructions with stative unaccusative verbs, in which no applicative marker appears. His analysis entails that in these constructions, the high applicative head is phonologically zero. However, I am not aware of any other type of applicative construction in Zulu in which the applicative remains unpronounced only with a particular class of verbs. In contrast, the fact that the phonological realisation of Pr depends on the type of complement with which it combines is not surprising – recall that Pr in Zulu is realised by an overt copulative particle in nominal predicate constructions, while it remains unpronounced with adjectival and locative complements.

A second problem for Buell’s (2005) analysis is that the interpretation of locative arguments in semantic locative inversion constructions is different from that of VP-internal locative arguments in Zulu. With certain verbs of motion, the locative argument of a “low” applicative in Zulu is interpreted as the endpoint of a path, giving rise to a directional reading of the verb, (40b):

- (40) a. *Ngi-ndiz-a e-Thekw-eni.*  
 1S.SM-fly-FV LOC-5.Durban-LOC  
 ‘I’m flying *around/over/in* Durban.’
- b. *Ngi-ndiz-el-a e-Thekw-eni.*  
 1S.SM-fly-APPL-FV LOC-5.Durban-LOC  
 ‘I’m flying *to* Durban.’

As noted in Section 2.1, most Zulu speakers reject semantic locative inversion with this type of verb. However, one of my informants accepted (41), with an obligatory applicative marker:

- (41) *I-Theku li-ndiz-el-a mina.*  
 AUG-5.Durban 5.SM-fly-APPL-FV 1S.PRON  
 ‘I’m flying *around/over/in* Durban.’

Importantly, the meaning of the inverted construction in (41) is not identical to (40b), but is rather similar to that of (40a). The difference between (40b) and (41) would be unexpected if *-el-* realised the same locative applicative category in both examples. In contrast, the interpretation of (41) follows from my proposal, according to which the applicative marker is an instance of the category Pr, which in (41) establishes a flying-event as a property of the location denoted by the subject-DP.

### 3.3. *PrP as a phase*

In this section I discuss data that provide syntactic evidence for my claim that the derivation of semantic locative inversion includes a functional category that intervenes between the vP/VP and the higher inflectional domain of the clause. Consider the contrast between (42a), which repeats example (36), and (42b):

- (42) a. *Lesi si-tolo si-sebenz-el-a la ma-doda.*  
 7.DEM 7-store 7.SM-work-APPL-FV 6.DEM 6-man  
 ‘These men work at this store.’
- b. \**La ma-doda a-setshenz-el-w-a yi-lesi si-tolo.*  
 6.DEM 6-man 6.SM-work-APPL-PASS-FV ‘by’-7.DEM 7-store

On the surface, semantic locative inversion produces what looks like a transitive sentence, with a pre-verbal subject-DP (the locative) and a predicate-internal DP-argument (the logical subject). Furthermore, I showed in Section 2.3 that, because of their “low” syntactic position inside the vP/VP, logical subjects in semantic locative inversion have certain properties otherwise associated with objects (for example, they can lose the augment when in the scope of negation). It is therefore worth asking whether VP-internal subjects also behave like objects with respect to their ability to undergo passivisation. In (42b), the verb has been passivised, and the logical subject-DP has been promoted to the grammatical subject position while the locative subject



argument is realised as an adjunct *by*-phrase. However, with the intended interpretation, (42b) is completely unacceptable.<sup>11</sup>

A second grammatical process that can apply in transitive constructions in Zulu is object marking, illustrated in (43b):

- (43) a. *I-zin-gane            zi-thand-a    i-kati.*  
 AUG-10-children    10.SM-like-FV    AUG-5.cat  
 ‘The children like the cat.’
- b. *I-zin-gane            zi-ya-li-thand-a.*  
 AUG-10-children    10.SM-DIS-5.OM-like-FV  
 ‘The children like it (e.g. the cat).’

In (43b), 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-DP in semantic locative inversion is part of the verbal predicate, one might expect that it can also be realised as an object marker. However, (44b) shows that this is not possible:

- (44) a. *Lezi    zin-dlu    zi-hlal-a    a-ba-ntu    aba-dala.*  
 10.DEM 10-house    10.SM-stay-FV    AUG-2-person    2.ADJ-old  
 ‘Old people live in these houses.’
- b. \**Lezi    zin-dlu    zi-ya-ba-hlal-a.*  
 10.DEM 10-house    10.SM-DIS-2.OM-stay-FV  
 Intended: ‘They live in these houses.’

In (44b), the logical subject of (44a) has been replaced by the corresponding object marker. The result is clearly ungrammatical.

Note that pronominalisation of post-verbal subjects is not generally impossible. Zulu also has strong pronominal DPs (sometimes called “absolute” or “emphatic” pronouns). (45) shows that when the logical subject in (44a) is replaced by a full pronoun, the result remains grammatical:

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<sup>11</sup> Note that (42a) is ambiguous. The DP *lesi sitolo* can be interpreted as a thematic subject and the DP *la madoda* as an object argument introduced by a benefactive applicative (“The store works for/benefits the men.”). Based on this interpretation, (42b) is indeed grammatical (it can mean “The men are benefited by the store.”).

- (45) *Lezi zin-dlu zi-hlal-a bona.*  
 10.DEM 10-house 10.SM-stay-FV 2.PRON  
 ‘They live in these houses.’

Finally, consider relativisation. Object relative clauses in Zulu require resumptive pronouns and therefore usually include an object marker, (46a). If the object marker-slot is already occupied by a pronominal argument (*-ngi-* in (46b)), a relativised object can also be resumed by a strong pronoun:

- (46) a. *Ngi-thand-a i-kati [u-John a-li-theng-il-e].*  
 1S.SM-like-FV AUG-5.cat AUG-1a.John 1.REL-5.OM-buy-DIS-PAST  
 ‘I like the cat John bought.’
- b. *Ngi-thand-a i-kati [u-John a-ngi-nik-e lona].*  
 1S.SM-like-FV AUG-5.cat AUG-1a.John 1.REL-1S.OM-give-PAST 5.PRON  
 ‘I like the cat John gave me.’

In (47b) and (47c), the thematic subject of the semantic locative inversion construction in (47a) has been relativised. It is resumed by an object marker in (47b) and by a strong pronoun in (47c), but both constructions are ungrammatical:

- (47) a. *Lesi si-kole si-fund-el-a a-ba-ntwana.*  
 7.DEM 7-school 7.SM-study-APPL-FV AUG-2-child  
 ‘Children study at this school.’
- b. \**Ngi-thand-a a-ba-ntwana [lesi si-kole*  
 1S.SM-like-FV AUG-2-child 7.DEM 7-school  
*esi-ba-fund-el-a-yo].*  
 7.REL-2.OM-study-APPL-FV-REL.DIS  
 Intended: ‘I like the children who study at this school.’
- c. \**Ngi-thand-a a-ba-ntwana [lesi si-kole esi-fund-el-a bona].*  
 1S.SM-like-FV AUG-2-child 7.DEM 7-school 7.REL-study-APPL-FV 2.PRON  
 Intended: ‘I like the children who study at this school.’

Since object marking of the logical subject is independently ruled out, the ungrammaticality of (47b) is expected. However, (47c) shows that relativisation of the logical subject by means of the alternative strong pronoun-strategy is not possible

either. It seems that the logical subjects in semantic locative inversion cannot undergo any of the grammatical operations that can apply to objects in canonical S-V-O constructions.

Moreover, the following data show that passivisation, object marking and relativisation also fail to provide acceptable results when applied to thematic *object*-DPs in semantic locative inversion. Recall that for at least some Zulu speakers, semantic locative inversion is possible with transitive verbs. However, passivisation of the object-DP is not possible when based on the inverted construction:

- (48) a. *U-mama u-phek-a u-ku-dla e-khishi-ni.*  
 AUG-1a.mother 1.SM-cook-FV AUG-15-food LOC-5.kitchen-LOC  
 ‘Mother is cooking food in the kitchen.’
- b. *U-ku-dla ku-phek-w-a e-khishi-ni (ng-u-mama).*  
 AUG-15-food 15.SM-cook-PASS-FV LOC-5.kitchen-LOC ‘by’-AUG-1a.mother  
 ‘The food is being cooked in the kitchen by mother.’
- (49) a. *I-khishi li-phek-el-a u-mama u-ku-dla.*  
 AUG-5.kitchen 5.SM-cook-APPL-FV AUG-1a.mother AUG-15-food  
 ‘Mother is cooking food in the kitchen.’
- b. \**U-ku-dla ku-phek-el-w-a u-mama (y-i-khishi).*  
 AUG-15-food 15.SM-cook-APPL-PASS-FV AUG-1a.mother ‘by’-AUG-5.kitchen  
 Intended: ‘The food is being cooked in the kitchen by mother.’

(48a), which repeats example (11a) from Section 2.1, is an active transitive sentence with a post-verbal locative; (48b) is the corresponding passive. (49a) (= (11b)) is the inverted version of (48a), in which both arguments of the verb are realised inside the vP and appear post-verbally. In (49b), the logical object *ukudla*, ‘food’, has been promoted to the pre-verbal subject position, and the locative subject-DP of (49a) *ikhishi*, ‘kitchen’, is realised as a *by*-phrase. However, speakers who accept the active construction in (49a) nevertheless find (49b) ungrammatical.

The same contrasts can be observed with respect to object marking:

- (50) a. *A-ba-ntwana ba-fund-a u-l-imi ku-lesi si-kole.*  
 AUG-2-child 2.SM-study-FV AUG-11-language LOC-7.DEM 7-school  
 ‘Children study language at this school.’
- b. *A-ba-ntwana ba(-ya)-lu-fund-a ku-lesi si-kole.*  
 AUG-2-child 2.SM-DIS-11.OM-study-FV LOC-7.DEM 7-school  
 ‘Children study it at this school.’
- (51) a. *Lesi si-kole si-fund-el-a a-ba-ntwana u-l-imi.*  
 7.DEM 7-school 7.SM-study-APPL-FV AUG-2-child AUG-11-language  
 ‘Children study language at this school.’
- b. \**Lesi si-kole si-lu-fund-el-a a-ba-ntwana.*  
 7.DEM 7-school 7.SM-11.OM-study-APPL-FV AUG-2-child  
 Intended: ‘Children study it at this school.’
- c. *Lesi si-kole si-fund-el-a a-ba-ntwana lona.*  
 7.DEM 7-school 7.SM-study-APPL-FV AUG-2-child 11.PRON  
 ‘Children study it at this school.’

In (50b), the object argument of the transitive sentence in (50a) is realised as an object marker. (51a) is the inverted counterpart of (50a), and (51b) shows that in this construction, the object argument can no longer be realised as an object marker. In contrast, pronominalisation by means of an absolute pronoun is possible, (51c).

Finally, relativisation of post-verbal objects is also impossible in semantic locative inversion constructions:

- (52) *Ngi-thand-a u-ku-dla [u-mama*  
 1S.SM-like-FV AUG-15-food AUG-1a.mother  
*a-ku-phek-a e-khishi-ni].*  
 1.REL-15.OM-cook-FV LOC-5.kitchen-LOC  
 ‘I like the food that mother is cooking in the kitchen.’

- (53) a. \**Ngi-thand-a u-ku-dla [i-khishi*  
 1S.SM-like-FV AUG-15-food AUG-5.kitchen  
*eli-ku-phek-el-a u-mama].*  
 5.REL-15.OM-cook-APPL-FV AUG-1a.mother  
 Intended: ‘I like the food that mother is cooking in the kitchen.’

- b. \**Ngj-thand-a u-ku-dla [i-khishi*  
 1S.SM-like-FV AUG-15-food AUG-5.kitchen  
*eli-phek-el-a u-mama khona]*.  
 5.REL-cook-APPL-FV AUG-1a.mother 15.PRON

Intended: ‘I like the food that mother is cooking in the kitchen.’

(52) is an object relative construction based on the transitive sentence in (48a); the object relatives in (53) are based on the corresponding inversion construction in (49a) and therefore have the locative realised as the subject of the relative clause. The ungrammaticality of both examples in (53) demonstrates that relativisation of the object argument of a semantic locative inversion construction is not possible.

My data show that vP-internal DPs in semantic locative inversion, regardless of their thematic properties, cannot be passivised, object-marked or relativised – they are syntactically inert. I now propose that this inability is caused by the category Pr which intervenes between functional categories that trigger these operations and vP-internal DPs.

The intervention effect of Pr can be captured elegantly in the theory of *phases* proposed in Chomsky (2000, 2001, 2008). In this theory, 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  $\alpha$  is completed, the complement of the head H of  $\alpha$  is transferred, while H and its specifier remain available for further syntactic computations. 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):

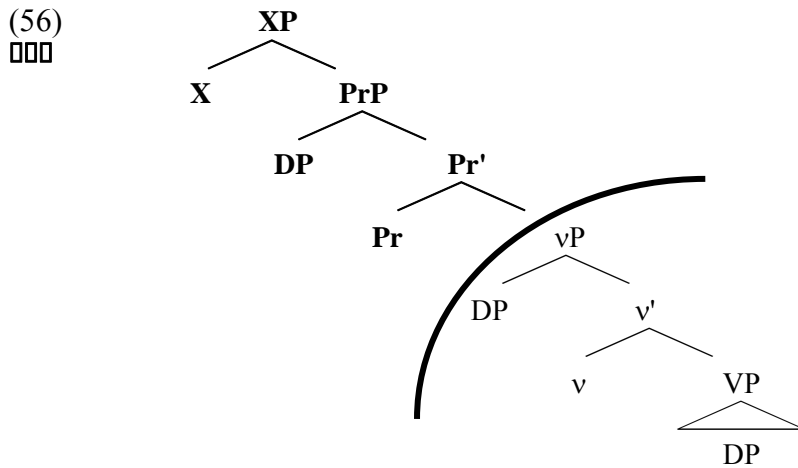
(54) *Phase-Impenetrability Condition* (Chomsky 2000: 108)

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

- (55) 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 (see also Den Dikken 2006). As argued above, when Pr is part of the structure, the highest argument of the clause is introduced in [Spec, Pr]. 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:



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 relativisation, object marking or passivisation. 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-DP to the specifier of a functional category Agr-O above the vP/VP (cf. Buell 2005; Julien 2002; Woolford 2000). Finally, relative operators move to [Spec, C]. These movement operations are triggered by features of the respective functional heads, which agree with and attract the relevant DP-arguments. In a derivation without Pr, in which functional heads merge directly above vP, agreement, attraction, and 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 completed. This means that vP-internal arguments are no longer accessible when functional heads such as C, Agr-O or T/Agr-S are merged above PrP. Consequently, relativisation, passivisation and object marking can never apply to post-verbal arguments in inversion constructions, because the necessary agreement and movement relations between functional categories and vP-internal DPs are blocked by the projection of Pr and the PIC.

#### 4. Formal locative inversion

In this section I briefly discuss examples of “formal” locative inversion in Bantu, i.e. inversion constructions in which the fronted constituent carries locative morphology (a noun class prefix from the locative noun classes 16, 17 or 18, and sometimes an additional locative suffix). The locative triggers noun class agreement on the verb.<sup>12</sup>

- (57) a. *Kú-mú-saala kw-á-kwá mu-mu-siiru.*  
 3-3-tree 3.SM-PAST-fall 18.LOC-3-forest  
 ‘A tree fell in the forest.’
- b. *Mú-mú-siirú mw-á-kwá-mó kú-mú-saala.*  
 18.LOC-3-forest 18.SM-PAST-fall-18.LOC 3-3-tree  
 ‘In the forest fell a tree.’  
 (Lubukusu; Diercks 2011: 703)

The fact that the inverted locative in constructions such as (57) shows the same morphological form as the corresponding post-verbal locative has led many researchers

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<sup>12</sup> Zulu also has formal locative inversion constructions:

- (i) *Ku-lezi zin-dlu ku-hlal-a a-ba-ntu aba-dala.*  
 LOC-10.DEM 10-house 17.EXPL-stay-FV AUG-2-person 2.ADJ-old  
 ‘In these houses live old people.’  
 (Buell 2007: 108)

The fronted locative in (i) is formally marked by locative morphology, and the subject marker *ku-* creates the impression of locative agreement. However, productive locative noun classes no longer exist in the Nguni languages, and there is evidence that locatives in Zulu are PPs rather than DPs (see Buell 2007; 2012). Furthermore, Buell (2007) shows convincingly that the fronted locative in constructions such as (i) does not behave like a grammatical subject, but rather like a preposed topic, and that the marker *ku-* does not show locative, but expletive, agreement.

to analyse locative inversion in terms of A-movement. I rejected the A-movement-analysis in this paper mainly because of the properties of semantic locative inversion in Zulu, but I now want to show that a closer look at the properties of formal locative inversion in Bantu casts further doubt on the movement analysis and supports the alternative proposal I have made in this paper.

In many Bantu languages, locative inversion is only possible with unaccusative verbs. The contrast between (57b) and (58), which includes an unergative verb, illustrates this situation for Lubukusu (see Diercks 2011). Other languages of this type are Chicheŵa (Bresnan and Kanerva 1989), Shona (Demuth and Mmusi 1997), and Kinande (Baker 2003b):

- (58)     \**mw-i-duka*     *mw-a-chekh-a-mo*             *Moses*.  
           18.LOC-9-store 18.SM-PAST-laugh-FV-18.LOC 1.Moses  
           Intended: ‘Moses laughed in the store.’  
           (Lubukusu; Diercks 2011: 716)

However, an examination of the literature on locative inversion in Bantu reveals that not all Bantu languages behave like Lubukusu. For example, in Tswana (Demuth and Mmusi 1997), locative inversion is also possible with unergative verbs. Marten (2010) observes that the same holds for Nsenga:

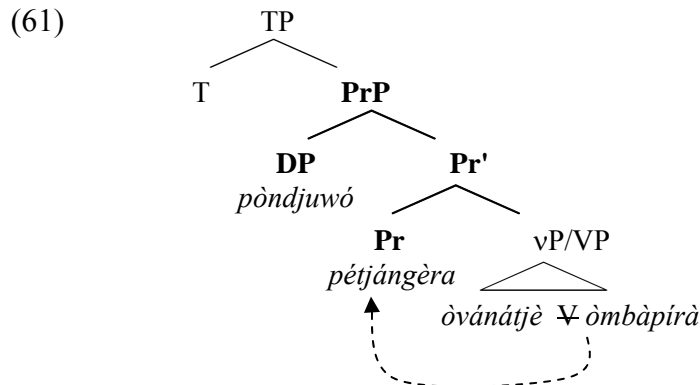
- (59)     *M-nándà*             *mù-wéléng-él-à*     *Kàtishà*.  
           18.LOC-9.house 18.SM-read-APPL-FV 1.Katisha  
           ‘In the house Katisha is reading.’  
           (Nsenga; Marten 2010: 5)

Moreover, in Herero, locative inversion is even possible with transitive verbs (Marten 2006). The same possibility has been noted to exist in Digo (Diercks 2010) and Kilega (Carstens 2011; Kinyalolo 1991):

- (60)     *Pò-ndjuwó*             *pé-tjáng-èr-à*             *òvá-nátje*     *ò-mbàpírà*.  
           16.LOC-9.house 16.SM.HAB-write-APPL-FV 2-children 9-letter  
           ‘At the house write the children a letter.’  
           (Herero; Marten 2006: 115)



It is clear that formal locative inversion in languages such as Nsenga or Herero raises the same problems for A-movement-based analyses as semantic locative inversion in Zulu (see Section 2.5). I therefore suggest that the analysis proposed in this paper be extended to formal locative inversion. The syntax of the constructions in (57b), (59) and (60) includes the category Pr, and the locative subject-DPs in these examples are base-generated in [Spec, Pr]:<sup>13</sup>



According to (61), the main difference between semantic and formal locative inversion is that the subject argument in the latter is marked as a locative, whereas it is an unmarked DP in the former type of construction. This difference affects the productivity of locative inversion. The meaning of a noun X marked as locative can informally be paraphrased as “*the place at/in/on X*”. Therefore, every DP that appears as the subject in formal locative inversion refers to a location. This makes formal locative inversion more productive than semantic locative inversion in Zulu. In the latter construction, the requirement that the argument introduced by Pr must denote a possible location (in order to be interpretable as a Holder of a state or event) has to be fulfilled via the semantics of the DP. In contrast, the DP-argument of Pr in formal locative inversion always refers to a location because of locative noun class morphology. As a consequence, every construction with a post-verbal locative also has an interpretable inverted counterpart, which creates the illusion that the one is derived from the other via A-movement of the locative.

Evidence for the presence of Pr in the syntax of formal locative inversion is provided by the fact that post-verbal arguments in these constructions, like the vP-internal DPs in

<sup>13</sup> See Bresnan (1994) and Carstens (1997, 2008), among others, for arguments that locatives in Bantu languages with productive locative noun classes are nominal categories, i.e. NPs or DPs.

semantic locative inversion, cannot enter grammatical relations with higher functional heads. The inability of post-verbal subjects in formal locative inversion to undergo operations such as passivisation, object marking or relativisation has been frequently noted in the literature on different Bantu languages (see, for example, Bresnan and Kanerva 1989 and Bresnan 1994 for Chicheŵa; Demuth 1990 for Sesotho; Kinyalolo 1991 for Kilega; Marten 2006 for Herero).<sup>14</sup> Since most in-depth studies are concerned with languages which do not seem to permit locative inversion with transitive verbs, I have not been able to find data in the literature that would show that the same holds for object-DPs in inversion constructions. However, the following example from Herero, provided courtesy of Jekura Kavari (p.c.), illustrates that object marking of the post-verbal object-DP in (60) is indeed impossible in Herero. This supports my analysis, according to which the phase head Pr blocks the necessary agreement relation between the object-DP and the functional head responsible for object marking:

- (62)            \**Po-ndjuwo*            *pe-i-tjang-er-a*    *ova-natje*.  
                  16.LOC-9.house    16.SM.HAB-9.OM-write-APPL-FV    2-children  
                  ‘At the house write the children it.’  
                  (Herero; Jekura Kavari p.c.)

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<sup>14</sup> According to the analysis I presented in Section 3.3, passivisation in locative inversion constructions is blocked because the presence of Pr prevents a vP-internal argument from agreeing with T and from moving to the subject position. This analysis does not rule out the possibility that the complement of Pr in locative inversion is a passive predicate. Bresnan and Kanerva (1989: 18) show that locative inversion in Chicheŵa is indeed possible with passivised transitive verbs:

- (i)            *M-nkhâli*    *mw-a-phik-idw-á*    *chákúdyá*.  
                  18.LOC-9.cooking pot    18.SM-PERF-cook-PASS-FV    7.food  
                  ‘In the pot has been cooked food.’

However, notice that the subject position in (i) is still occupied by the locative – the logical object has remained inside vP/VP. In examples such as (i), the passive has turned the transitive verb into an unaccusative predicate by absorbing the external theta role. Nothing in my theory prevents the subsequent merger of the passive vP/VP and Pr. However, syntactic movement of a vP/VP-internal argument to the subject position, and the realisation of the locative as a *by*-phrase, are ruled out by my theory. As (ii) shows, such examples are in fact ungrammatical in Chicheŵa, as they are in Zulu:

- (ii)            \**A-lendô-wo*            *a-na-bwér-édw-a*    *ndí*    *ku-mu-dzi* .  
                  2-visitor-2.DEM    2.SM-PAST-come-PASS-FV    by    17.LOC-3-village  
                  ‘To the village came those visitors.’  
                  (Chicheŵa; Bresnan and Kanerva 1989: 15)

My analysis predicts that object marking, relativisation and passivisation of internal arguments are never possible in locative inversion constructions in Bantu languages.

A further prediction is that formal locative inversion should never be possible with non-verbal predicates. As far as I could establish, this prediction is borne out. For example, the following data, provided courtesy of Agness Hara (p.c.), show that locative inversion in Chicheŵa cannot apply to adjectival predicate constructions:

- (63) a. *Nsomba ndi z-oopsya mu-m-tsinje-mu.*  
 10.fish COP 10.SM-dangerous 18.LOC-3-river-18.DEM  
 ‘Fish are dangerous in this river.’
- b. *Mu-m-tsinje-mu ndi m-oopsya.*  
 18.LOC-3-river-18.DEM COP 18.SM-dangerous  
 ‘It is dangerous in this river.’  
 (Lit.: ‘In this river is dangerous.’)
- c. \**Mu-m-tsinje-mu ndi m-oopsya nsomba.*  
 18.LOC-3-river-18.DEM COP 18.SM-dangerous 10.fish  
 Intended: ‘In this river, fish are dangerous.’  
 (Chicheŵa; Agness Hara p.c.)

(63a) shows that locatives can appear as adjuncts in adjectival predicate constructions where the adjective’s subject argument is introduced in [Spec, Pr]. (63b) demonstrates that Pr can also introduce locative-DPs as subjects of adjectival predicates. However, with a locative subject, no other argument of the adjective can be realised, (63c). This contrast follows from my analysis, according to which the subjects in (63a) and (63b) are base-generated in the same position.

As noted above, Bantu languages differ with respect to the kinds of verbs that license locative inversion constructions. In languages such as Chicheŵa or Lubukusu, locative inversion is restricted to unaccusative verbs, whereas languages such as Nsenga, Zulu or Herero also allow locative inversion with unergatives or transitives. The Pr-analysis advocated here makes it possible to explain this difference in terms of a parameter associated with the selectional properties of Pr. It is generally assumed that the syntactic projection of unaccusative verbs is different from that of unergative or transitive verbs – the latter project vPs, the former VPs (or “defective” vPs). I suggest that in languages of

the Chicheŵa or Lubukusu type, Pr c-selects only unaccusative verbal projections (i.e. VPs/defective vPs), while Pr in languages such as Nsenga, Zulu or Herero can also take an agentive non-defective vP as its complement. The latter languages are further divided into those which do, and those which do not, license locative inversion with transitive verbs, but I assume that the parameter responsible for this split is independent of the properties of Pr. In fact, the unergative/transitive parameter seems to differentiate idiolects rather than languages – recall that not all Zulu speakers accept semantic locative inversion with transitive verbs. Further research is needed to understand the nature of this second parameter and its relation to the principles that control the licensing of vP-internal DPs in Bantu (on the latter point, see especially Halpert 2012).

I conclude from this brief discussion that the analysis that I have motivated and developed on the basis of semantic locative inversion constructions in Zulu can also explain the properties of formal locative inversion, as well as some of the parametric variation found in the Bantu family regarding the classes of verbs that license locative inversion.

## 5. Conclusion

The main claim of this paper is that the syntax of locative inversion includes the projection of a functional category Pr which establishes a non-canonical predication relation between its complement and a DP in its specifier. I argued that in this respect, locative inversion differs from canonical forms of verbal predication, in which Pr is not present, and in which the verb combines with its vP/VP-internal arguments in the order determined by a universal thematic hierarchy (e.g. AGENT < GOAL/SOURCE < THEME ...). Rather, I suggested that locative inversion has more in common with the syntax of non-verbal predication in Bantu, since the category Pr projects in both types of constructions.<sup>15</sup> To the best of my knowledge, this parallel between locative inversion

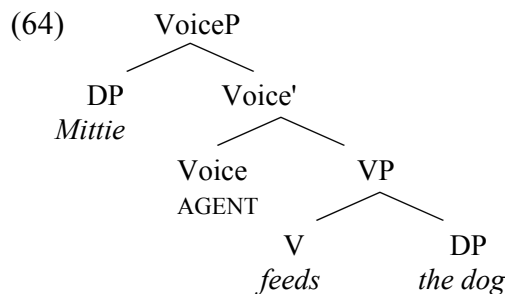
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<sup>15</sup> Pr may also be part of the syntax of other related constructions in Bantu. For example, expletive constructions in Zulu are similar to semantic locative inversion constructions in important respects: all arguments of the verb remain inside the vP and therefore appear post-verbally; none of these arguments can be object-marked or relativised; transitive expletive constructions are acceptable for many Zulu speakers; and expletive constructions with predicate-internal arguments cannot be formed with non-verbal predicates (cf. Buell 2008; Buell and de Dreu forthcoming; Halpert 2012; Zeller 2008). Given these parallels, it is worthwhile to consider the hypothesis that in expletive constructions, the vP/VP is also

and non-verbal predication has not yet been noted in studies on Bantu syntax. However, it emerges as a consequence of the idea that the category Pr in Bantu can select both non-verbal and verbal categories whose denotations can be construed as properties of Pr's subject argument.

### Appendix: locative inversion and event composition

Kratzer (1996) suggests that the external argument of a transitive sentence such as *Mittie feeds the dog* is introduced by the syntactic head Voice that realises the thematic role AGENT:



In Kratzer's "neo-Davidsonian" theory, thematic roles are expressed as predicates that determine thematic relations between situations (events or states) and individuals. The semantics of the AGENT in Voice is given in (65a); the VP *feed the dog* denotes a function from events to truth-values, as shown in (65b):<sup>16</sup>

- (65) a. **Voice\*** =  $\lambda x \lambda e [\text{AGENT}(x)(e)]$   
 b. **VP\*** =  $\lambda e [\text{feed}(\text{the dog})(e)]$

---

selected by Pr. The obvious difference between locative inversion and expletive constructions is that in the latter, there is no referential argument in the subject position, and the question is how this fact can be reconciled with the Pr-analysis proposed here. I have to leave the answer to this question, as well as the study of other types of inversion in Bantu to which the Pr-analysis could be applied, as a topic for future research (but see Zeller 2012 for a discussion of so-called instrument inversion found in some Zulu varieties in light of the Pr-analysis).

<sup>16</sup> Kratzer (1996) assigns denotations to bracketed strings of lexical items. Slightly simplifying her notational practice, I represent lexical material by the corresponding syntactic nodes.  $\alpha^*$  hence stands for the denotations that are associated with the lexical material that realises, or is dominated by, a node  $\alpha$ .

The two eventive predicates in (65) combine semantically via the composition principle “Event Identification” (e, s and t in line 2 of (66) stand for the basic semantic types of individuals (entities), situations, and truth-values; they are indicated as variable subscripts in lines 3 and 4):

(66) Event Identification (cf. Kratzer 1996: 122):

$$\begin{array}{ccc}
 f & g & \rightarrow h \\
 \langle e, \langle s, t \rangle \rangle & \langle s, t \rangle & \langle e, \langle s, t \rangle \rangle \\
 & & \lambda x_e \lambda e_s [(f(x)(e) \ \& \ g(e))], \text{ or} \\
 & & \lambda x_e \lambda s_s [f(x)(s) \ \& \ g(s)]
 \end{array}$$

Event Identification enables two predicates with an argument of type s to form a complex predicate. Combining (65a) and (65b) via Event Identification yields (65c):

(65) c. **Voice'\*** =  $\lambda x \lambda e [\text{AGENT}(x)(e) \ \& \ \text{feed}(\text{the dog})(e)]$   
 (from (65a, b) by Event Identification)

(65c) is a function from individuals to (sets of) events in which the individual stands in the Agent-relation to the event of feeding the dog. When Voice' merges with its specifier, the function in (65c) is applied to the denotation of the external argument *Mittie*, and we derive (65e):

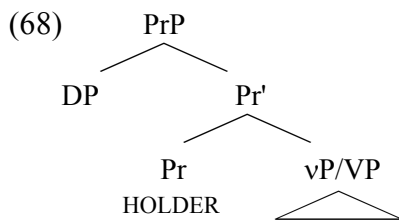
(65) d. **DP\*** = *Mittie*  
 e. **VoiceP\*** =  $\lambda e [\text{AGENT}(\text{Mittie})(e) \ \& \ \text{feed}(\text{the dog})(e)]$   
 (from (65c, d) by Functional Application)

Kratzer (1996) suggests that the subject argument of stative predicates is introduced by a HOLDER-predicate, which expresses that the state denoted by the predicate is said to hold of an individual-type entity. I assume that Pr in non-verbal predicate constructions denotes this HOLDER-predicate, which Kratzer (1996: 123) defines as in (67b). The semantic composition of the adjectival predicate constructions in (27) in Section 3.1 is illustrated in (67) (ignoring negation):

- (67) a.  $\mathbf{AP}^* = \lambda s[\text{beautiful}(s)]$   
b.  $\mathbf{Pr}^* = \lambda x \lambda s[\text{HOLDER}(x)(s)]$   
c.  $\mathbf{Pr}'^* = \lambda x \lambda s[\text{HOLDER}(x)(s) \ \& \ \text{beautiful}(s)]$   
(from (67a, b) by Event Identification)
d.  $\mathbf{DP}^* = \text{the house}$   
e.  $\mathbf{PrP}^* = \lambda s[\text{HOLDER}(\text{the house})(s) \ \& \ \text{beautiful}(s)]$   
(from (67c, d) by Functional Application)

As (67) shows, the semantics of Pr establishes a Holder-relation between the state denoted by the AP-complement of Pr and the argument introduced in [Spec, Pr]. Similar semantic computations can be postulated for the interpretation of nominal and locative predicate constructions, although the precise semantics of Pr in these cases may differ from (67b) (for example, Pr may denote a BE\_AT-relation in the case of locative predicates etc.).

As argued in the text, Pr in semantic locative inversion also denotes the HOLDER-predicate:



When Pr combines with a stative VP, which also denotes a set of states, the two predicates combine via Event Identification, and the result is a complex predicate which determines that the argument introduced in [Spec, Pr] is the HOLDER of the state expressed by the VP. The interpretation of (31) from Section 3.2.1 is shown in (69):

- (69) a.  $\mathbf{VP}^* = \lambda s[\text{live}(\text{old-people})(s)]$   
b.  $\mathbf{Pr}^* = \lambda x \lambda s[\text{HOLDER}(x)(s)]$   
c.  $\mathbf{Pr}'^* = \lambda x \lambda s[\text{HOLDER}(x)(s) \ \& \ \text{live}(\text{old-people})(s)]$   
(from (69a, b) by Event Identification)
d.  $\mathbf{DP}^* = \text{these houses}$   
e.  $\mathbf{PrP}^* = \lambda s[\text{HOLDER}(\text{these houses})(s) \ \& \ \text{live}(\text{old-people})(s)]$   
(from (69c, d) by Functional Application)

In contrast to semantic locative inversion with unaccusative verbs, an agentive vP (which I take to be the equivalent of Kratzer’s VoiceP) denotes a set of events (see (65e)). When Pr combines with a vP in inversion constructions with unergative or transitive verbs, the HOLDER-predicate in Pr (spelled out as the applicative marker) denotes a function from individuals to sets of events:

- (70)
- a.  $\mathbf{vP}^* = \lambda e[\text{AGENT}(\text{these men})(e) \ \& \ \text{work}(e)]$
  - b.  $\mathbf{Pr}^* = \lambda x \lambda e[\text{HOLDER}(x)(e)]$
  - c.  $\mathbf{Pr}'^* = \lambda x \lambda e[\text{HOLDER}(x)(e) \ \& \ \text{AGENT}(\text{these men})(e) \ \& \ \text{work}(e)]$   
(from (70a, b) by Event Identification)
  - d.  $\mathbf{DP}^* = \text{this store}$
  - e.  $\mathbf{PrP}^* = \lambda e[\text{HOLDER}(\text{this store})(e) \ \& \ \text{AGENT}(\text{these men})(e) \ \& \ \text{work}(e)]$   
(from (70c, d) by Functional Application)

(70) depicts the computation corresponding to example (36) in Section 3.2.2. The denotation of PrP can be paraphrased by saying that the event of these men working “holds of” the store. Given that the subject-DP designates a location, this Holder-relation can be interpreted as the event taking place at the store.

An alternative to (70b) (mentioned in footnote 10) would be to encode the locative interpretation explicitly in the semantics of Pr. If this view is adopted, the relevant parts of the semantic computation look as in (70)′:

- (70)′
- b.  $\mathbf{Pr}^* = \lambda x \lambda e[\text{LOCATION}(x)(e)]$
  - c.  $\mathbf{Pr}'^* = \lambda x \lambda e[\text{LOCATION}(x)(e) \ \& \ \text{AGENT}(\text{these men})(e) \ \& \ \text{work}(e)]$   
(from (70a), (70b)′ by Event Identification)
  - e.  $\mathbf{PrP}^* = \lambda e[\text{LOCATION}(\text{this store})(e) \ \& \ \text{AGENT}(\text{these men})(e) \ \& \ \text{work}(e)]$   
(from (70c)′, (70d) by Functional Application)

According to (70b)′, Pr in locative inversion constructions with unergative and transitive verbs introduces a locative argument above the Agent. The alternative in (70)′ would imply that Pr in these constructions differs from Pr in constructions with stative verbs not only with respect to its selectional and phonological properties, but also in terms of its semantics.



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