

Semantic Locative Inversion in Ndebele

Mike Pham
University of Chicago
mpham@uchicago.edu

June 23, 2014

1 Introduction

Many languages, such as English, allow locative inversion structures where the canonical subject position is filled by a locative argument rather than the logical subject of the verb.

- (1) (a) In that class sleeps a graduate student.
- (b) In that class sleep the graduate students.

In English, however, we can see that the logical subject still controls inflectional agreement on the verb (1a-1b), implying that the surface order of constituents is not representative of the underlying argument structure, where the postverbal logical subject still behaves as a syntactic subject as well.

What has attracted much attention to locative inversion in Bantu languages is the fact that the locative arguments in these structures truly appear to be syntactic subjects of their sentences, most obviously in controlling agreement on the verb, but also having the syntactic properties of canonical subjects (e.g., Bresnan and Kanerva, 1989, etc). An ongoing debate in the literature is whether or not the locative arguments in inversion constructions undergo movement to a surface subject position, or if they are in fact underlyingly syntactic subjects.

Bantu languages from the Nguni family, spoken in southern Africa, are complicate the picture in allowing what has been called Semantic Locative Inversion (SLI) (Buell, 2007), where the locative subject is not marked as a locative morphosyntactically, but rather appears as a bare DP in the preverbal subject position (canonical word order is SVO). This raises the question of how a bare DP is interpreted as a locative argument in SLI. Additionally, Semantic Locative Inversion predictably triggers applicative morphology on unergative and transitive verbs, but not unaccusative verbs; this alternation has been previously analyzed as allomorphic variations of a functional head over *v*P.

This paper looks primarily at data from (Northern) Ndebele, an understudied Bantu language in the aforementioned Nguni family that is spoken in Zimbabwe. The data is mostly from my original personal fieldwork. Because Ndebele is largely mutually intelligible with Zulu, I will also look at previous research on Zulu, where the facts also hold for Ndebele unless otherwise stated. I show evidence from frozen scope and idioms that previous accounts of Semantic Locative Inversion are correct in assuming that the locative argument is base-generated higher than the (agentive) external argument (Buell, 2005; Zeller, 2013). Following Buell and de Dreu 2013, I reject the claim by Zeller 2013 that these locative arguments are introduced by a Predicate head taking

a verbal predicate complement. Instead, I propose that the head that introduces the locative argument in Semantic Locative Inversion is an Applicative head, in keeping with Buell 2005; but unlike Buell 2005, I argue that this Appl head is only present with unergative and transitive verbs where it is required to introduce another argument over the external argument. For unaccusative verbs, which have no external argument, Spec,*v*P is an available position for the locative argument to be introduced in. This analysis draws a direct connection between the presence of the applicative suffix in Semantic Locative Inversion and the presence of an external argument within *v*P without relying on any null allomorphy.

My claim is that a language has certain morphosyntactic resources available to introduce external arguments, starting with *v*. All external arguments will first be introduced in Spec,*v*P; however, if this position is already filled by an external argument, then further external arguments must be introduced via additional argument-introducing heads that the language has. Specifically, Ndebele uses Appl to introduce a locative external argument above the agentive one. This claim makes the typological prediction that there is an implicational hierarchy in the types of verbs that allow Semantic Locative Inversion: any language that allows these constructions will allow them with unaccusatives, possibly to the exclusion of unergatives/transitives, but never the other way around. This is due to the fact that a language will always have *v* to introduce external arguments, though not necessarily an Appl head that can merge with *v*P.

I also show that the bare locative DPs in Semantic Locative Inversion sentences are obligatorily generated as [-FOCUS] constituents. As a result, they must obligatorily move to the subject position in the inflectional domain (Zeller, 2008) and cannot remain in a low postverbal position. This is in contrast to normal subject DPs in Ndebele, which can either optionally be preverbal and control agreement on the verb, or remain in a low postverbal position, resulting in expletive/default noun class 17 agreement on the verb.

In §2, I give background on the nature of Semantic Locative Inversion in Ndebele (and Zulu) and previous analyses of the phenomenon. Additionally, I provide new evidence from frozen scope and idioms that the locative argument is base-generated higher than the external argument of the verb. In §3 I discuss the distribution of the applicative suffix in SLI. In §4 I discuss some major problems with the PredP analysis proposed by Zeller 2013 and provide my own analysis in §5. I summarize my main arguments and predictions in §6.

2 The position of the locative argument in SLI

In this section, I outline some basic properties of the Semantic Locative Inversion construction in §2.1: most importantly, SLI does not involve morphosyntactic locative marking of the locative argument, distinguishing it from the body of locative inversion literature where the locative subject is not a bare DP. The appearance of the applicative suffix *-el* appears in SLI and tracks the presence of an agentive external argument; further details of this suffix's distribution is discussed in §3.

In §2.2, I provide more evidence that not only is the locative DP in SLI the syntactic subject of the sentence. Matrix verb agreement, the availability of subject-to-subject raising and binding into agent provide evidence that locative argument is the subject of an SLI sentence. The unavailability of quantifier stranding, inverse scope readings and idiomatic interpretations of SLI sentences support the analysis that locative DPs are generated as external arguments which are higher than the agent (when there is one).

2.1 The Semantic Locative Inversion construction

Locative inversion refers to constructions in which a locative DP shows up in the canonical subject position of a sentence, where in many Bantu languages, it controls agreement on the finite verb. Buell 2007 makes a distinction between Formal Locative Inversion (FLI) and Semantic Locative Inversion (SLI). Semantic Locative Inversion is crucially different from Formal Locative Inversion because the locative argument that is in the preverbal subject position appears as a bare DP, with no locative morphosyntax. Consider the following:

- (2) (a) **Aba**-ntu aba-dala **ba**-hlal-a ku-lezi zin-dlu.
2-person 2-old 2.SM-stay-FV 17-DEM.10 10-house
'Old people live in these houses.'
- (b) Lezi **zin**-dlu **zi**-hlal-a aba-ntu aba-dala.
DEM.10 10-houses 10.SM-stay-FV 2-person 2-old
'Old people live in these houses.'
- (c) **Ku**-lezi zin-dlu **ku**-hlal-a (khona) aba-ntu aba-dala.
17-DEM.10 10-house 17-stay-FV there 2-person 2-old
'In these houses live old people.'

(2a) is an example of a canonical Ndebele sentence with a postverbal locative argument realized obliquely with the locative NC17 *ku-* prefixed onto the DP¹. In (2b), the DP *lezi zindlu*, 'these houses', appears in the preverbal subject position, where it triggers agreement on the verb. Importantly, this locative argument is a bare DP, with no morphosyntactic locative marking. Compare this to (2c), which shows that Ndebele also allows Formal Locative Inversion, where the preverbal locative DP is morphologically marked as a locative by the prefix *ku-*.

The majority of the literature on locative inversion in Bantu has focused on Formal Locative Inversion, where the locative argument that appears in subject position is morphosyntactically marked with one of the locative noun class prefixes (16, 17, 18), which control agreement on the verb, and cooccurs with the regular noun class prefix in FLI.

(3) Formal Locative Inversion

- (a) Chi-tsîme chi-li ku-mu-dzi.
7-well 7.SM-be 17-3-village
'The well is in the village.'
- (b) Ku-mu-dzi ku-li chi-tsîme.
17-3-village 17.SM-be 7-well
'In the village is a well.'

(Chichewa, Bresnan and Kanerva 1989)

In (3a), the locative argument is in a canonical postverbal position, while the logical subject of the verb *chitsîme*, 'well', is in the canonical preverbal subject position, where it controls agreement on

¹Buell 2009 makes compelling arguments that this locative *ku-* prefix, while clearly derived historically from the noun class prefix, is actually a preposition in modern Zulu, and also, presumably, Ndebele. The fact that it prefixes to the entire DP in (2a) is good evidence for a prepositional analysis. For the purposes of this paper, however, it is only crucial to notice that the locative *ku-* prefix does not show up in cases of SLI.

the verb. In (77a), the argument positions are reversed, with the locatively marked *kumudzi*, ‘in the village’, appearing in the preverbal subject position; crucially, the subject marker prefix on the verb agrees with the locative noun class 17 prefix *ku-* on the locative argument.

While Bresnan and Kanerva 1989 claim that locative inversion is only possible with unaccusative verbs, this appears to only be true for Chichewa. Other Bantu languages allow for other types of verbs to undergo locative inversion: Ndebele (Khumalo, 2010), Zulu (Buell, 2005, 2007; Zeller, 2013), Otjiherero (Marten, 2006), Digo (Diercks, 2011). Besides unaccusative verbs, both SLI and FLI in Ndebele and Zulu can also occur with unergative and transitive verbs. In the case of SLI, however, there is a morphological alternation involving the applicative suffix.

Buell 2005 notes that while SLI occurring with unaccusatives triggers no change on the verbal morphology other than the subject marker agreement with the noun class, when SLI occurs with an unergative or transitive verb, the applicative suffix, *-el* also appears on the verb.

(4) unergative

- (a) Aba-ntwana ba-gjijim-a e-si-kolo.
2-child 2.SM-run-FV LOC-7-school
‘The children run in the school.’
- (b) Isi-kolo si-gjijim-*(e)l-a aba-ntwana.
7-school 7.SM-run-APPL-FV 2-child
‘The children run in the school.’

(5) transitive

- (a) U-mama u-phek-a uku-dla e-kitsh-ini.
1a-mom 1a.SM-cook-FV 15-food LOC-5.kitchen-LOC
‘Mother cooks food in the kitchen.’
- (b) I-kitshi li-phek-*(e)l-a u-mama uku-dla.
5-kitchen 5.SM-cook-APPL-FV 1a-mom 15-food
‘Mother cooks food in the kitchen.’

In (4) and (5) above, Semantic Locative Inversion requires that the applicative *-el* suffix be attached to the verb; the construction is ungrammatical otherwise.

The fact that the applicative morpheme, which generally introduces another argument into the event structure (i.e. benefactive, motive, etc), shows up with unergatives and transitives but not unaccusatives is telling: what sets the former two apart from the latter is the presence of an external argument. It is this external argument in SLI that the applicative is sensitive to. I argue that the surface structure of SLI constructions is indicative of underlying structure: there is clearly an Appl head involved in the case of unergative and transitive SLI, but the lack of an applicative suffix in the case of unaccusatives is due to the lack of a morphosyntactic Appl head in the underlying structure.

2.2 Locative DPs are subjects over the external argument in SLI

As can be seen in previous examples, the subject marker on the verb agrees with the locative DP, providing the most obvious evidence that the locative DP is the subject of the sentence. It also

appears in the postverbal position, where subjects generally appear in Ndebele, which is normally SVO. Additionally, subject-to-subject raising shows that the locative DP behaves as the subject of SLI sentences.

Other tests for subjecthood also show that not only is the locative DP in the subject position, but it is higher than the logical agentive argument (where there is one). For example, the locative DP can bind into the agent DP. Buell 2005 provides language-specific evidence from Zulu involving the short/long (also called the conjoint/disjoint) forms of verbs that shows that the locative DP does not originate from a *v*P-internal position. I provide additional Ndebele evidence from frozen scope and idioms in SLI that the locative DP is an external argument of the verb, and is generated in a base position higher than the agentive external argument.

2.2.1 Subject-to-subject raising

The locative argument in SLI can undergo subject-to-subject raising, as can be seen in the following Zulu examples:

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

- (7) I-khishi li-bonakal-a senghati li-phek-el-a u-mama.
 5-kitchen 5.SM-seem-FV that 5.SM-cook-APPL-FV 1a-mother
 ‘Mother seems to cook in the kitchen.’ (Zulu, (Zeller, 2013, p.1113))

In the examples above we see that the verb *-bonakala* licenses movement of the locative argument from the subject position of the embedded finite clause to the subject position of the main clause, triggering subject agreement with both the embedded verb as well as the matrix verb.

2.2.2 Binding and Quantificational NP relations

The locative DP can also be shown to be higher than the agent by the fact that it can bind into an agent:

- (8) binding into agent

- Isi-kole ngasinye_i si-fund-el-a aba-ntwana ba-so_i.
 7-school 7.each 7.SM-study-APPL-FV 2-child 2.of-7.it
 ‘Each school_i is studied at by its_i children.’
 Lit. ‘Each school_i studies at its_i children.’ (Zulu, (Buell, 2005, p.198))

These data were more difficult to elicit in Ndebele due to some differences in sentence structure. The first is that whereas the Zulu DP appears to be [*isikole ngasinye*], ‘each school’, it is unclear if the corresponding quantifier in Ndebele is part of the subject DP or some kind of adverbial.

- (9) (a) Izi-kolo zinye nga-zinye zi-bal-el-a aba-fundi (?bazo) izin-cwadi.
 8-school 8.each by-8.each 8.SM-read-APPL-FV 2-student 2-8.its 10-letter
 'In each school_i (?its_i) students read letters.'
- (b) *Isi-kolo sinye nga-sinye si-bal-el-a aba-fundi (?bazo) izin-cwadi.
 7-school 7.each by-7.each 7.SM-read-APPL-FV 2-student 2-8.its 10-letter
 Intended: 'In each school_i (?its_i) students read letters.'

In Ndebele, the quantifier that corresponds to Zulu *ngasinye*, 'each (NC7)', is *zinye ngazinye*, 'each by each (NC8)'; this quantifier cannot appear with a singular subject as it does in Zulu.

More importantly, though, my Ndebele consultant had a difficult time assessing the grammaticality of the possessive pronoun attached to the agent DP, *bazo*. While it is possible that binding could have been the problem, the salient difficulty she mentioned was in having a possessive pronoun referring to an animate possessee and inanimate possessor. She was able to give possessive forms that didn't include a pronoun, but those also bleed the binding into agent environments desired.

For now, I will assume that the Zulu data also apply to Ndebele as it was not the relevant binding interpretations that gave my consultant problems, but other Ndebele-specific issues with the construction that will be more thoroughly addressed in future elicitation.

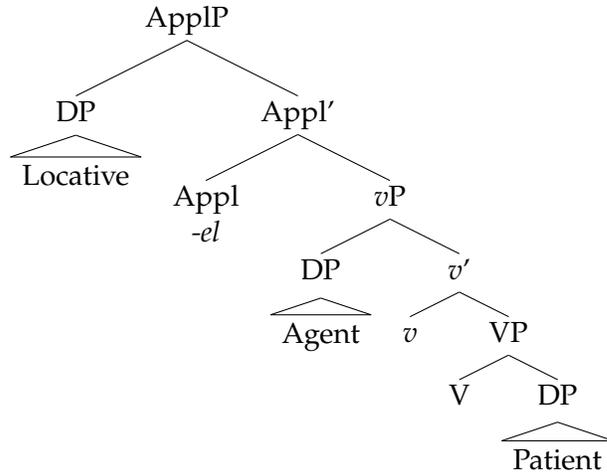
2.2.3 Quantifier stranding

While the locative DP in SLI constructions can be shown to have surface subject properties, this does not necessarily say anything about its base position. In theory, it is possible for the locative DP to be generated low within *v*P and undergo movement upwards to the surface subject position. However, I follow previous analyses of SLI in assuming that the locative DP is in fact generated high – even above the agentive external argument in unergative and transitive sentences. This is supported by Zulu quantifier stranding evidence from Buell 2005, as well as my Ndebele data on frozen scope and idioms in SLI constructions.

Like Buell 2005, I analyze the locative DP as being introduced by a functional head, *Appl*², that merges above the agent, that is, the locative DP is base-generated in a *v*P-external position. This means that the structure of locative inversion is underlyingly distinct from a canonical sentence with a postverbal locative PP, which is *v*P-internal.

(10) Buell 2005:

²Buell actually labels this head *Loc1* because of the semantic role of the DP it introduces in its specifier position. However, it is still an applicative head for him: not only does it have the same exponent as other applicatives (and he says nothing about accidental homophony), but applicatives can also introduce locative arguments cross-linguistically. Presumably *Loc1* is just a specific label for a type of *Appl* head.



In other words, SLI is not derived by moving a *vP*-internal locative DP out of the *vP*. This is supported by the fact that while applicative morphemes can often introduce locative arguments as bare DPs in other Bantu languages, they are incapable of doing so in Ndebele, where they can only appear with the locative circumfix *e-...-ini*:

- (11) (a) *U-mama u-phek-el-a i-khitshi uku-dla.
 1a-mother 1a.SM-cook-APPL-FV 5-kitchen 15-food
 Intended: 'Mother cooks food in the kitchen.'
- (b) U-mama u-phek-el-a e-khitsh-ini uku-dla.
 1a-mother 1a.SM-cook-APPL-FV LOC-5.kitchen-LOC 15-food
 'Mother cooks food in the kitchen.'

Zulu and Ndebele verbs have an alternation between the short/long forms (or conjoint/disjoint forms, respectively), with the long form being marked by the prefix *ya-*. Long form verbs indicate that the phrase following the verb is outside of the *vP*; short form verbs indicate that the postverbal phrase remains *vP*-internal where it was generated.

- (12) (a) short form
 Aba-ntwana ba-cul-a izin-goma]_{vP}
 2-child 2.SM-sing-FV 10-song
- (b) long form
 Aba-ntwana ba-ya-cul-a]_{vP} izin-goma.
 2-child 2.SM-YA-sing-FV 10-song
 'The children are singing the songs.' (Zulu, (Buell, 2005, p.204))

The quantifier *-onke* can be stranded within *vP* when a *vP*-internal argument is fronted in topicalization:

- (13) **Izin-goma**, aba-ntwana ba-zi-cul-a **zonke**]_{vP}
 10-song 2-child 2.SM-10.OM-sing-FV 10.all
 'The songs, the children are singing all of them.' (Zulu, (Buell, 2005, p.204))

In (13) above, the object DP *izingoma*, ‘songs’, has been topicalized and fronted, stranding the quantifier *zonke*. We know that the quantifier modifies the subject due to the noun class agreement on it, and we also know that it must be *vP*-internal because the verb *bazicula* is in the short form.

If the locative DP in SLI originated *vP*-internally, it should also be able to strand a quantifier within the *vP* in the presence of a short form verb. This is not the case, however:

- (14) *Izi-kole zi-fund-el-a zonke]_{vP}
 8-school 8.SM-study-APPL-FV 8.all

Intended: ‘The schools are all studied at.’

(Zulu, (Buell, 2005, p.204))

Buell uses these quantifier stranding data to argue that the locative DP has not been moved out of a low position within *vP*, but is rather generated outside the scope of where quantifiers can be stranded: specifically, he assumes that the lowest position a quantifier can be stranded is somewhere below ApplP in (10), a position that subjects and objects can move through. The inability for the locative argument to strand a quantifier can be explained by having it generated higher than this position, thus requiring illicit lowering of the quantifier in order to strand it.

However, Buell doesn’t show that quantifier stranding in SLI is ungrammatical due to the base position of the locative argument and not because it is an applied object. Put another way, he does not address whether or not quantifier stranding can associate with a regular applicative object; if it cannot, then the ungrammaticality of (14) might be for reasons independent of locative inversion. My data from Ndebele in the following example show that quantifier stranding with regular applied objects is in fact grammatical:

- (15) (a) U-mama u-phek-el-a aba-ntwana bonke uku-dla.
 1a-mother 1a.SM-cook-APPL-FV 2-child 2.all 15-food
 ‘Mother is cooking all of the children food.’
 (b) Aba-ntwana, u-mama u-phek-el-a bonke uku-dla.
 2-child 1a-mother 1a.SM-cook-APPL-FV 2.all 15-food
 ‘The children, mother is cooking all of them food.’

In (15b), we can see that *abantwana*, ‘children’, can be topicalized to the front of the sentence, stranding its quantifier *bonke* in a *vP*-internal position.³ The fact that regular applied objects topicalized to a preverbal position, such as the benefactive *abantwana* in (15b), can be associated with a *vP*-internal quantifier but the locative argument in SLI cannot provides evidence that the locative DP in SLI constructions does not move from a *vP*-internal position to the subject position. Rather, it must be assumed that the ungrammaticality of its association with a *vP*-internal quantifier is due to the fact that locative arguments are introduced outside of *vP* in SLI constructions.

³As pointed out by Karlos Arregi (p.c.), (15b) involves movement of the quantified noun to an A’-position, while the illicit stranding in (14) involves movement of the quantified noun to an A-position. It is conceivable that the ungrammaticality is related to this, and a suggested example to check this would be to look at a passivized example that also involves A-movement:

- (16) Aba-ntwana ba-phek-el-w-a bonke uku-dla (ng-u-mama).
 2-child 2.SM-cook-APPL-PASS-FV 2.all 15-food by-1a-mother
 ‘The children are all cooked food (by mother).’ [unverified example]

The grammaticality of this example will need to be verified to ensure that quantifier stranding is not sensitive to movement to A-positions versus A’-positions.

2.2.4 Frozen Scope

The Ndebele data I have elicited show that in canonical sentences, there is scope ambiguity between quantifiers in subject and object position, as well as quantifiers in subjects and postverbal locative DPs. This is in contrast to SLI constructions, where the scope of quantifiers is frozen, with inverse scope not being possible:

- (17) Aba-ntwana bonke ba-thand-a ama-bhuku ama-mbili.
 2-child 2.all 2.SM-like-FV 6-book 2.REL-two

'All children like two books.' ($all > 2$; $2 > all$)⁴

- (18) (a) Aba-ntwana bonke ba-fund-a e-zi-kolwe-ni ezi-mbili.
 2-child 2.all 2.SM-study-FV LOC-8-school-LOC 8.REL-two

'All children study at two schools.' ($all > 2$; $2 > all$)

(b) SLI:

- Izi-kolo ezi-mbili zi-fund-el-a aba-ntwana bonke.
 8-school 8.REL-two 8.SM-study-APPL-FV 2-child 2.all

'There are two schools where all children study.' ($2 > all$; $*all > 2$)

In (18a), we can see that the sentence is ambiguous between two interpretations: one in which it is true for all children that they each go to two schools ($all > 2$), and one in which it is true of two specific schools that all children go to them ($2 > all$).⁵ This is in contrast to (18b), in which the only available interpretation is one that matches the surface scope in which $2 > all$. The question is why the quantifier in postverbal objects and locative DPs can take scope over subject quantifiers in canonical sentences, but postverbal agentive quantifiers cannot take scope over locative DP subjects in SLI.

Aoun and Li 1993 account for frozen scope contrasts between English and Chinese utilizing two syntactic requirements:

- (19) (a) **The Minimal Binding Requirement (MBR):** Variables must be bound by the most local potential A'-binder
 (b) **The Scope Principle:** An operator A may have scope over an operator B iff A c-commands B or an A'-element coindexed with B

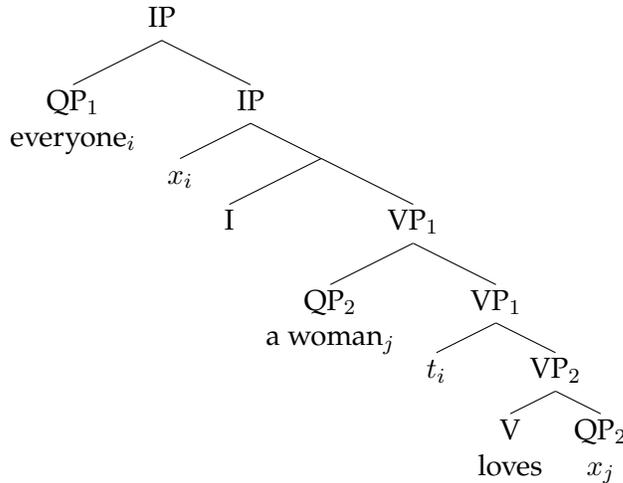
These requirements interact to give the ambiguous readings in English, represented by the following tree in which QR has been applied to (??), where x is a variable trace of A'-movement, and t is a trace of A-movement:

⁴My consultant originally found the inverse scope reading ($2 > all$) in this example to be ungrammatical. After supplying context, however, she found the inverse scope reading acceptable, though dispreferred.

⁵As pointed out by Karlos Arregi (p.c.), the examples in (17) and (18a) are problematic examples to illustrate frozen scope, as the set of situations in which inverse scope is true will be a subset of situations in which surface scope is true: if there are two books a and b that all children like ($2 > all$), then it is also true that all children like two books, which happen to be a and b ($all > 2$). To unambiguously show that inverse scope readings are available, the order of quantifiers should be flipped in these examples such that $2 > all$ is the surface scope.

(20)

(Aoun and Li, 1993, p.26)

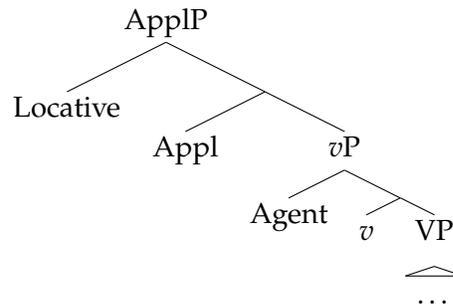


In (20), QP_1 has moved from its subject position in Spec,IP to adjoin to IP, and QP_2 has moved from its object position in VP_2 to adjoining to VP_1 . While it appears as if QP_2 would be the most local antecedent binding t_i , Aoun and Li point out that because t_i is an NP trace, its most local potential binding antecedent must be an NP in A-position, rather than an A'-position. Thus, the raised quantifier QP_2 does not qualify as an antecedent for t_i , though it will still qualify as an antecedent for the variable x_j .

Given that this structure is licensed without violating the MBR, the ambiguous scope of the sentence is due to the relative positions of the QPs and their traces. QP_1 c-commands QP_2 , which gives the surface scope reading of the English sentence in (?). However, QP_2 also c-commands the reconstructed base position of QP_1 , t_i . According to the Scope Principle in (19b), because t_i is coindexed with QP_1 , and QP_2 c-commands t_i , QP_2 can have scope over QP_1 , resulting in an inverse scope reading. QR can give a lower quantifier wide scope if it moves to a position where it c-commands a position where the higher quantifier can be reconstructed.

For Ndebele, if the locative argument's base position is c-commanded by the agent, then we would expect that the locative's quantifier can be reconstructed to this position, giving the agent scope over the locative, resulting in inverse scope. The fact that this is not possible implies that the locative is generated above the agent to begin with:

(21)



Because the locative is generated higher than the agent, there is no place where it can be reconstructed below the agent to result in inverse scope. Similarly, the data show that the agent remains in its base position, where it is postverbal in the surface structure, meaning it remains lower than the locative throughout the syntactic derivation.

We can also add to this argument that moving the agent to Spec,TP over the locative would be a violation of the Minimal Link Condition (Chomsky, 1995, 2000, c.f.), which would require that the most local argument be moved to Spec,TP. Moreover, if we try to adjoin both QP₁ and QP₂ to the VP₁ position in Aoun and Li's structure, then both quantifiers would be competing for movement to the same position, and would have to obey Superiority (Bruening, 2001), resulting in QP₂ tucking in beneath QP₁, which still gives QP₁ wide scope over QP₂.

In Ndebele SLI, frozen scope is expected if the locative DP is generated above the agentive DP. The fact that the agentive DP is in a postverbal position is indicative that it has remained in its base position; the unavailability of inverse scope then tells us that this base position does not c-command either the locative DP itself, or any A-movement trace that it can be reconstructed to. So while the surface scope is always possible because the locative DP c-commands the agent DP, there is no way for the agent DP to take inverse scope over the locative DP, resulting in frozen scope in SLI.

2.2.5 Idioms

Idiom formation is another diagnostic which shows that the base position of the locative argument in SLI is an external argument. Marantz 1984 observes that idiom formation never involves the external argument of a predicate, unless the internal argument is also included. Only VP-internal arguments should be involved in the noncompositional, idiomatic interpretation of an idiom.

- (22) a. John kicked the bucket. (John kicked the bucket/John died)
 b. John kicked the pail. (John kicked the pail/*John died)
 c. Mary kicked the bucket. (Mary kicked the bucket/Mary died)

The examples in (22) show that with an idiom like *kick the bucket*, the internal argument *the bucket* is required for idiomatic interpretation; when *bucket* is replaced with the synonymous word *pail* in (22b), the idiomatic interpretation is not possible. On the other hand, the external argument *John* can be replaced by *Mary* in (22c), the idiomatic interpretation is still possible. Idioms can specify their internal argument, but not their external argument.

Fernández-Soriano 1999 uses idiom formation as a diagnostic for Spanish impersonal sentences that are somewhat similar to the Ndebele locative inversion data in having locative (or dative) arguments in the subject position of the verbal domain. She points out that forming idioms with locatives and the impersonal verbs under discussion should not be possible because the locative is actually an external-argument, and can not thus participate in idiomatic interpretation.

Similarly, for Ndebele SLI, if the locative argument is truly an external argument as we claim, then it should not participate in idiom formation. The data show that this is the case:

- (23) (a) In-gane e-nga-khal-i i-fel-a e-mbelekw-eni.
 9-baby 9.REL-NEG-cry-NEG 9.SM-die-FV LOC-sling-LOC
 ‘If you do not speak up your problems/views will not be heard.’
 (lit. ‘A baby that does not cry dies in the sling.’)
- (b) I-mbeleko i-fel-a in-gane e-nga-khal-i.
 9-sling 9.SM-die-FV 9-baby 9.REL-NEG-cry-NEG
 ‘A baby that doesn’t cry dies in the sling.’
 Not possible: ‘If you do not speak up your problems/views will not be heard.’

As (23b) shows, the literal meaning of the SLI construction is possible, where the sling is interpreted locatively. However, in this position, the idiomatic reading of the sentence is out, providing evidence that the locative argument *imbeleko* is not an internal argument in the SLI sentence.

My data elicitation of SLI in other idioms revealed interesting effects of the ‘semantic locative’ constraint on which types of DP can be subjects in SLI structures. Buell 2007; Zeller 2013 observe that only nouns that typically denote locations of events can be the subjects of SLI sentences. This becomes apparent in the following examples, where despite being a locatively marked argument within an idiom, *impunzi*, ‘duiker’, cannot be the subject of a SLI sentence (24c):

- (24) (a) U-Sipho u-cel-a e-mpunz-ini.
 1a-Sipho 1a.SM-ask-FV LOC-duiker-LOC
 ‘Sipho runs away.’ (lit. ‘Sipho asks [from] the duiker.’)
- (b) I-mpunzi i-cel-a u-Sipho.
 9-duiker 9.SM-ask-FV 1a-S
 ‘The duiker asks Sipho (for something).’
 Not possible: ‘Sipho runs away.’
 Not possible: ‘Sipho asks [from] the duiker.’
- (c) I-mpunzi i-cel-el-a u-Sipho.
 9-duiker 9.SM-ask-APPL-FV 1a-S
 ‘The duiker asks on behalf of Sipho.’
 Not possible: ‘Sipho runs away.’
 Not possible: ‘Sipho asks [from] the duiker.’

Note that the idiomatic interpretation of (24b) is impossible whether or not the verb has the applicative marker or not. As expected, because the locative is not an internal argument, it cannot participate in idiom formation. However, the SLI interpretation of the sentences in (24b) and (24c) are not possible either, which is problematic as we would expect that the non-idiomatic interpretation is still available, such as when (22a) is passivized:

- (25) The bucket was kicked by John. ≠ John died

With the Ndebele data, the only interpretation available in the ‘inverted’ examples is one where *impunzi* is interpreted as both the syntactic and logical subject of the sentence; e.g. (24b) and (24c) can only have non-inverted meanings.

Being semantically locative, then, clearly has nothing to do with the possibility of nouns co-occurring with locative morphology; it must be about the semantics of the noun itself. Though Buell and Zeller do not elaborate on the exact nature of what it means to be semantically locative, it can at least be shown that it is not an issue of world knowledge: if the possibility of being a semantically locative noun (and hence able to be the subject of a SLI construction) was based on what nouns can behave as locations in a given situation, then we would expect to be able to use context to coerce a locative interpretation of a noun that is not normally locative, or is ambiguous at best. This is not the case:

- (26) (a) La ama-pharasayithi a-hlal-a e-zin-je-ni.
 6.DEM 6-parasite 6.SM-live-FV LOC-10-dog-LOC
 ‘These parasites live in dogs.’

(b) *Izin-ja zi-hlal-a la ama-pharasayithi.
 10-dog 10.SM-live-FV 6-parasite
 Intended: ‘These parasites live in dogs.’

- (27) (a) U-cingo lwami lu-nyamalal-e ku-leso isi-khwama.
 11-phone 11.my 11.SM-disappear-REC.PST 17-7.DEM 7-bag
 ‘My phone disappeared in this bag.’
- (b) *Leso isi-khwama si-nyamalal-e u-cingo lwami.
 7.DEM 7-bag 7.SM-disappear-REC.PST 11-bag 11.my
 Intended: ‘My phone disappeared in this bag.’

Both (26b), where *izinja*, ‘dogs’, which is not normally a location, and (27b), where *isikhwama*, ‘bag’, which can have a locative interpretation but might not normally, cannot be the syntactic subject of a SLI sentence. This is the case even given an appropriate context in which the bag is the location of an event, where we expect to be able to coerce a locative interpretation of *isikhwama* given the context. The unavailability of the literal SLI interpretation of (24b) and (24c) to mean something like ‘It was from the duiker that John asked’ could then be because *impunzi* is simply not a semantically locative noun, and cannot be coerced into being one.

In conclusion, the data from idiom formation in Ndebele support the proposal that the locative argument in SLI is truly an external argument of the verb, not an internal one. Additionally, the unavailability of even a literal interpretation in some SLI sentences corresponding to idiomatic sentences show the constraint on SLI subject nouns being semantically locative. While the concept of being semantically locative is still ill-defined, it is not reducible to world knowledge.

3 The applicative *-el* and the unaccusative unergative/transitive split

In this section, I provide more data on the distribution of the applicative suffix *-el* in SLI, as well as the PredP analysis that Zeller 2013 uses to account for this distribution. The previous section established that the locative argument is generated high, above any present agentive external argument. §3.1 outlines the formal mechanisms Zeller presents for syntactically introducing this argument and semantically composing it into the event structure. While I largely adopt his analysis, my analysis differs in having a true Appl functional head to introduce the locative argument rather than a Pred head; I additionally reject the type of allomorphic insertion of the suffix *-el* that is proposed.

§3.2, I discuss more specific data on the syntactic processes that are ungrammatical with SLI (passivization, object marking and object relativization) that motivate Zeller into adopting a phasehood analysis. I provide additional data that show that Zeller’s phasehood claim is too strong, as well as showing that the unavailability of object marking is not specific to SLI at all, but is a property of sentences with postverbal (logical) subjects in general. Ultimately, the ungrammaticality of the syntactic constructions concomitant with SLI can be reduced to selectional properties of the heads involved, which is the line of analysis that I take.

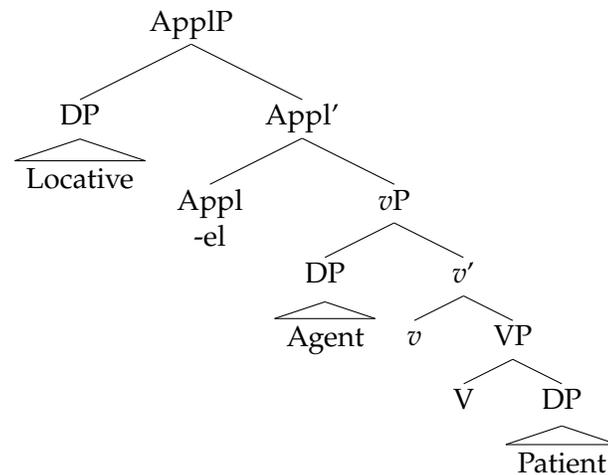
3.1 Syntactically and semantically introducing the locative argument

Having established that the locative DP is generated high and not moved out of a *v*P-internal position, the other major piece of the SLI puzzle is the distribution of the applicative morpheme *-el*. Recall that in SLI, unergative and transitive verbs must occur with the applicative morpheme, while unaccusatives do not. In other words, the presence of the applicative morpheme in SLI is sensitive to the presence of an external argument in the *v*P structure, with the applicative appearing when there is already an external argument.

In my analysis, this split between unaccusatives and unergatives/transitives with regard to the applicative morpheme in SLI is due to the types of structures required to introduce external arguments into an event structure: there is no applicative exponent on unaccusative SLI verbs because there is simply no morphosyntactic applicative head to be spelled out. An alternative is an allomorphic theory like the one Zeller 2013 proposes, in which the functional head that introduces the locative DP is realized by different exponents depending on its complement; the sensitivity to external arguments in this view is then captured by having either a VP or *v*P complement. I outline Zeller's analysis below, and in §4, I present the problems with taking this type of approach.

Recall that Buell's analysis has only one high applicative phrase for all cases of SLI, and doesn't distinguish unaccusatives from unergatives/transitives:

(28)



This analysis, then, predicts that all cases of SLI should involve the applicative suffix *-el* on the verb. This is clearly not the case with unaccusative verbs, which show up without the applicative suffix.

Zeller points out that the high applicative head, Appl, could select either an agentive *v*P or an agentless (unaccusative) VP as its complement, being spelled out as phonologically null in the latter case. However, this would require the (phonological) realization of the applicative suffix to be sensitive to the type of verb it appears on:

(29) Vocabulary Insertion for Appl:

- (a) Appl → -∅ / V_{unaccusative}+₋
- (b) Appl → -el

Zeller suggests that this is unheard of. However, this is not a compelling argument as applicatives do appear to be sensitive to the type of verb they combine with: specifically, they cannot combine with unaccusatives.

- (30) (a) Ama-nzi a-bil-e e-khitsh-ini.
 6-water 6.SM-boil-PST LOC-5.kitchen-LOC
 ‘The water boiled in the kitchen.’
- (b) *Ama-nzi a-bil-el-e u-mama e-khitsh-ini.
 6-water 6.SM-boil-APPL-PST 1a-mother LOC-5.kitchen-LOC
 Intended: ‘The water boiled for mother in the kitchen.’

(30b) is an ungrammatical example, as the unaccusative verb meaning ‘boil’ has an applicative suffix on it, which makes the sentence only have a meaning if the water is somehow sentient. In other words, (30b) can only be grammatical if water is agent-like, which would imply that the verb itself is being coerced into having an unergative meaning. The fact that applicatives don’t combine with unaccusatives makes Zeller’s objection to Appl’s phonological realization in SLI far weaker. He doesn’t want Appl to be sensitive to the type of verb it combines with, but the data show that this sensitivity must independently exist anyway, albeit for a different type of sensitivity. From this perspective, it might not be so unusual that the exponent of an Appl head is dependent on the type of verb it combines with.

In fact, my analysis accounts for the fact that the applicative suffix doesn’t show up on unaccusative verbs in a more straightforward way: because the function of Appl is to introduce an argument that cannot be otherwise introduced anywhere in the *v*P structure, it does not show up on unaccusatives, which still have Spec,*v*P available to introduce an external argument. Zeller’s analysis only predicts that unergatives and transitives should pattern together in SLI to the possible exclusion of unaccusatives. In theory for him, it would be possible to see another language with SLI in which the Appl/Pred head is spelled out as the applicative affix for unaccusatives, but is null for unergatives/transitives – or even to see two independent non-null exponents. On the other hand, my analysis predicts that this is impossible, as the lack of an applicative exponent is due to the lack of Appl, and we thus never expect to see a non-phonologically null applicative affix on unaccusatives in SLI.

Zeller also mentions a second potential problem in which the applied locative object of certain directional verbs of motion give rise to a low applicative interpretation in which the location is a destination (31b), in contrast to the location of the event reading when there is no applicative (31a).

- (31) (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.’

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

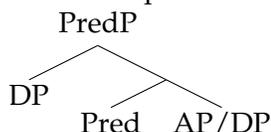
(Zulu, (Zeller, 2013, p.1128))

Zeller points out that in the semantically inverted example (32), the low applicative reading of (31b) is not available, leading him to believe that the *-el* that shows up in both constructions are actually different morphemes altogether. However, he mentions that most Zulu speakers he consulted rejected SLI constructions with directional verbs of motion altogether, and that the interpretation in (32) was only provided by one of his consultants. My Ndebele consultant also rejected SLI constructions with directional verbs of motion, which is in keeping with the observation that the locative argument introduced in SLI must be higher than the agent, ruling out low applicatives.

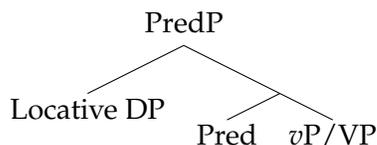
This borderline example in (32) is also not entirely convincing. The locative argument is introduced as a low argument, as Zeller mentions, but there is no reason not to expect that Zulu also has a low applicative, which is what we see in (31b). In the SLI sentence, we expect a low applicative interpretation to be impossible, which is precisely what we see; (32) would be more problematic, in fact, if it allowed the directional interpretation. However, the fact that we get a high applicative interpretation is consistent with the fact that the locative argument is generated higher than the agent in SLI.

In Zeller's analysis, the intuition that a functional phrase introduces the locative argument over the verb's external argument is maintained. However, rather than adopting the view that this is a high applicative head, for the reasons mentioned, the functional head proposed is a Pr(edicate) head that has the locative argument generated in its specifier position. This Pred head has been independently motivated for nonverbal predication in Bantu by Baker 2003, and Zeller takes a less restrictive stance, in keeping with Bowers 1993, that Pred can also introduce verbal predicates.

(33) (a) nonverbal predication



(b) SLI



As in Buell's analysis, the locative DP is merged above the external argument. Besides nonverbal predicates, Zeller stipulates that Pred can also select *vP* and VP complements, having different phonological spell outs accordingly. Specifically, when Pred takes a *vP* complement, it is spelled out with the suffix *-el*, while it is phonologically null in the case of a VP predicate (and also adjectival predicates). Though he doesn't explicitly state it, his analysis can be captured with the above structures and the following Vocabulary Insertion rules:

(34) Vocabulary Insertion for Pr

- (a) Pred → COP / _DP
- (b) Pred → *-el* / _vP
- (c) Pred → ∅

In other words, nominal predication results in Pred being realized as a copula, *vP* predication results in Pred being realized as *-el*, and Pred is phonologically null everywhere else.

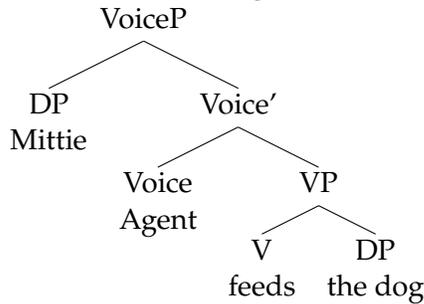
Semantically, Pred's contribution is to introduce Event Identification, the neo-Davidsonian principle which combines two predicates into a single complex predicate:

(35) Event Identification (Kratzer, 1996, p.122):

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

For Kratzer, this allows the composition of an agent-introducing Voice (equivalent to the little *v* in Zeller's analysis) with the verbal predicate.

(36) Mittie feeds the dog.

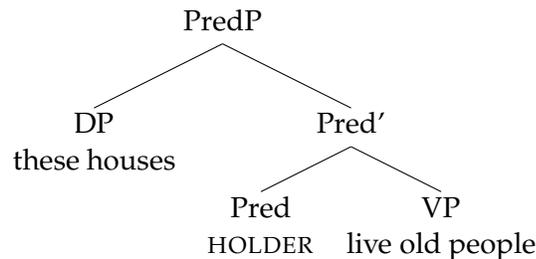


- (37) (a) $[[\text{Voice}]] = \lambda x_e \lambda e_s . \text{AGENT}(x)(e)$
 (b) $[[\text{VP}]] = \lambda e_s . \text{feed}(\text{the dog})(e)$
 (c) $[[\text{Voice}']] = \lambda x_e \lambda e_s . \text{AGENT}(x)(e) \wedge \text{feed}(\text{the dog})(e)$ (Event Identification)
 (d) $[[\text{VoiceP}]] = \lambda e_s . \text{AGENT}(\text{Mittie})(e) \wedge \text{feed}(\text{the dog})(e)$ (Functional Application)

In (37), the semantic derivation of (36), Event Identification allows us to combine the predicates denoted by Voice, that there is an individual who is the agent of an event, and VP, the event of feeding the dog, into a complex predicate Voice', that there is an individual who is both. This complex predicate is then able to combine via Functional Application with the agentive DP.

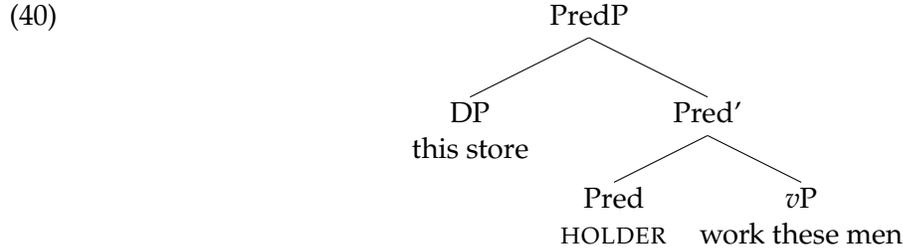
Zeller proposes that the Pred head introduces the HOLDER predicate that Kratzer uses for stative predicates: HOLDER expresses that a certain state holds of an individual-type entity. Semantically, then, Pred allows us to say that a verbal predicate holds of a locative DP:

(38)



- (39) (a) $[[\text{VP}]] = \lambda s . \text{live}(\text{old people})(s)$
 (b) $[[\text{Pred}]] = \lambda x \lambda s . \text{HOLDER}(x)(s)$
 (c) $[[\text{Pred}']] = \lambda x \lambda s . \text{HOLDER}(x)(s) \wedge \text{live}(\text{old people})(s)$ (Event Identification)
 (d) $[[\text{PredP}]] = \lambda s . \text{HOLDER}(\text{these houses})(s) \wedge \text{live}(\text{old people})(s)$ (Functional Application)

In other words, the state of old people living holds of the location *these houses* in the above examples. However, it is worth noting that while Zeller considers VPs to denote states that can be held of an individual, he treats agentive *v*Ps as denoting sets of events, which slightly changes the semantics such that Pr's HOLDER predicate denotes a function from individuals to sets of events.



- (41) (a) $[[vP]] = \lambda e . \text{AGENT}(\text{these men})(e) \wedge \text{work}(e)$
 (b) $[[\text{Pred}]] = \lambda x \lambda e . \text{HOLDER}(x)(e)$
 (c) $[[\text{Pred}']] = \lambda x \lambda e . \text{HOLDER}(x)(e) \wedge \text{AGENT}(\text{these men})(e) \wedge \text{work}(e)$ (Event Identification)
 (d) $[[\text{PredP}]] = \lambda e . \text{HOLDER}(\text{this store})(e) \wedge \text{AGENT}(\text{these men})(e) \wedge \text{work}(e)$ (Functional Application)

For agentive *v*Ps (transitive and unergative verbs), then, the semantics of SLI differ slightly than from those of unaccusatives: because they are functions from individuals to sets of events, we expect to get an interpretation involving specific events with *v*P predicates.

- (42) (a) Aba-ntwana ba-bon-a ukuthi u-mama u-phek-a uku-dla e-khitsh-ini.
 2-child 2.SM-see-FV that 1a-mother 1a.SM-cook-FV 15-food LOC-kitchen-LOC
 'The children see mother cooking food in the kitchen.' (specific event)
 (b) Aba-ntwana ba-ya-bon-a ukuthi i-khitshi li-phek-el-a u-mama uku-dla.
 2-child 2.SM-YA-see-FV that 5-kitchen 5.SM-cook-APPL-FV 1a-mother 15-food
 'The children see that mother cooks food in the kitchen.' (general/habitual event)

It is interesting to note the difference in interpretation between (42a) and (42b): in the former, the event of mother cooking food in the kitchen is interpreted as a specific event, while in the latter the same event is interpreted in a general or habitual way. This looks to be a bit problematic for the PredP analysis in that it seems as if what is being predicated of the location in (42b) is the state of certain events regularly occurring in it. (Zeller, 2013, p.1143) writes that "given that the subject-DP designates a location, this Holder-relation can be interpreted as the event of taking place at the store [in reference to the example from (41)]"; this does not seem to be interpretation in (42b), where it is not about any particular event taking place in the kitchen, but that this is an event which regularly occurs there.

On the other side of things, the fact that VP complements of Pred denote states predicts that SLI with unaccusative verbs should not be able to give rise to eventive interpretations. Zeller claims that VPs denote sets of states, and thus unaccusative SLI should involve predication of states to the locative argument, rather than events. This does not appear to be the case:

- (43) I-khitshi li-qhamuk-e i-gundwane.
 5-kitchen 5.SM-appear-REC.PST 5-mouse
 ‘The mouse appeared in the kitchen.’

In (43), the unaccusative SLI construction appears to be predicating the event of a mouse appearing. Zeller’s claims about the contrast between SLI with unaccusatives denoting states and SLI with unergatives/transitives denoting events is too strong.

3.2 Syntactic operations restricted with SLI

Zeller’s PredP analysis also stipulates that while Pred can select *v*P complements, it is unable to select phrases larger than a *v*P. This entails that any syntactic process which involves *v*P-external projections cannot be predicated of locations. Specifically, passivization, object marking and object relativization are all impossible with SLI. Under this analysis, it is because they all involve *v*P-external structures.

In object marking analyses that assume the object marker is an agreement-based phenomenon, the object DP moves from within *v*P/VP to the Spec position of the functional category AgrO above the *v*P/VP (Buell, 2005; Julien, 2002; Woolford, 2000). Because Pred can select *v*P/VP complements but not AgrOP complements, SLI constructions with object marking are not possible.

- (44) (a) I-khitshi li-phek-el-a u-mama.
 5-kitchen 5.SM-cook-APPL-FV 1a-mother
 ‘Mother cooks in the kitchen.’
 (b) *I-khitshi li-m-phek-el-a u-mama.
 5-kitchen 5.SM-1a.SM-cook-APPL-FV 1a-mother
 Intended: ‘Mother cooks in the kitchen.’

Under Zeller’s analysis, object marking the *v*P-internal agentive DP *umama*, ‘mother’, requires moving it to a position (Spec,AgrO) outside of *v*P. However, because Pred cannot select AgrOP, SLI constructions are impossible with object marking.

It should also be noted that one possible problem with (44b) is not that object marking itself is ungrammatical in SLI, but that we are trying to object mark something that is not the logical object of the verb. Despite being in a postverbal canonical object position, *umama* is still the logical subject of the verb *-phek-*, ‘cook’. One could then hypothesize that object marking is still sensitive to the internal argument of the verb rather than any external argument. However, object marking in SLI is still ungrammatical even when the object marker is associated with the internal argument, as can be seen in the Ndebele data below:

- (45) (a) U-mama u-wu-phek-a (*um-bhida) e-kitsh-ini.
 1a-mother 1a.SM-3.OM-cook-FV 3-greens LOC-5.kitchen-LOC
 ‘Mother is cooking it (the greens) in the kitchen.’
 (b) *I-khitshi li-wu-phek-a u-mama (um-bhida).
 5-kitchen 5.SM-3.OM-cook-FV 1a-mother 3-greens
 Intended: ‘Mother is cooking it (the greens) in the kitchen.’

As can be seen, even when it is the internal argument that is associated with the object marker on the verb in SLI, the sentence is ungrammatical. This is in keeping with Zeller's prediction that object marking in SLI is ungrammatical due to the inability for Pred to select a complement larger than vP, such as AgrOP.

However, object marking is independently ungrammatical with postverbal subjects is ungrammatical anyway in Ndebele:

- (46) *Ku-si-tshay-a u-Sipho isi-hlahla.
 17.SM-7.OM-hit-FV 1a-S. 7-tree
 'Sipho hit the tree.'

(46) shows us that independent of SLI, it is impossible to object mark an internal argument when the subject remains in a low postverbal position. This implies that the incompatibility of object marking and SLI is not a property of the heads involved in introducing the locatives themselves, but rather is problematic due to the presence of a postverbal subject.

There are two object relativization strategies in Ndebele: one with object marking in the relative clause (47a), and one with a resumptive pronoun (47b)

- (47) (a) Object relativization with object marking:

Ngi-thand-a izi-khwama u-mama a-**zi**-theng-e e-sitolo.
 1.SG-like-FV 8-bag 1a-mother 1a.REL-8.OM-buy-PST LOC-7.store

- (b) Object relativization with resumptive pronoun:

Ngi-thand-a izi-khwama u-mama a-theng-e **zona** e-sitolo.
 1.SG-like-FV 8-bag 1a-mother 1a.REL-buy-PST 8.PRON LOC-7.store

'I like the bags that mother bought at the store.'

Given that object marking is ungrammatical in SLI (and other postverbal subject sentences), we expect that the SLI version of (47a) will be ungrammatical for at least that reason. Thus we must look at the case of the resumptive pronoun to see if object relativization is possible in SLI. As Zeller observes for Zulu, Ndebele SLI sentences cannot have object relativization:

- (48) (a) SLI object relativization with object marking:

*Ngi-thand-a izi-khwama isi-tolo esi-**zi**-theng-el-e u-mama.
 1.SG-like-FV 8-bag 7-store 7.REL-8.OM-buy-APPL-FV 1a-mother

- (b) SLI object relativization with resumptive pronoun:

*Ngi-thand-a izi-khwama isi-tolo esi-theng-el-e u-mama **zona**.
 1.SG-like-FV 8-bag 7-store 7.REL-buy-APPL-FV 1a-mother 8.PRON

Intended: 'I like the bags that mother bought in the store.'

Under Zeller’s analysis, because Pred is an intervening phase head between *vP* and TP, the *vP*-internal arguments are inaccessible for movement to higher A’-positions, such as Spec,CP in object relativization.

Zeller also proposes that Pred is a phase head, meaning that nothing within the *vP* complement of Pred is accessible for extraction. This is relevant in the case of passivization, where the *vP*-internal object DP moves out of *vP* into the Spec position of a functional head in the inflectional domain (T or AgrS). Consider the following Zulu example where passivization of an SLI sentence is impossible:

- (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).’
- (Zulu, (Zeller, 2013, p.1131))

(49b) shows us that the passive version of (49a) is ungrammatical, as it would require movement of the *vP*-internal object DP *ukudla*, ‘food’, to the (preverbal) subject position of the sentence. Under the assumption that PredP is a phase, this is not possible due to the Phase-Impenetrability Condition (Chomsky, 2000), which states that once a phase such as PredP is completed, the complement (*vP*) of the head (Pr) is transferred to the LF and PF interfaces, resulting in the inaccessibility of anything within, and including, the complement to further syntactic operations. In other words, because PredP is a phase in this analysis, the object DP cannot be moved out of the *vP* complement to the surface subject position.

In summary, the PredP analysis presented by Zeller 2013 is a modification of the high applicative structure proposed by Buell 2005: both claim that Semantic Locative Inversion is not derived via movement from an underlying structure with a *vP*-internal locative argument. Rather, there is a Pred head that in addition to taking adjectival and nominal predicates also takes either *vP* or VP as a complement, with the locative DP is generated in Spec,Pr. When the complement is a *vP*, Pred is spelled out as the suffix *-el*, while when it is phonologically null when the complement is a VP; this explains the verb form alternation seen in unergatives and transitive verbs in SLI versus unaccusative verbs. Furthermore, Zeller proposes that Pred is unable to select any phrase larger than a *vP*, and is a phase-defining head; these two facts together explain why SLI is unable to undergo certain syntactic processes normally available with canonical sentences.

While the locative DP in SLI behaves like a canonical subject in significant ways (i.e. word order, agreement, raising to subject, etc), it also does not behave like a subject with regards to passivization. Under my analysis, this is because passive Voice is used to suppress the external argument of a *vP_{agent}*, rather than a locative external argument of *vP_{loc}*. Voice also cannot take a *vP* complement, preventing it from merging with the ApplP involved with SLI.

Additionally, while the postverbal logical subject is clearly not an object/internal argument in SLI sentences. The only evidence for thinking so would be its syntactical postverbal position; however, it is well known that Bantu allows postverbal low subjects independent of locative inversion (Halpert, 2012, e.g.). The object relativization and object marking facts in Ndebele and Zulu provide more evidence that the postverbal subjects are in fact not objects. This is for the simple

reason that postverbal subjects in SLI are still subjects, with the locative DP being introduced as an external argument higher up in the structure.

4 Problems with the PredP analysis

In this section, I elaborate on problems with the PredP analysis that Zeller 2013 proposes. In §4.1 I show that the *-el* suffix that appears in unergative and transitive SLI is actually the realization of an applicative morpheme, rather than being a homophonous exponent of the Pred head. Under Zeller's analysis where the *-el* in SLI is only accidentally homophonous to the applicative morpheme, we expect that its appearance would be independent of a true applicative; however, data from Ndebele show that the *-el* that appears in SLI behaves exactly as if it were an applicative with respect to not co-occurring with a true applicative.

In §4.2, I show that there are conceptual and empirical reasons with assuming that there is a Pred head that takes a verbal complement. Under contemporary theories, such as Baker 2003, Pred is assumed to be needed for non-verbal predication. Conceptually, then, it is odd to have an analysis in which Pred can take verbal predication. Buell and de Dreu 2013 point out that *v* is in some sense the verbal correspondent to Pred for verbal predication, and provide empirical evidence that verbal predication and non-verbal predication behave differently in Zulu, thus making a case that the same Pred head cannot be responsible for both types of predication.

Zeller 2013 argues that Pred is a phase-defining head based on the evidence that passivization of a SLI sentence is impossible due to the unavailability of any argument within *vP/VP* being available for extraction. However, passivized objects can remain postverbal in Ndebele, and under his analysis, we might thus expect to see a SLI version of an underlyingly passive sentence, as there would be no movement out of *vP* in such a case. My data in §4.3 show that this is in fact also not possible, implying that the incompatibility with passivization and SLI is not a matter of phases, but rather is about the selectional restrictions on *Voice_{passive}* and the heads involved with SLI.

Zeller also argues that his PredP analysis can be extended to cases of Formal Locative Inversion. However, in §4.4 I provide empirical evidence from Ndebele that this is too strong a claim, and that SLI and FLI do not pattern together in all respects: FLI sentences are compatible with passivization as well as not exhibiting the applicative suffix split that we see is the case with SLI. The implication is that FLI must be structurally distinct from SLI, contra what Zeller claims.

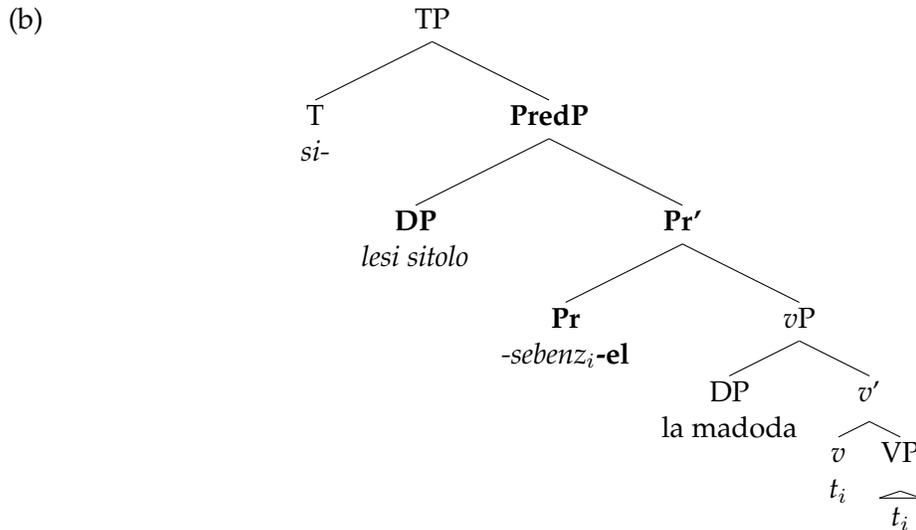
These problems suggest that the PredP analysis is along the wrong track, especially in claiming that the *-el* suffix that appears in SLI is in fact not an applicative. I argue that what appears to be an applicative suffix in SLI is simply an applicative suffix (and conversely also claim that the lack of exponence of an applicative suffix is due to the lack of an applicative morpheme in the syntax).

4.1 *-el* is an applicative morpheme

Zeller 2013 proposes that Semantic Locative Inversion is not truly any type of inversion at all, but rather that the locative argument is generated in the specifier position of a Predicate head, *Pr*, which crucially can take a *vP* or *VP* complement (besides nominal and adjectival ones). Baker 2003 claims that Pred takes only NP and AP complements, though, and thus Zeller's analysis actually remotivates prior proposals by Bowers 1993 that VPs (and also PPs) can also be Pred complements.

For Zeller, in cases of Pred taking a *vP* complement – that is, transitive and unergative verbs – the Pred head is spelled out as the suffix *-el*, which is homophonous to the applicative suffix *-el*.

- (50) (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.’



This homophony is accidental in Zeller’s account. It is coincidental that Pred is spelled out as *-el* in the context of a *vP* predicate and no other; and also by chance that it isn’t phonologically null as in the case of adjectival predication or spelled out as the copula in the case of nominal predication. It is also highly coincidental that this realization of Pred in SLI suffixes to the same position on the verb as a the normal applicative suffix; compare this to the fact that the copular realization of Pred is a prefix.

- (51) Ama-qhawe ng-aba-fazi ku-lowu umu-zi.
 6-warrior COP-2-woman 17-DEM.3 3-village
 ‘The warriors are women in this village.’

If the copula *ng-* and the *-el* suffix are both spelling out the Pred head in different contexts, it’s not entirely clear why the two exponents are affixed to different parts of the verb. While having a separate lexical or morphological module could handle this, Zeller’s approach assumes that the morphology is syntactically represented, as are the arguments that they introduce; it would thus seem incongruous with his analysis to assume a separate morphological component that can determine where the Pred exponent attaches.

Another problem for Zeller’s analysis is that it predicts that because the *-el* suffix involved in SLI is morphosyntactically independent from a true applicative morpheme, we should expect it to potentially co-occur with a true applicative suffix. In his analysis, the Pred head can select a *vP* complement, being spelled out as *-el* in which case, but there is nothing to stop that *vP* itself from containing either a high or low applicative, both of which are *vP*-internal (Pylkkänen, 2002).

It is, in fact, not possible to have a verb with an applicative morpheme also take the Pred head spelled out as *-el*:

- (52) (a) U-mama u-phek-**el**-a aba-ntwana uku-dla e-khitsh-ini.
 1a-mom 1a.SM-cook-APPL-FV 2-child 15-food LOC-5.kitchen-LOC
 ‘Mother cooked food for the children in the kitchen.’
- (b) *I-khitshi li-phek-**el-el**-a u-mama uku-dla aba-ntwana.
 5-kitchen 5.SM-cook-APPL-APPL-FV 1a-mom 15-food 2-child
 Intended: ‘Mother cooked food for the children in the kitchen.’
- (c) *I-khitshi li-phek-**el**-a u-mama uku-dla aba-ntwana.
 5-kitchen 5.SM-cook-APPL-FV 1a-mom 15-food 2-child
 Intended: ‘Mother cooked food for the children in the kitchen.’

In (52a), we can see that the applicative suffix *-el* introduces the applied benefactive object *abantwana*, ‘children’. The SLI version of this sentence in Zeller’s analysis would have *ikhitshi*, ‘kitchen’, in [Spec, Pr], with the Pred head taking a transitive *vP* as a complement, thus triggering spell out of Pred as *-el*. This Pred should then stack with the applicative morpheme that already appears on the verb. However, (52b) shows that this stacking is impossible, just as multiple applicative suffix stacking in Ndebele is impossible under what Sibanda 2004 calls the Repeated Morph Constraint:

- (53) (a) *U-Themba u-phek-**el-el**-a aba-ntwana uku-dla i-mali
 1a-T 1a.SM-cook-APPL-APPL-FV 2-child 15-food 9-money
 (e-khitsh-ini).
 LOC-5.kitchen-LOC
 Intended: ‘Themba cooks food for the children for money in the kitchen.’
- (b) *U-Themba u-phek-**el**-a aba-ntwana uku-dla i-mali (e-khitsh-ini).
 1a-T 1a.SM-cook-APPL-FV 2-child 15-food 9-money LOC-5.kitchen-LOC
 Intended: ‘Themba cooks food for the children for money in the kitchen.’

Additionally, (53b) shows that a single applicative cannot introduce multiple applied objects in Ndebele. That is, a verb can take at most a single applicative suffix, which itself can only introduce once applied argument; an applicative suffix cannot perform ‘double duty’. As (52c) shows, when the *-el* that appears on the verb cannot license both semantic locative inversion of a transitive verb and a *vP*-internal applied object.

This implies that the *-el* that shows up in SLI behaves similarly to a true applicative suffix with regard to verbal morphology. This is what we expect if it actually is simply an applicative suffix. If it were a Pred head, as in Zeller’s analysis, we would predict that it could co-occur with a true applicative suffix. We see this is not the case; in light of the fact that the applicative-like suffix that appears in SLI looks and behaves like an applicative suffix, we should consider it as one. This way, whatever reason Ndebele does not allow multiple applicatives on verbs in canonical sentences, such as Sibanda’s Repeated Morph Constraint, can also be extended to why verbs in SLI cannot show up with multiple *-el* suffixes.

4.2 PredP and verbal predication

Zeller’s PredP analysis proposes that a Pred head is involved even for verbal predication: recall that in his account, Pred can take *vP*/*VP* complements. This makes it similar to the original formulation of PredP by Bowers 1993, where PredP is a projection above all types of predication:

adjectival, nominal and verbal. Baker 2003, however, argues that the projection dominating VP is different than the one involved in nominal and adjectival predication; this VP-dominating projection is in fact *v*P. This makes Zeller's theory in proposing a structure that involves both a PredP and *v*P projection over the VP, as we would only expect one predication layer. Put another way, PredP is essentially a way of handling non-verbal predication; it is not certain why it should then also be involved in verbal predication in SLI constructions.

Buell and de Dreu 2013 point out the above problems in assuming a PredP analysis, and give language-specific evidence from Zulu that there cannot be a PredP involved in cases of verbal predication. Their objection to PredP in Zulu verbal predication is two part: morphologically, there are two pre-stem prefixes, the persistive (PRST) *sa-* and a negation marker *nga-*, take on distinct forms in the context of non-verbal predicates: *se-* and *nge-*, respectively. Consider their following Zulu data:

- (54) (a) *izin-gane ezi-nge-zincane*
 10-child 10.REL-NEG-10.small
 'children who aren't small'
- (b) *izin-gane ezi-nga-cul-i*
 10-child 10.REL-NEG-sing-NEG
 'children who don't sing'
- (c) *izin-gane ezi-se-zincane*
 10-child 10.REL-PRST-10.small
 'children who are still small'
- (d) *izin-gane ezi-sa-cul-a*
 10-child 10.REL-PRST-sing-FV
 'children who still sing'

Buell and de Dreu note that the persistive and negation marker are sensitive to verbal versus non-verbal predication. This is unexpected if both types of predication are merged in via the same functional head *Pred*, as Zeller claims.

Syntactically, Buell and de Dreu argue that only verbal predicates allow the logical subject to remain in a *v*P-internal position, while non-verbal subjects of non-verbal predication can not remain in an analogous low position. Consider, for example, the following Ndebele data:

- (55) (a) *U-mama u-phek-a uku-dla.*
 1a-mother 1a.SM-cook-FV 15-food
- (b) *Ku-phek-a u-mama uku-dla.*
 17.SM-cook-FV 1a-mother 15-food
 'Mother is cooking food.'
- (56) (a) *U-Sipho mu-de.*
 1a-S. 1a-tall
- (b) **Ku-de u-Sipho.*
 17-tall 1a-S.
 'Sipho is tall.'

In the examples above, we can see that verbal predication allows for the subject to remain in a low postverbal position. However, the equivalent is not possible in cases of non-verbal predication, such as adjectival predication in (56b), where the subject *uSipho* cannot remain in an analogously low post-predicate position.

Based on these morphological and syntactic data, Buell and de Dreu claim that it cannot be the same head that is responsible for both verbal and non-verbal predication, as Zeller 2013 claims. Instead, verbal predication must be distinct; as Buell and de Dreu point out, the predicative projection above VP is now standardly called *vP*. In other words, *v* is the equivalent of Pred and is used in cases of verbal predication, whereas Pred is used in cases of non-verbal predication. This makes Zeller's claim that Pred can take a *vP* complement strange in that it appears to have redundant predicative heads.

Furthermore, Buell and de Dreu 2013 present another problem with assuming that PredP introduces the locative argument in SLI. The locative predicate *-khona*, is analyzed as a realization of Pred by Zeller 2011 and allows an internal subject, but not SLI:

- (57) (a) Ku-khona aba-fundi ku-lesi si-kole.
 17.SM-LOC.PRED 2-student PREP-7.DEM 7-school
 'There are students at this school.'
- (b) *Lesi si-kole si-khona aba-fundi.
 7.DEM 7-school 7.SM-LOC.PRED 2-student
 Intended: 'There are students at this school.' (Zulu, (Buell and de Dreu, 2013, p. 462))

Buell and de Dreu claim that if an expletive controls the default NC 17 agreement in (57a), then it is mysterious that (57b) is ungrammatical under a PredP analysis, as there should be no reason why, instead of an expletive, a locative argument cannot be introduced in Spec,PredP, as Zeller claims is the case. Buell and de Dreu do not offer an analysis for SLI, but argue that it is restricted to verbal predication. This further motivates an analysis where the *-el* that appears in unergative/transitive SLI is a true applicative suffix, which we know appears as part of verbal morphosyntax, and not a homophonous spellout of Pred.

4.3 SLI passives

Recall that Zeller's analysis accounts for the ungrammaticality of passivization in SLI by saying that Pred is a phase head, preventing any *vP*-internal arguments from moving out of the PredP. This prevents the *vP*-internal object of a passive construction from moving up to the Spec position of a functional head in the inflectional domain.

However, what this predicts is that SLI can occur with an underlyingly passive sentence, so long as the *vP*-internal argument remains *vP*-internal. Ndebele allows postverbal passive objects in impersonal passive constructions:

- (58) Ku-tshay-w-a isi-hlahla (*ng-u-Sipho).
 17.SM-hit-PASS-FV 7-tree by-1a-S
 'The tree is hit (*by Sipho).'

As (58) shows, the underlying object of hit *isihlahla*, ‘tree’, can remain in a postverbal position even when passivized. However, we know that this is an impersonal passive because the agent *uSipho* cannot be realized, even obliquely.

If passivized objects have the option of remaining in a low postverbal position, we might expect to see this possibility with SLI. If the Appl head then introduces a locative argument higher than passive VoiceP, we expect it to be possible to have an SLI construction with an underlying passive sentence – as opposed to passivizing a SLI sentence, as Zeller shows is ungrammatical. Instead, we see that SLI of passive sentences is still ungrammatical, even when the object DP remains *v*P-internal:

- (59) (a) Imi-bhida i-phek-w-a e-khitsh-ini (ng-u-mama).
 4-vegetable 4.SM-cook-PASS-FV LOC-5.kitchen-LOC by-1a-mom
 ‘The greens (vegetables) are being cooked in the kitchen (by mother).’
- (b) *I-khitshi li-phek-el-w-a imi-bhida.
 5-kitchen 5-cook-APPL-PASS-FV 4-vegetable
 Intended: ‘The greens are being cooked in the kitchen.’
- *I-khitshi li-phek-w-a imi-bhida.
 5-kitchen 5.SM-cook-PASS-FV 4-vegetable
 Intended: ‘The greens are being cooked in the kitchen.’

In (59a), the appearance of the passive suffix *-w* coincides with the internal argument *imibhida*, ‘greens’, moving up to the (preverbal) subject position of the sentence, resulting in a canonical passive sentence. In the SLI version of this sentence (59b), we expect that this movement be blocked under Zeller’s analysis because the locative DP *ikhitshi*, ‘kitchen’, in Spec,Pred is closer to the surface subject position and will be the node to undergo movement. That would mean that *imibhida* remains internal to the *v*P that can be selected by Pr.

The fact that a SLI version of a passive sentence is ungrammatical shows that it is not about phasehood and moving arguments out of *v*P that makes combining passives and SLI ungrammatical. Rather like the unavailability of object marking and object relativization and SLI, it is about the selectional properties of the Appl head that introduces the locative argument and the passive Voice head: Appl cannot select a passive VoiceP complement, and the passive Voice head cannot select an ApplP complement.

4.4 FLI passives

Zeller 2013 proposes that the PredP analysis of SLI be extended to Formal Locative Inversion as well. In both cases, the locative argument is base-generated in Spec,Pr, making it higher than the external argument. Because the DP in Spec,Pred must be interpretable as a location, and DPs marked with locative morphosyntax always denote locations, FLI should be more productive than SLI; the latter construction is limited to DPs that are what Buell 2007 refers to as semantically locative nouns, which inherently denote locations.

Zeller proposes that the reason that languages such as Chichewa can only take unaccusative verbs in FLI is due to the specific selectional properties of Pred in the language, which only allow it to take a VP complement, but not a *v*P complement. He is silent about whether or not we expect

to see a language in which FLI (or SLI) is possible with only unergatives and unaccusatives; that is, Pred can only take a *v*P complement, but not a VP one. To my knowledge, no such language exists.

Additionally, because he proposes the same structure for FLI as he does for SLI, he stipulates that object marking, relativization and passivization of internal arguments should never be possible with FLI. This does not appear to be the case, however:

- (60) (a) Imi-bhida i-phek-w-a e-khitshi-ni (ng-u-mama).
 4-greens 4.SM-cook-PASS-FV LOC-kitchen-LOC by-1a-mother
 ‘The greens are being cooked in the kitchen (by mother).’
- (b) SLI:
 *I-khitshi li-phek-el-w-a imi-bhida (ng-u-mama).
 5-kitchen 5.SM-cook-APPL-PASS-FV 4-greens by-1a-mother
 Intended: ‘The greens are being cooked in the kitchen by mother.’
- (c) FLI:
 E-khitshi-ni ku-phek-w-a imi-bhida (ng-u-mama).
 LOC-kitchen-LOC 17.SM-cook-PASS-FV 4-greens by-1a-mother
 ‘The greens are being cooked in the kitchen (by mother).’

As (60c) shows us, FLI is possible with a passivized internal argument, even while it is impossible in SLI (60b). This is unexpected if the two constructions are structurally identical. Buell 2005 also notes that the optional *by*-phrase separates FLI constructions in (60c) from impersonal passives, which cannot take a *by*-phrase:

- (61) Ku-zo-fund-w-a (*nga-bantwana).
 17.SM-FUT-study-PASS-FV by.2-2.child
 ‘There will be studying going on (by children).’ (Zulu, (Buell, 2005, p.195))

Buell’s example tells us that an example like (60c) really looks like true Formal Locative Inversion, rather than a topicalize locative followed by an impersonal passive. If this is the case, though, then Zeller’s prediction that FLI shares the same structure as SLI – and thus cannot have a passivized internal argument – cannot be true.

(60c) also shows illustrates that FLI is possible with transitive verbs in Ndebele when the applicative suffix *-el* is not present on the verb, which was established to be impossible with SLI. Khumalo 2010 provides an examples of FLI in Ndebele with transitive and unergative verbs, though he includes the applicative suffix in the transitive example:

- (62) Kwa-mi ku-dl-el-e i-ndoda isi-tshwala.
 17-me 17.SM-eat-APPL-PST 5-man 7-food
 ‘At my house/place ate the man food.’
- (63) Ku-leli-pulazi ku-lim-a o-baba.
 17-DEM.5-5.farm 17.SM-plough-FV 2a-man
 ‘On this farm plough men.’ (Khumalo, 2010, p.25)

- (64) Ku-leso isi-khwama ku-choboz-e u-cingo lwami i-sendwishi.
 17-DEM.7 7-purse 17.SM-crush-PST 11-phone 11.my 6-sandwich
 ‘My phone crushed my sandwich in this purse.’

Khumalo’s examples above show that FLI with unergatives do not need the applicative suffix; (64) provides an active example of FLI with a transitive verb that crucially does not have the applicative suffix on it either. Recall that Zeller’s analysis predicts spell out of Pred as *-el* in the context of a *vP* complement. If FLI and SLI both share the same structure, we would expect to see this verbal suffix in FLI with transitive and unergative verbs as well. This is clearly not the case, however, and I leave an analysis of FLI in Ndebele as an open question for further research.

5 Analysis

In this section, I outline my analysis of SLI in Ndebele. In §5.1, I account for the distribution of the *-el* suffix by claiming that it only appears in unergative and transitive SLI because that is the only time when Appl is required to introduce an external argument over the agent that is in Spec,*vP*. Unaccusatives have this Spec,*vP* position available to them to introduce an external argument, which is utilized in SLI to introduce the locative argument. This accounts for distribution of the applicative suffix without proposing a phonologically null allomorph of Appl while more directly accounting for its relation to external arguments. Additionally, it makes a testable typological prediction that languages that have SLI will never have SLI with unergatives/transitives to the exclusion of unaccusatives.

In §5.2, I show that locative arguments in SLI are generated as [-FOCUS] constituents, which make their movement to the Spec,TP subject position obligatory (Zeller, 2008). This is to account for the fact that bare locative arguments in SLI cannot remain in a low postverbal position, which is normally possible for canonical sentences, where subjects can optionally remain in their base position or raise to subject position. The preverbal subject position, Spec,TP, is correlated with being an unfocused position, which is in line with the observation that locative inversion structures, including SLI, involve presentational focus of the non-locative material.

5.1 Introducing locative subjects with *v_{loc}* and Appl

The major factor that both Buell and Zeller’s analyses share is that they propose that a single functional head above *vP* introduces the locative argument in SLI, and, for Zeller, that the realization of this head is allomorphically determined by its complement. This allomorphic analysis claims that the Appl head is always present in order to introduce the locative argument both syntactically and semantically, but that it is phonologically null just in the case that its complement has no external argument (i.e. transitives and unergatives). I propose, instead, that the facts of SLI are better accounted for with a null hypothesis that doesn’t depend on allomorphy: unaccusative verbs do not have external arguments, and thus can use this position to introduce the locative argument via a locative *v_{loc(ation)}*; however, because transitives and ergative *vPs* already introduce external arguments in their Spec position and are thus ‘saturated’ for arguments, Appl must be used to introduce the extra locative argument above *vP*.

In other words, there can only be one *v* head per clause that introduces an external argument; all other external arguments must be introduced by other functional heads, such as applicatives

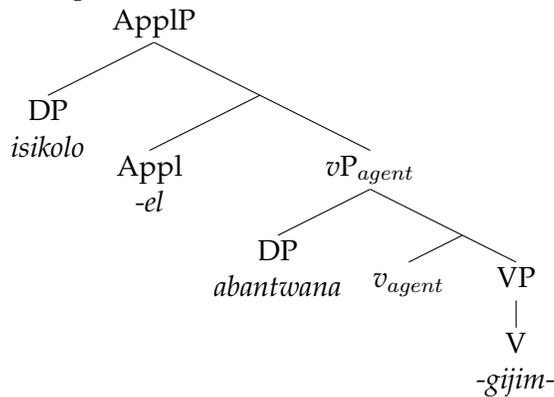
and causatives. As unaccusative verbs do not have external arguments, they are able to make use of *Spec,vP* to introduce the locative external argument in SLI. If there is already a *v* introducing an agent, as is the case for transitive and unergative verbs, then further external arguments must be introduced via a functional head: in the case of SLI with unergative and transitive verbs, this functional head is an applicative one.

In the case of transitive and unergative verbs, the external argument is generated in *Spec,vP*. Assuming that a functional head can only introduce one argument in its specifier position, this means that transitive and unergative *vPs* cannot introduce another argument without another functional head: in the case of SLI, this is the Applicative head. This Appl head is a higher applicative than the High Applicative that Pylkkänen 2002 proposes, as it is located higher than *vP*. However, the facts presented above in §2 show that the locative argument in SLI must be higher than the external argument of the *vP*.⁶

On my proposal, SLI with unergatives and transitives looks structurally identical to Buell and Zeller’s proposals, with Appl taking an agentive *vP* as a complement, and introducing the locative argument in its specifier position:

- (65) (a) *Isi-kolo si-jigim-el-a aba-ntwana.*
 7-school 7.SM-run-APPL-FV 2-child
 ‘The children run in the school.’

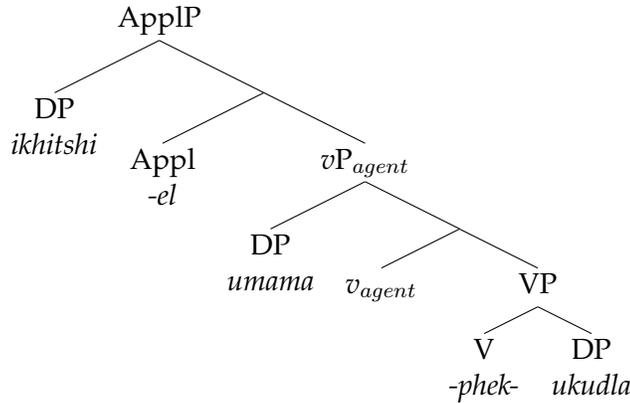
(b) unergative SLI



- (66) (a) *I-khitshi li-phek-el-a u-mama uku-dla.*
 5-kitchen 5.SM-cook-APPL-FV 1a-mother 15-food
 ‘Mother cooks food in the kitchen.’

(b) transitive SLI

⁶Additionally, Tsai 2009 provides data from Mandarin that show evidence not only for the *vP*-internal applicatives that Pylkkänen proposes, but also an Appl head situated just outside of *vP*, as well as Appl heads as high up as being in the left periphery.

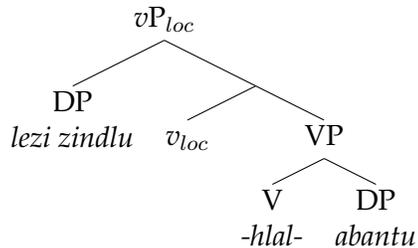


In both of the examples above, there is an external argument in Spec,*vP*. The locative argument must therefore be introduced by a separate head, Appl.

The difference comes when we look at the case of SLI with unaccusative verbs. Typically, unaccusative verbs do not take external arguments. This can be interpreted as there either being no *vP* projection over the VP, or that there is a specifier-less *vP*. I argue that unaccusative verbs can in fact be selected by a *v_{loc}* that introduces an external argument in its Spec position, and this is what is happening in SLI in Ndebele and Zulu.

- (67) (a) Lezi zin-dlu zi-hlal-a aba-ntu.
 10.DEM 10-house 10.SM-dwell-FV 2-person
 ‘People live in these houses.’

(b) unaccusative SLI



The analysis presented here gives up the allomorphy between the applicative suffix *-el* in unergative and transitive SLI and a phonologically null realization in unaccusative SLI constructions. Instead, it draws a connection to the presence of external arguments in a *vP* structure, and what available syntactic resources are available to introduce an external argument. The Spec,*vP* position is used to introduce the first external argument; further external arguments, such as the locative DP in SLI, must be introduced via an Appl head.

By giving up allomorphy between unaccusative SLI and unergative/transitive SLI, however, what must be accounted for is why both constructions have the same semantic interpretation; that is, why the external argument introduced by *v_{loc}* in unaccusative structures is interpreted as a locative argument rather than an agent, or some other thematic role. Kratzer 1996 proposes a semantic operation Event Identification, which Zeller 2013 adopts for his PredP analysis, where the external argument is introduced by a Voice head that then semantically composes this argument into the event structure as an agent. I will assume that Voice and *v* are distinct (Harley, to appear;

Merchant, 2013, and others), and that the external argument in Ndebele is introduced in Spec,*v*P in line with Buell 2005 and Zeller 2013 for Zulu.

While the external argument in transitive and unergative sentences is often the agent, this is not always the case, as in sentences like (68), where the external argument *Melissa* is the experiencer.

(68) Melissa sees the dog.

This implies that unless the semantics of *v* are inserted post-syntactically (i.e. ‘allosemes’ as proposed by Wood 2012), there are different *v* heads with different semantic interpretations for the external argument they introduce; essentially similar to the flavors of *v* theory (Folli and Harley, 2005, 2007). Thus, for a typical agentive transitive sentence such as (69), there is a $v_{ag(ent)}$ head that introduces the external argument; while there is a $v_{experiencer}$ head for the sentence in (68).

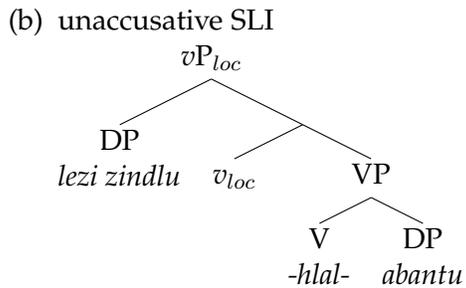
(69) U-mama u-phek-a uku-dla.
 1a-mother 1a.SM-cook-FV 15-food
 ‘Mother is cooking food.’

As there is already motivation for different *v* heads with varying semantics, I propose that Ndebele and Zulu have another v_{loc} head available that composes the external argument it introduces as the location of the verbal event.

(70) (a) $[[v_{ag}]] = \lambda x \lambda e . \text{AGENT}(x)(e)$
 (b) $[[v_{loc}]] = \lambda x \lambda e . \text{LOC}(x)(e)$

In the case of SLI with unaccusatives, then, it is v_{loc} that selects the unaccusative VP, introducing a locative external argument in its Spec position. Reproducing the earlier example:

(71) (a) Lezi zin-dlu zi-hlal-a aba-ntu.
 10.DEM 10-house 10.SM-dwell-FV 2-person
 ‘People live in these houses.’



Crucially, there is no *v* head that can simultaneously introduce both an agentive external argument and a locative external argument. This is why in the case of transitive and unergative sentences, the agentive external argument is first introduced by v_{ag} . However, once the default external argument position in Spec,*v*P is taken up, any other external argument must be introduced by another functional head: in the case of SLI, this happens to be a super-high (relative to Pytkkanen’s High Applicatives) Appl, which is realized, like all other applicatives, as *-el*.

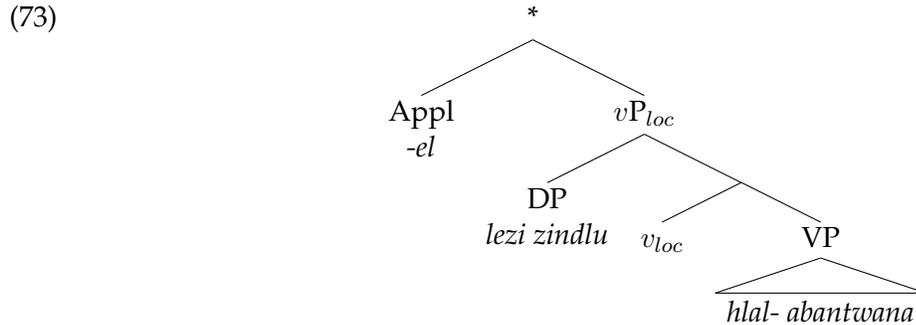
In my analysis, there is no phonologically null applicative morpheme in unaccusative SLI; the reason that there is no applicative suffix in these constructions is simply because there is no applicative head/structure at all. This captures the intuition that the first available resource to introduce an external argument (ignoring vP -internal applicatives and causatives) is the $Spec, vP$ position, which is what we see being utilized in the case of unergative and transitive vPs , and unaccusative SLI. Further external arguments must be introduced by other structure, such as the Appl head that selects vP complements.

One question that might arise, then, is why the Appl head that takes a vP complement in the case of unergative and transitive SLI cannot take the locative vP as a complement:

- (72) *Leli i-dolobho li-hlal-el-a lezi zin-dlu aba-ntwana.
 5.DEM 5-town 5.SM-live-APPL-FV 10.DEM 10-house 2-child

Intended: 'The children live in these houses in this town.'

This is accounted for by the fact that the Appl head involved in SLI cannot select a vP_{loc} complement:



Additionally, I assume that there can only be one v per clause, such that v_{loc} cannot select an agentive vP_{ag} as a complement, preventing a structure as in (74):



The selectional properties of Appl prevent passivization and object relativization in unergative/transitive SLI: Appl cannot select a complement larger than vP , such as CP (where the object DP moves when it is relativized). This prevents object relativization in SLI just as it does for Zeller 2013.

As discussed in §4.3, we do not need to claim that Appl is a phase-defining head to prevent passivization in SLI. Instead, SLI of passive sentences is ungrammatical because it would require Appl selecting a $VoiceP_{passive}$, which is larger than vP . Note that having this Appl be able to select a passive $VoiceP$ would also predict that verbs could appear with the applicative suffix further from

the root than the passive one, which is generally impossible in Ndebele Sibanda 2004. Having a passive VoiceP on top of the ApplP in SLI can similarly be ruled out by stipulating that a Voice head must select a *v*P complement and not an ApplP one. With respect to the unavailability of object marking in SLI structures, recall from §3.2 that this is phenomenon is not characteristic of SLI specifically, but rather sentences that contain postverbal (logical) subjects.

What remains is how to account for the ungrammaticality of passivization, object marking and object relativization in unaccusative SLI. Once again, a brute force strategy is to simply prohibit the passive Voice head from selecting a *v*P with a *v_{loc}* head. However, if we assume that canonical unaccusative VPs are embedded within a specifier-less *v*P projection, then we need the passive Voice head to distinguish between different *v*Ps anyway, in order to prevent passivization of canonical unaccusatives.

A further advantage of having a super-high Appl head for unergative and transitive locative SLI and a *v_{loc}* for unaccusative SLI is that, if extended to formal locative inversion, it can account for why other languages like Chichewa only have locative inversion structures with unaccusatives (Bresnan and Kanerva, 1989) – locative inversion with transitive and unergative verbs are ungrammatical in Chichewa:

(75) Transitive:

- (a) Mâyi a-na-péz-á mw-aná kú-dâmbo.
 1a.mother 1.SM-REC.PST-find-IND 1-child 17-5.swamp
 ‘The mother found the child in the swamp.’
- (b) *Ku-dâmbo ku-na-péz-á mw-ăna.
 17-5.swamp 17.SM-REC.PST-find-IND 1-child
 Intended: ‘In the swamp found the mother the child.’

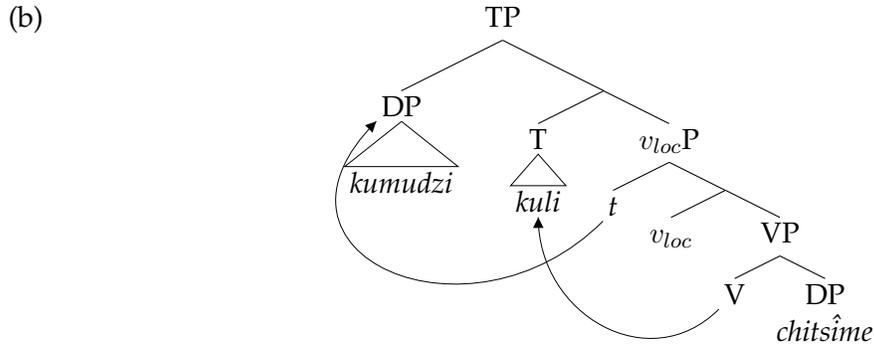
(76) Unergative:

- *M-mi-têngo mu-ku-ímb-á a-nyăni.
 18-4-tree 18.SM-PROG-sing-IND 2-baboon

Intended: ‘In the trees are singing baboons.’ (Chichewa, (Bresnan and Kanerva, 1989, p.16)

Chichewa has a *v_{loc}* head available, but not a super-high Appl that takes a *v*P complement. As a result, Chichewa can introduce locative arguments as external arguments to unaccusative structures, but has no way of introducing an external locative argument above the agent in unergative and transitive structures.

- (77) (a) Ku-mu-dzi ku-li chi-tsîme.
 17-3-village 17.SM-be 7-well
 ‘In the village is a well.’ (Chichewa, Bresnan and Kanerva 1989)



Pylkkänen 2002 proposes a universal inventory of functional heads, including high and low applicatives, that introduce external arguments, of which a language can have some subset:

(78) Pylkkänen's external-argument-introducing heads:

- (a) High Applicative
- (b) Low Recipient Applicative
- (c) Low Source Applicative
- (d) Root-selecting Cause
- (e) Verb-selecting Cause
- (f) Phase-selecting Cause
- (g) Voice [v in my analysis]

To this list can be added super-high applicative that is used to introduce locative DPs above the external argument in locative inversion with transitive and unergative verbs.

My analysis is based on the intuition that Spec, vP is the first available position to introduce an external argument, and is utilized as such in locative inversion of unaccusatives. When this position is unavailable due to the introduction of an agentive external argument by v , the super-high Appl head must be used to introduce a higher locative external argument – recall that there can only be one v head per clause so this is the only option. This implies that there is an implicational hierarchy of what types of verbal predicates appear in locative inversion structures:

(79) **Locative inversion implication hierarchy:** unaccusative > unergative, transitive

In other words, if a language allows locative inversion at all, it will be with unaccusative verbs. If it allows locative inversion with unergative or transitive verbs, then it will also allow it with unaccusative ones. My analysis thus makes the prediction that in languages with Semantic Locative Inversion, inverted structures with unergative and transitive verbs should never occur if inversion with unaccusatives is also possible.

Though the typological data on SLI is still relatively sparse, this hierarchy holds for Ndebele and Zulu, as this paper shows, but also for Tharaka (Buell, 2007), where SLI with unergative and transitive verbs is possible, but not to the exclusion of unaccusative ones. Furthermore, my analysis predicts that introducing a locative external argument in unergative and transitive structures, which already have an agentive external argument, requires the presence of a functional head (Appl in Ndebele and Zulu) to introduce this argument. These facts also seem to hold for Tharaka:

(80) Unaccusative SLI in Tharaka

- (a) Twana tûûgî i-tû-thij-ag-a kanisa-ni.
13.children 13.smart FOC-13-go-HAB-FV 12.church-LOC
- (b) Kanisa i-ka-thij-ag-a twana tûûgî
12.church FOC-12-go-HAB-FV 13.children 13.smart
'The smart children go to church.'

(81) Unergative SLI in Tharaka

- (a) Twana tû-thom-ag-(îr-)a kanisa-ni.
13.children 13.SM-study-HAB-APPL-FV 9.church-LOC
- (b) Kanisa i-thom-ag-îr-a twana.
9.church 9.SM-study-HAB-APPL-FV 13.children
- (c) *Kanisa i-thom-ag-a twana.
9.church 9.SM-study-HAB-FV 13.children
'The children study at the church.' (Tharaka, (Buell, 2007, p.112-113))

As can be seen in the Tharaka data⁷, SLI is possible with both unaccusatives and unergatives. While the unaccusative SLI structure has no valency-increasing morphology, in the unergative SLI, we can see that the applicative morpheme is obligatory (81b), with the sentence being ungrammatical without it (81c). This supports my analysis in showing that unaccusatives have an available external argument position 'for free' to introduce the locative DP, but on account of already having an external argument, unergative SLI requires the applicative head to introduce another external argument.

Of course, having only one other cross-linguistic example is insufficient, and further typological work of languages with Semantic Locative Inversion will be required to test the implicational hierarchy predicted by my analysis.

5.2 Locative DPs are [-FOCUS]

Ndebele and Zulu, like other Bantu languages, allow the highest verbal argument to remain in its generated position (generally Spec,*v*P) instead of moving up to the inflectional domain where it would typically control verbal agreement; in these cases, the verb takes default/expletive agreement (NC17). These facts can be seen in the following examples, originally from Khumalo 2010 (p. 31):

- (82) Ku-za-lal-a ama-nkazana
17.SM-FUT-sleep-FV 6-girl
'It is girls that will sleep.'
- (83) Ku-sebenz-e i-ndoda e-masim-ini.
17.SM-work-REC.PST 5-man LOC-field-LOC
'A man worked in the fields.'

⁷Buell glosses *kanisa* as both noun class 12 and 9 in the two sets of examples; it is unclear if this is a typo, or if the nouns are in fact different noun classes in the data.

- (84) Ku-nik-w-e aba-ntwana isi-pho.
 17.SM-give-PASS-REC.PST 2-child 7-gift
 'A gift was given to the children.'

This has led researchers into arguing against a standard application of case theory for Bantu (Harford Perez, 1985; Alsina, 2001; Carstens and Diercks, 2013; Diercks, 2012, e.g.), though Halpert 2012 has a weaker claim that structural case in Zulu is only associated with syntactic positions within vP, but with Spec,TP or Spec,vP.

In either case, what is of note is that the locative arguments of SLI constructions *must* move up to Spec,TP, and cannot remain in a low post-verbal position, as is shown by the Ndebele data below:

(85) unaccusative SLI

- (a) Lezi zin-dlu zi-hlal-a aba-ntwana.
 10.DEM 10-house 10.SM-live-FV 2-child
 'Children live in these houses.'
- (b) *Ku-hlal-a lezi zin-dlu aba-ntwana.
 17.SM-live-FV 10.DEM 10-house 2-child

Intended: 'Children live in these houses.'

(86) unergative SLI

- (a) Isi-kolo si-hleke-el-a aba-ntwana.
 7-school 7.SM-laugh-APPL-FV 2-child
 'The children are laughing in the school.'
- (b) *Ku-hlek-el-a isi-kolo aba-ntwana.
 17.SM-laugh-APPL-FV 7-school 2-child
 Intended: 'The children are laughing in the school.'

(87) transitive SLI

- (a) I-khitshi li-phek-el-a u-mama uku-dla.
 5-kitchen 5.SM-cook-APPL-FV 1a-mother 15-food
 'Mother is cooking food in the kitchen.'
- (b) *Ku-phek-el-a i-khitshi u-mama uku-dla.
 17.SM-cook-APPL-FV 5-kitchen 1a-mother 15-food
 Intended: 'Mother is cooking food in the kitchen.'

In (85b), (86b) and (87b), we can see that the locative arguments of SLI constructions cannot remain in a low postverbal position with expletive/default agreement on the verb. This contrasts with examples like (82)-(84), where we have seen that subjects, including a passive subject in (84), are capable of remaining low. It is not immediately clear why an argument shouldn't be able to remain in Spec,Appl or Spec,vP only in the case of SLI.

Interestingly, in arguing against the PredP analysis of SLI, Buell and de Dreu 2013 claim that arguments in Spec,*v*P can remain low and postverbal, as we have seen, but that arguments in Spec,Pred must move to a position in the inflectional domain. These data would actually appear to be evidence at face value, then, for a PredP analysis of SLI.

What appears to be happening with the data in (85b), (86b) and (87b) is that the preverbal subject position is, as Buell and de Dreu 2013 claim, the where the topic of the sentence is about; this also matches the observation that locative inversion characterizes a marked presentational focus construction (Bresnan, 1994; Demuth, 1990; Demuth and Mmusi, 1997). Assuming then that locative inversion, including SLI, involves a locative topic with presentational focus on the postverbal material, the locative argument must be in the preverbal subject position; it is ungrammatical for it to remain in the postverbal focused position.

Zeller 2008 analyzes the distribution of preverbal and postverbal subjects as being antipocus movement in the former, driven by a cliticizing subject marker. In this analysis, a preverbal subject DP and the subject marker on the verb start out as a single *n**P constituent; the noun class prefix's initial vowel, usually called the augment, is analyzed as a D head:

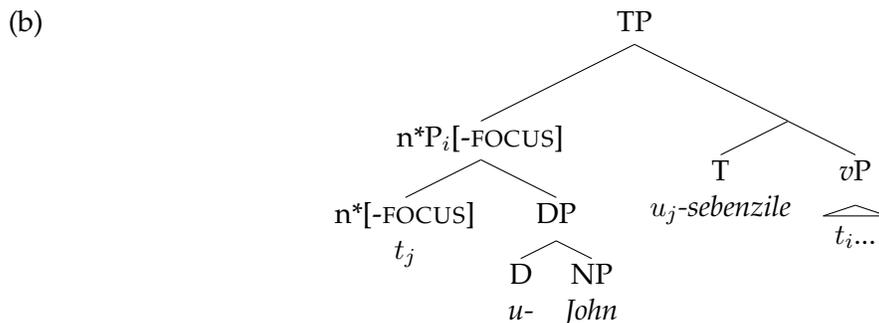
- (88) (a) I-kati li-ya-gul-a.
 5-cat 5.SM-YA-be.sick-FV
 'The cat is sick.'



In the example above, the subject marker *li-* on the verb starts the syntactic derivation as the functional head *n** of a constituent containing the subject DP *i-kati*, and eventually incorporates into the functional head that hosts the verb. In this analysis, the subject marker on the verb is not the result of agreement, but of a pronominal subject clitic.

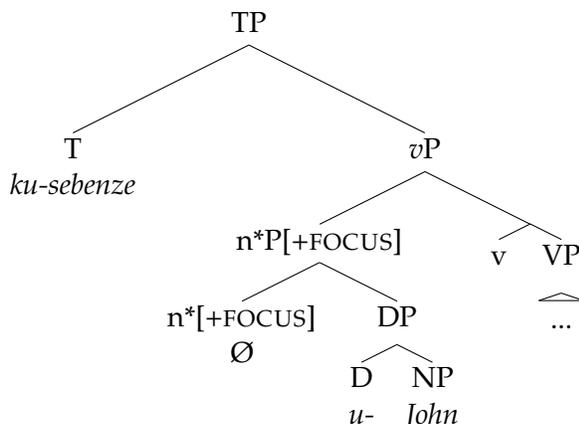
What accounts for preverbal and postverbal subjects in this analysis is a [-FOCUS] feature on the *n** head that drives movement of the subject to Spec,TP: subject markers that head the *n**P all have a [-FOCUS] feature, while *n**Ps not headed by subject markers lack this feature. Zeller 2008 contrasts the following Zulu examples:

- (89) (a) U-John u-sebenz-il-e.
 1a-John 1a.SM-work-DIST-PST
 'John worked.'



- (90) (a) Ku-sebenz-e u-John.
 17.SM-work-PST 1a-John
 'John worked.'

(b)



Because he is assuming a "big DP" analysis (e.g. Kayne, 1994), Zeller analyzes the postverbal subject in (90b) as a n*P headed by a phonologically null n* head with a [+FOCUS] feature.

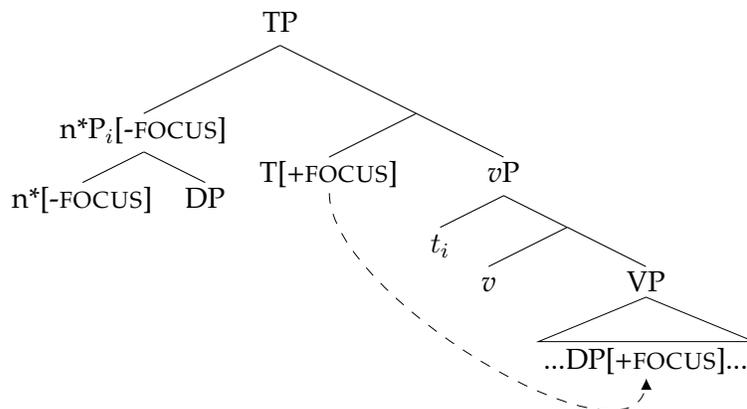
What motivates movement of the subject out of vP in Zeller's analysis when there is a subject marker is that T has an uninterpretable [+FOCUS] feature that probes the c-command domain of T to agree with the closest goal within that domain that has a [+FOCUS] feature, where closest goal is defined by Chomsky 2000 as the following locality constraint:

- (91) **Locality:** D(P) is the c-command domain of P, and a matching feature G is closest to P if there is no G' in D(P) matching P such that G is in D(G').

If the closest goal within T's domain has the [-FOCUS] feature (subject marker-headed n*Ps), then T's [+FOCUS] probe can match this feature of the same type, but will not agree as they have different values. In other words, an unmoved n*P in Spec,vP that is headed by a [-FOCUS] subject marker, will intervene between the [+FOCUS] probe in T and an agreeing [+FOCUS] goal within vP.

In order to resolve this derivation crash, Zeller proposes that T has an optional EPP feature that triggers movement of the [-FOCUS] subject to Spec,TP, where it is out of the c-command domain of T:

(92)



In (92) above, the n*P with the [+FOCUS] feature is moved to Spec,TP by T's optional EPP feature. As a result, it no longer intervenes between T and the [+FOCUS] object DP goal within vP. Movement of a subject DP to the preverbal position in this analysis, then, is a last resort when a subject marker heads the subject n*P.

Zeller doesn't spell out in this analysis what happens with intransitive or non-verbally predicated sentences, where there is no [+FOCUS] object DP for T to agree with. His analysis can be extended to these constructions by proposing that a subject marker-headed n*P that is [-FOCUS] must still move to Spec,TP in order to prevent matching T's [+FOCUS] probe, just as it does when there is an object present. However, in the case of intransitive sentences the failure of T's probe to agree with an object does not crash the derivation, as has been proposed by Halpert 2012 to account for the long form prefix *ya-* and the licensing of augmentless nominals in Zulu.

Given this analysis of antifocus movement, we can now look at why locative arguments in SLI must appear as preverbal subjects and never postverbally. Locative inversion is characterized as a marked presentational focus construction, with a topicalized locative argument. This means that the locative argument in SLI is obligatorily generated with a [-FOCUS] feature, forcing its movement to Spec,TP. The Appl and *v_{loc}* head involved in SLI constructions thus only introduce external arguments headed by a subject marker bearing a [-FOCUS] feature; they thus have the following selectional features, where structure-building features (for both Merge and movement) are indicated between bullets ([•F•]):

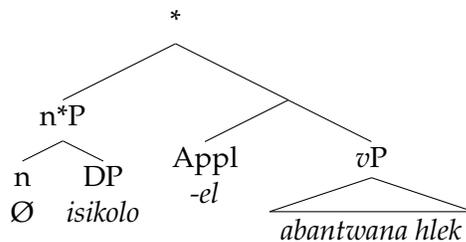
(93) Selectional features:

- (a) Appl: [•vP•] > [•n*P[-FOCUS]•]
- (b) *v_{loc}*: [•VP•] > [•n*P[-FOCUS]•]

In other words, the locative arguments in SLI are obligatorily non-focused elements. For this reason, they are incapable of remaining postverbal and must move to Spec,TP. Generating a [+FOCUS] locative as the introduced argument is ungrammatical, as it doesn't match the selectional features of Appl or *v_{loc}*:

(94) Unergative (and transitive):

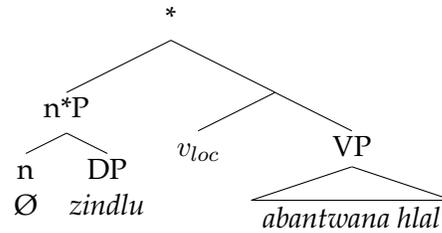
- (a) *Ku-hlek-el-a isi-kolo aba-ntwana.
17.SM-laugh-APPL-FV 7-school 2-child
Intended: 'The children are laughing in school.'
- (b)



(95) Unaccuative:

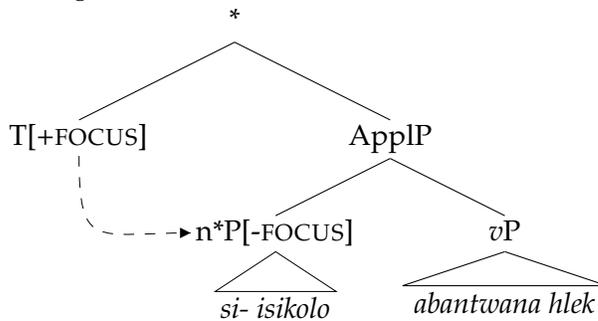
- (a) *Ku-hlal-a zin-dlu aba-ntwana.
17.SM-live-FV 10-house 2-children
Intended: 'The children live in houses.'

(b)

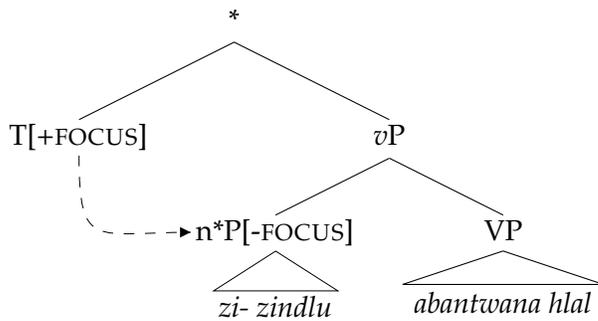


If the locative argument is generated with a [-FOCUS] subject marker, then it must move to Spec,TP to prevent a feature mismatch when T matches it as a goal.

(96) Unergative (and transitive):

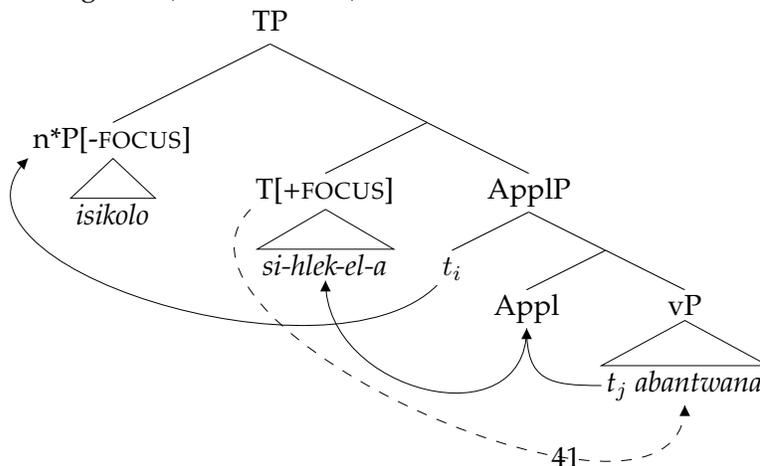


(97) Unaccusative:

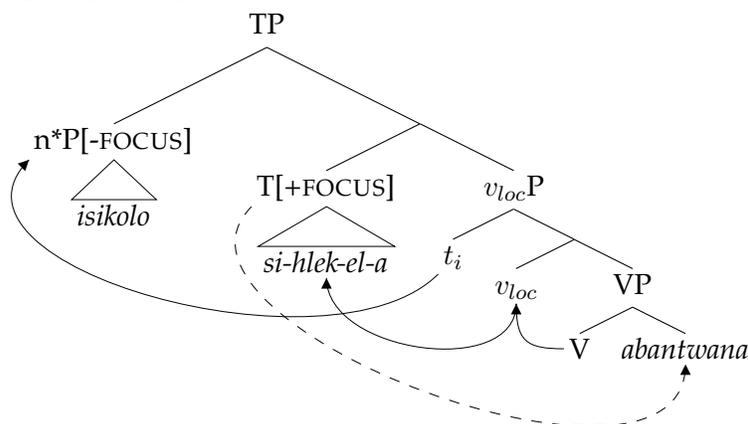


The only way to have a grammatical output is to generate the locative argument as a [-FOCUS] n*P (headed by a subject marker) and then move it to Spec,TP, with the subject marker incorporating into the complex T head that hosts the verb:

(98) Unergative (and transitive):



(99) Unaccusative:



In (98) and (99), we can see that the locative argument is generated with a subject marker that has a [+FOCUS] feature. T must then have an EPP feature that moves the locative n*P out of its c-command domain to Spec,TP to prevent a crash due to feature mismatch. Without the locative n*P intervening between T and the logical subject (*abantwana*, ‘children’ in both examples above), T can then probe its c-command domain (either ApplP or *v*P) and agree with the [+FOCUS] logical subject goal.

The upshot of this analysis is that it accounts for why locative arguments in SLI must obligatorily move to the preverbal subject position in Spec,TP: they are unfocused elements. At the same time, the logical subject of the verb remains low in a postverbal position, where it has a [+FOCUS] feature that T can agree with. The overall result is that in SLI the locative argument is topicalized while the postverbal logical subject is focused, accounting for the intuition that locative inversion constructions are ones of presentational focus.

6 Conclusion

In this paper, I have shown that the locative arguments in Ndebele SLI are generated above *v*P and does not move over an external object to the subject position, as is assumed in previous analyses (Buell, 2005; Zeller, 2013). This locative argument can be introduced in Spec,*v*P if there is no external argument, as is in the case with unaccusative verbs in SLI. However, if there is already an external argument in the Spec,*v*P position, as in unergative and transitive verbs, then the locative argument must be introduced by a super-high (*v*P-external) Appl head, which is realized on the verb as the applicative suffix *-el*.

Crucially, the analysis presented here claims that there is no phonologically null allomorph an Appl head that is always present in SLI. Instead, because we need *v* to introduce external arguments anyway, and that these external arguments can have a variety of semantic interpretations, unaccusative verbs in SLI have Spec,*v*P available to them to introduce a locative argument. However, if this position is already occupied by an external argument, then the only way to introduce another argument into the verbal structure is via Appl. This captures the intuition that applicatives are a default strategy for introducing extra arguments.

Additionally, unlike canonical sentences, SLI sentences do not permit a postverbal subject construction with default/expletive agreement: the locative DP must undergo movement to the subject position in Spec,TP. This is the result of their being obligatorily generated as [-FOCUS]

constituents, which drives movement to this preverbal subject position (Zeller, 2008). This is in keeping with the observation that locative inversion structures are characterized as being presentational focus constructions, where the locative DP is topicalized and the postverbal material is focused.

My analysis also makes the prediction that there is an implicational hierarchy of what types of verbs permit SLI: if a language has SLI constructions, it should always allow them first with unaccusative verbs. This is because it will have *Spec,v* available to it as a position to introduce an external argument. Languages like Ndebele also have an additional morphosyntactic resource in the form of a super-high Appl head that allow the introduction of another external argument over the agentive one in *Spec,vP*. While the typological data on SLI languages is still sparse, this implicational hierarchy so far holds for Ndebele, Zulu and Tharaka⁸. Further typological research will determine whether or not this prediction continues to hold for other languages that have SLI constructions.

Acknowledgements

I wish to thank Lily Dube, my primary Ndebele consultant, who this project would not have been possible without. I would also like to thank Karlos Arregi, Jason Merchant and Asia Pietraszko for the many helpful discussions. All mistakes are my own.

References

- Alsina, Alex. 2001. Is case another name for grammatical function? evidence from object asymmetries. In *Objects and other subjects*, ed. William D. Davies and Stanley Dubinsky, 77–102. Kluwer Academic Publishers.
- Aoun, Joseph, and Yen-hui Audrey Li. 1993. *Syntax of scope*. Number 21 in *Linguistic Inquiry Monography*. Cambridge, MA: The MIT Press, 2nd edition.
- Baker, Mark C. 2003. *Lexical categories: Verbs, nouns, and adjectives*. Cambridge: Cambridge University Press.
- Bowers, John. 1993. The syntax of predication. *Linguistic Inquiry* 24:591–656.
- Bresnan, Joan. 1994. Locative inversion and the architecture of Universal Grammar. *Language* 70:72–131.
- Bresnan, Joan, and Jonni M. Kanerva. 1989. Locative inversion in Chichewa: A case study of factorization in grammar. *Linguistic Inquiry* 20:1–50.
- Bruening, Benjamin. 2001. QR obeys superiority: Frozen scope and ACD. *Linguistic Inquiry* 32:233–273.
- Buell, Leston. 2007. Semantic and formal locatives: Implications for the Bantu locative inversion typology. *SOAS Working Papers in Linguistics* 15:105–120.
- Buell, Leston C. 2009. Class 17 as a non-locative noun class in Zulu. [Http://www.fizzylogic.com/users/bulbul/academic](http://www.fizzylogic.com/users/bulbul/academic), August 2009.

⁸It should also be noted that while I do not posit the same analysis for Formal Locative Inversion, the same implicational hierarchy of what verbs can appear in locative inversion constructions also seems to apply with respect to FLI (Demuth and Mmusi, 1997; Marten, 2006).

- Buell, Leston Chandler. 2005. Issues in Zulu verbal morphosyntax. Doctoral Dissertation, University of California, Los Angeles, Los Angeles.
- Buell, Leston Chandler, and Merijn de Dreu. 2013. Subject raising in Zulu and the nature of PredP. *The Linguistic Review* 30:423–466.
- Carstens, Vicki, and Michael Diercks. 2013. Parameterizing case and activity: Hyper-raising in Bantu. In *Proceedings of the 40th Annual Meeting of the North East Linguistic Society*, ed. Seda Kan, Claire Moore-Cantwell, and Robert Staubs, 99–118. Amherst, MA: GLSA.
- Chomsky, Noam. 1995. *The minimalist program*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step*, ed. Roger Martin, David Michaels, and Juan Uriagereka, 89–155. Cambridge, MA: MIT Press.
- Demuth, Katherine. 1990. Locatives, impersonals and expletives in Sesotho. *The Linguistic Review* 7:233–249.
- Demuth, Katherine, and Sheila Mmusi. 1997. Presentational focus and thematic structure in comparative Bantu. *Journal of African Languages and Linguistics* 18:1–19.
- Diercks, Michael. 2011. The morphosyntax of Lubukusu locative inversion and the parameterization of Agree. *Lingua* 121:702–720.
- Diercks, Michael. 2012. Parameterizing case: Evidence from Bantu. *Syntax* 15:253–286.
- Fernández-Soriano, Olga. 1999. Two types of impersonal sentences in Spanish: locative and dative subjects. *Syntax* 2:101–140.
- Folli, Raffaella, and Heidi Harley. 2005. Flavors of v. In *Aspectual inquiries*, ed. P. Kempchinsky and R. Slabakova, 95–120. Netherlands: Springer.
- Folli, Raffaella, and Heidi Harley. 2007. Causation, obligation, and argument structure: On the nature of little v. *Linguistic Inquiry* 38:197–238.
- Halpert, Claire. 2012. Argument licensing and agreement in Zulu. Doctoral Dissertation, MIT, Cambridge, MA.
- Harford Perez, Carolyn. 1985. Aspects of complementation in three Bantu languages. Doctoral Dissertation, University of Wisconsin-Madison, Madison, WI.
- Harley, Heidi. to appear. External arguments and the Mirror Principle: On the distinctness of Voice and v. *Lingua*.
- Julien, Marit. 2002. *Syntactic heads and word formation*. Oxford: Oxford University Press.
- Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge: MIT Press.
- Khumalo, Langa. 2010. Passive, locative inversion in Ndebele and the unaccusative hypothesis. *South African Journal of African Languages* 1:22–34.
- Kratzer, Angelika. 1996. Severing the external argument from its verb. In *Phrase structure and the lexicon*, ed. Johan Rooryck and Laurie Zaring, 109–137. Dordrecht: Kluwer.
- Marantz, Alec. 1984. *On the nature of grammatical relations*. Cambridge, MA: MIT Press.
- Marten, Lutz. 2006. Locative inversion in Otjherero: More on morpho-syntactic variation in Bantu. *ZAS Papers in Linguistics* 43:97–122.
- Merchant, Jason. 2013. Voice and ellipsis. *Linguistic Inquiry* 44:77–108.
- Pylkkänen, Liina. 2002. Introducing arguments. Doctoral Dissertation, MIT.
- Sibanda, Galen. 2004. Verbal phonology and morphology of Ndebele. Doctoral Dissertation, University of California, Berkeley.
- Tsai, Wei-Tien Dylan. 2009. High applicatives are not high enough: A cartographic solution. In *Paper presented in FOSS-6*. Taiwan: National Taiwan Normal University.
- Wood, Jim. 2012. Icelandic morphosyntax and argument structure. Doctoral Dissertation, New

- York University, New York, NY.
- Woolford, Ellen. 2000. Agreement in disguise. In *Trends in african linguistics*, ed. Vicki Carstens and Frederick Parkinson, volume 4, 103–117. Trenton, NJ: Africa World Press.
- Zeller, Jochen. 2008. The subject marker in Bantu as an antifocus marker. *Stellenbosch Papers in Linguistics* 38:221–254.
- Zeller, Jochen. 2011. Semantic locative inversion and predication in Zulu. Manuscript. University of KwaZulu-Natal, June 2011.
- Zeller, Jochen. 2013. Locative inversion in Bantu and predication. *Linguistics* 51:1107–1146.