

# The Morphosyntax of the EPP and C in Bùlì\*

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## 1. Introduction

Bùlì, like many other languages of the world, shows different forms of the complementizer *àlì* and *àtì* under certain syntactic conditions. The syntactic environment in which C exhibits morphological alternation is restricted to *Ā-dependencies* (i.e. Relativization, Factive constructions, *Wh*-Questions and Focus constructions, in the case of Bùlì). This kind of phenomena have been called *Op-C Agreement* in Chung (1998).

In (1a), the subject has been *Wh*-extracted and C is realized as *àlì*. On the other hand, in (1b), the object has been *Wh*-extracted and the choice of *àlì/àtì* is optional.<sup>1</sup>

- (1) a. ká wàná **àlì/\*àtì** tà nā:b?  
F who C have cow(Id)  
'Who owns a cow?'  
b. ká bwà **àlì/àtì** kpār<sup>w</sup>ā-wá tà?  
F what C farmer-D have  
'What does the farmer have?'

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<sup>1</sup>A declarative complementizer in Bùlì is *àyìn* and does not participate in the alternation.

Bùlì is an optional *Wh*/Focus-fronting language and hence allows *Wh*/Focus-in-situ. Interestingly, C cannot be overtly realized in the absence of overt extraction, as shown in (2).

- (2) \***àlì**/\***àtì**/∅ kpār<sup>w</sup>ā-wá tà kǎ bwà?  
 C farmer-D have F what  
 ‘What does the farmer have?’

A further complication arises in Relativization and Factive constructions. Here, the subject relativization in (3a) results in *àlì*, while object relativization in (3b) requires *àtì*.

- (3) a. nùrù-wā:y **àlì**/\***àtì** dà mángò-kù lá  
 man-Rel C bought mango-D Dem  
 ‘the man who bought the mango’  
 b. mángò-kū:y \***àlì**/**àtì** Àtìm dà lǎ  
 mango-Rel C Àtìm bought Dem  
 ‘the mango that Àtìm bought’

The aim of this paper is to explicate the formal mechanism that underlies the morphological alternation of the complementizer under  $\bar{A}$ -dependencies. More specifically, I propose that the C alternation in question is a reflex of the locality of EPP-dependency of C and that asymmetries between *Wh*/Focus and Relativization/Factives come from a difference in the way the EPP operates.

## 2. $\bar{A}$ -Dependencies: Op-C Agreement and Asymmetries

Relativization, Factives, *Wh*-Questions and Focus constructions are all subject to island constraints in Bùlì, and hence it is plausible to assume that they involve movement (see Ferreira and Ko 2003 and Hiraiwa 2005 for examples). *Wh*-extraction is optional in that *Wh*-in-situ and Focus-in-situ are both licit. In this section, we first survey basic properties of the  $\bar{A}$ -dependencies in Bùlì and show some asymmetries between Relativization/Factives and *Wh*/Focus constructions.

### 2.1. Relativization/Factives

Relativization in Bùlì comes in two varieties, In-situ Head-Internal Relative Clauses (In-situ HIRC) in (4a) and Left-Headed Head-Internal Relative Clauses (Left-Headed HIRC) in (4b) (See Hiraiwa 2003, 2005 for extensive discussion). I call HIRC a relative clause whose head appears at the right of C. Likewise, Left-Headed HIRC is a relative clause whose head appears at the left of C.

In (4a), where the non-operator subject DP is extracted to [Spec, CP], the relativized head is left in-situ, which is known as HIRC. In this case, *àlì* must be selected. On the other hand, in (4b), where the non-subject relativized head noun is overtly extracted, *àtì* must be used. The ungrammaticality of (4c) shows that something must occupy [Spec, CP] and hence cannot be left empty.



(8) summarizes the generalizations for Relativization and Factive.

(8) Relativization and Factives

- a. *àlī* for subject extraction and *àtì* for non-subject extraction.
- b. Spec, CP must be filled.

## 2.2. *Wh*-Questions/Focus

Next, let us look at *Wh*-Questions: subject *Wh*-Questions in (9) and non-subject *Wh*-Questions in (10) (see Ferreira and Ko 2003 and Hiraiwa 2005 for more detailed discussions). Since Focus constructions pattern with *Wh*-Questions, I will only discuss *Wh*-Questions below (see Hiraiwa 2005 for Focus constructions).

As (9) and (10) show, *Wh*-Questions contrast with Relativization/Factives in two respects; first, the *àlī/àtì* alternation is free for non-subject *Wh*-Questions as shown in (10a), whereas only *àlī* is licit for subject *Wh*-Questions (9a). Second, as (9b) and (10b) show, C is obligatory when the *Wh*-phase is moved. On the other hand, *Wh*-in-situ is possible only in non-subject *Wh*-Questions and no overt complementizer is used, as shown in (10c). *Wh*-in-situ for subject *Wh*-phrases is illicit (9b).

- (9)
- a. ká wàná **àlī/\*àtì** tà nā:b?  
F who C have cow(Id)  
'Who owns a cow?'
  - b. ká wàná **\*(àlī)** tà nā:b?  
F who C have cow(Id)  
'Who owns a cow?'
  - c. **\*àlī/\*àtì/\*∅** ká wàná tà nā:b?  
C F who have cow(Id)  
'Who owns a cow?'
- (10)
- a. ká bwà **àlī/àtì** kpār<sup>w</sup>ā-wá tà?  
F what C farmer-D have  
'What does the farmer have?'
  - b. ká bwà **\*(àlī/àtì)** kpār<sup>w</sup>ā-wá tà?  
F what C farmer-D have  
'What does the farmer have?'
  - c. **\*àlī/\*àtì/∅** kpār<sup>w</sup>ā-wá tà kǎ bwà?  
C farmer-D have F what  
'What does the farmer have?'
  - d. **\*kpār<sup>w</sup>ā-wá àlī/àtì** tà kǎ bwà?  
farmer-D C have F what  
'What does the farmer have?'

Another point worth noting here is that in *Wh*-in-situ, nothing can be attracted to [Spec, CP] in contrast with HIRC (cf. (4a)), as shown in (10d). Put differently, there is no *Wh*-counterpart of In-situ HIRC. This point will be shown to be important for our proposed theory of Op-C Agreement later in this paper.

Bùlì allows clefting of predicates (see Hiraiwa 2005, To appear). In this case, the two forms of C shows a free alternation.

- (11) ká dē-kā àlī/àtì Àtìm dē mángò-kǔ dīem.  
 F eat-Nml C Àtìm ate mango-D yesterday  
 ‘It is eating that Àtìm ate the mango yesterday.’

The following summarizes the relevant properties of *Wh*/Focus in Bùlì.

- (12) *Wh*-Questions and Focus Constructions  
 a. àlī for subject extraction and àlī/àtì for non-subject extraction.  
 b. Spec, CP can only be filled by an operator element.

### 2.3. Long-distance $\bar{A}$ -Dependencies

Among long-distance  $\bar{A}$ -dependencies, Relativization/Factives and *Wh*/Focus constructions exhibit various intriguing asymmetries again. First, long-distance relativization selects exclusively àtì.

- (13) a. ná:-būy \*àlī/àtì Àtìm wē:nī àyīn Àmòak s<sup>w</sup>à (\*kà) lǎ kpī.  
 cow-Rel C Àtìm say that Àmòak own (it) Dem died  
 ‘The cow that Àtìm said that Àmòak owns died.’  
 b. nùrù-wā:y \*àlī/àtì Àtìm wē:nī àyīn \*(wà) s<sup>w</sup>a ná:mú lá kpī yá  
 man-Rel C Àtìm say that he own cow-D Dem died Cfp  
 ‘The man that Àtìm said that owns the cow died’

As (13a) and (13b) show, only àtì is licit in all types of long-distance relativization. Second, àlī/àtì selection for long-distance subject relativization contrasts with local subject relativization in that the former selects àtì and the latter àlī.

Another striking fact is that àlī/àtì selection in long-distance relativization contrasts with that in long-distance *Wh*/Focus constructions; in long-distance *Wh*/Focus, àlī and àtì can alternate irrespective of whether it is long-distance subject extraction or long-distance non-subject extraction, thus patterning with local non-subject *Wh*/Focus extraction. The examples also show that there is no overt reflex of successive-cyclic movement in Bùlì (contra languages like Irish, Chamorro, and Palauan).

- (14) a. ká bwà àlī/àtì Àtìm wē:nī àyīn Àmòak s<sup>w</sup>à (\*kà)?  
 F what C Àtìm say that Àmòak own (it)  
 ‘What did Àtìm say that Àmòak owned?’

- b. ká wàná àlì/àtì Àtìm wē:nī àyīn \*(wà) s<sup>w</sup>a ná:mú?  
 F who C Àtìm say that he own cow-D  
 ‘Who did Àtìm say that (he) owns the cow?’

### 3. EPP and Locality

I will propose a theory of the morphosyntax of  $\bar{A}$ -dependencies in Bùlì, couched in the framework of the Minimalist Program (Chomsky 2001, 2004). I propose that C in Bùlì comes in two varieties with respect to the EPP (*Extended Projection Principle*) (Chomsky 1981, Chomsky 2001, 2004) and that an interplay of this parametrization and locality provides a unified account for the morphosyntactic patterns of extraction and the patterns of movement in  $\bar{A}$ -dependencies in Bùlì.

The theory of the complementizer alternation that I propose is given in (15).

- (15) The form of C is sensitive to locality.

In the remainder of the paper, I formalize (15) in terms of the EPP and derive asymmetries between Relativization/Factives and *Wh*/Focus from a parametrization of the EPP on C.

#### 3.1. EPP and Locality

First, we must be more explicit about what the locality is imposed on in (15). I propose that the locus of parametrization is C, where the EPP feature has two parametric choices: It functions as an independent probe feature or it lives parasitically on another feature.

- (16) Parametrization of C

	Features on C
Relativization/Factives	$C_{EPP, Op}$
<i>Wh</i> /Focus	$C_{Op-EPP}$

(16) states that both types of C have EPP. Traditionally, EPP has been attributed to T, but I propose that EPP extends to C in Bùlì.

- (17) C has an EPP feature.

The parameter, then, is concerned with whether EPP is contingent on the other probe Op features or not (See Collins 1997 for EPP as an independent feature). In Relativization/Factives, EPP is split from the Op-feature and hence acts as an independent probe feature. In *Wh*/Focus, on the other hand, EPP is “tied up” with the Op-feature and hence cannot probe on its own. As we will see in detail below, the parametrization neatly explains the patterns of movement and C: namely, what kind of elements can move to [Spec, CP] and under what condition an overt C appears.

McCloskey (2001, 2002), discussing the morphosyntax of Op-C Agreement in Irish, reaches a conclusion that the morphology of C in Irish under Op-C Agreement is determined by the way the EPP is satisfied –by Internal Merge or External Merge.

I will adopt his fundamental idea that the morphophonological reflex of an  $\bar{A}$ -dependency is determined by the EPP properties of C. Based on the parametrization in (16), I propose (18) as a theory of Op-C Agreement in Bùli.

(18) The Op-C Agreement Algorithm in Bùli

- a. C is realized as  $\grave{a}l\bar{i}$  if C's EPP is satisfied by the closest category.
- b. C is realized as  $\grave{a}t\grave{i}$  if C's EPP is satisfied by a non-local category.
- c. C is realized as  $\emptyset$  if C's EPP is satisfied by a “null” element.

The bottom line of the proposal is that the morphology of C under  $\bar{A}$ -dependencies is determined by the syntactic locality of the satisfaction of EPP on C. If the EPP relation is local, with no intervenor, C appears as  $\grave{a}l\bar{i}$ , whereas if it is non-local in the sense that there is a potential intervenor, C appears as  $\grave{a}t\grave{i}$ . If, however, the element in [Spec, CP] is null (either a null operator or a tail of a chain, as we see in detail below), C is not phonologically spelled out.

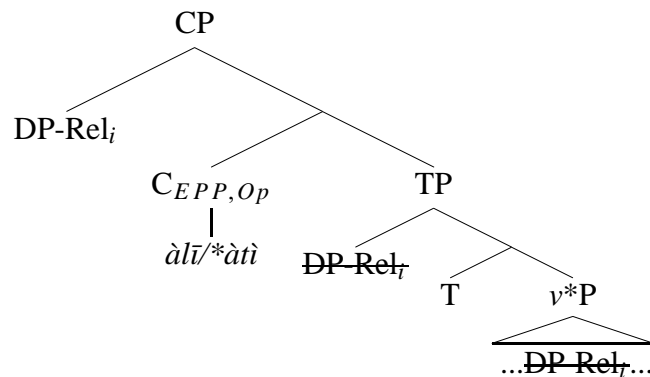
Finally, I assume that the evaluation of locality is done at Transfer (see Chomsky 2004 and Hiraiwa 2005 for empirical justification). Due to the lack of space, below I only show diagrams at Transfer.

### 3.2. Relativization/Factives

Consider the feature composition of C in Relativization/Factives by way of (16). As (16) indicates, C in Relativization/Factives has two probe features, EPP and Op, both of which function as independent probes at the relevant derivational point.<sup>2</sup>

When the subject is relativized and fronted, nothing intervenes between C and the extraction site and  $\grave{a}l\bar{i}$  must be selected. The EPP-dependency, therefore, counts as local.

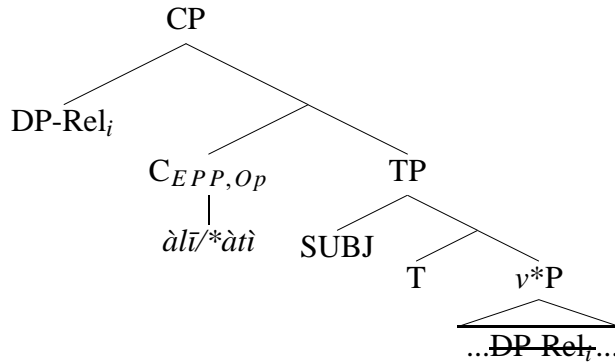
(19) The Derivation of Bùli Subject Relativization (= (5a))



On the other hand, when the object is relativized and fronted, the subject DP intervenes between C and the extraction site. The EPP-dependency is non-local and C is realized as  $\grave{a}t\grave{i}$ .

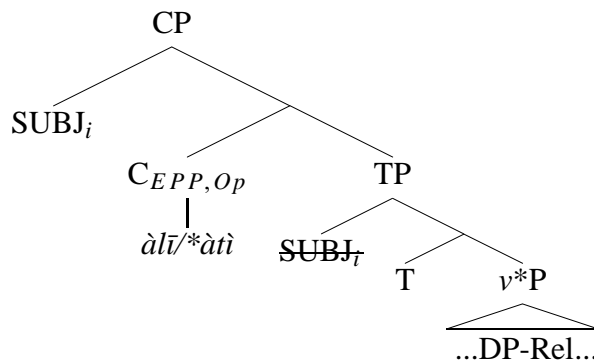
<sup>2</sup>Due to the limitation of space, I refer interested readers to Hiraiwa (2005) for a full illustration.

(20) The Derivation of Bùli Non-Subject Relativization (=4b))



When the object is relativized, Bùli has another strategy: In-situ HIRC. In this case, the relativized head noun is left in-situ and instead, the subject DP is moved to [Spec, CP] to satisfy the EPP. This movement is required by (16), since the EPP is an independent probe. As predicted by (18), C is realized àlī, since the EPP of C is satisfied by the most local category.

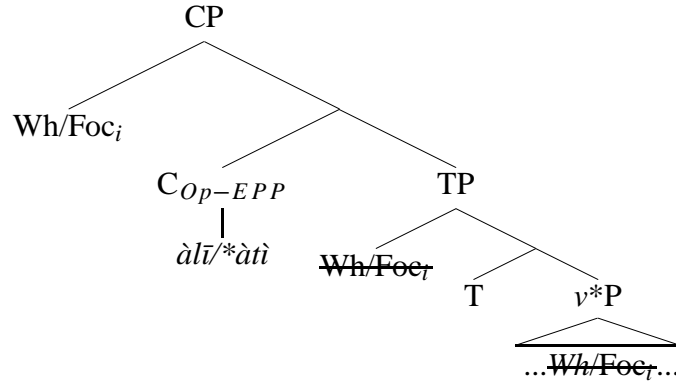
(21) The Derivation of Bùli Object Relativization (=4a))



**3.3. Wh/Focus**

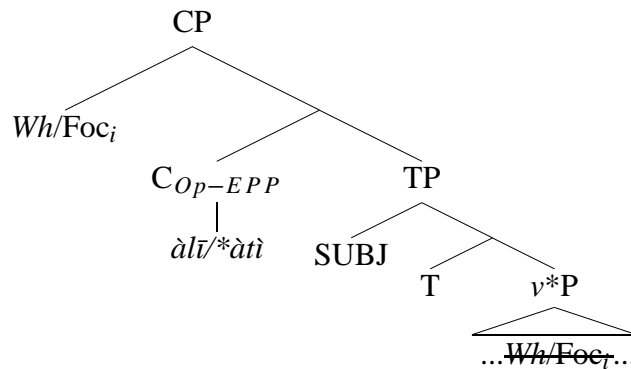
Now let us turn to *Wh*/Focus constructions. According to the parametrization, C in *Wh*/Focus comes in C<sub>Op-EPP</sub>. When the subject is extracted as in (22), àlī is selected. This is explained in the exactly same fashion as (19).

(22) The Derivation of Bùlì Subject *Wh*/Focus (=9a))



Now the puzzle that we noted in the preceding sections is that the two forms *àlì* and *àtì* freely alternates when the object is extracted via *Wh*-movement or Focus movement, as shown in (23).

(23) The Derivation of Bùlì Non-Subject *Wh*/Focus (=10a))



I argue that this is in fact predicted by (16) and (18). Note that (18) crucially evaluates the dependency of the EPP. I propose that the fact that the EPP is contingent on the Op-feature in *Wh*/Focus (see (16)) gives rise to an ambiguity. In other words, the EPP-dependency can be evaluated either on its own or on in terms of the Op-EPP dependency. Then, by (18), the object *Wh*/Focus movement counts either local or non-local as in (24):

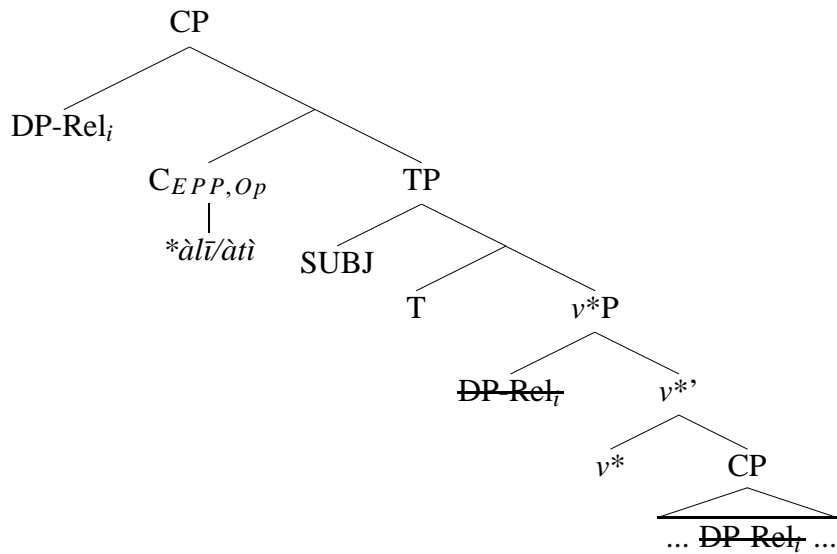
- (24) a. It is local in terms of the Op-EPP in that nothing with an Op-feature intervenes.
- b. It is non-local in terms of the EPP in that the subject DP intervenes.

The parametrization of C in (16), not only explains the morphosyntax of C, but also correctly accounts for the patters of extraction. In Relativization/Factives, movement of the subject to [Spec, CP] is obligatory when the relativized head noun is left in-situ, whereas in *Wh*/Focus, such an movement is in fact prohibited, as shown in (10c). The difference naturally follows if the EPP operates on its own for Relativization/Factives but not for *Wh*/Focus, as proposed in (16). In *Wh*/Focus, the EPP cannot attract a non-Operator element to [Spec, CP], since the EPP is parasitic on the Op-feature.

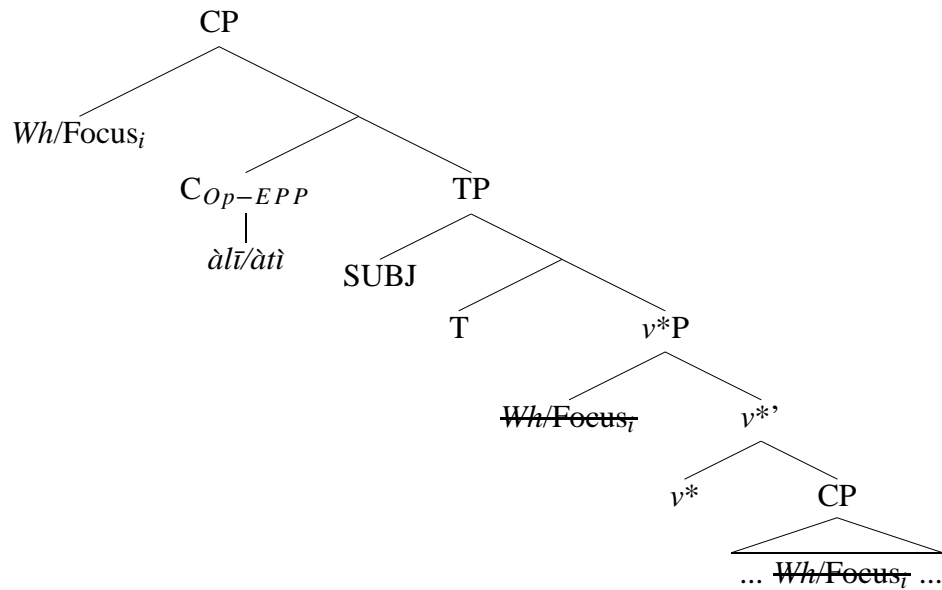
### 3.4. Long-Distance Extractions

As we have seen in (13)-(14), long-distance extraction patterns with non-subject extraction in relevant respects. Thus for Relativization/Factives, long-distance extraction requires  $\grave{a}t\grave{i}$  and for *Wh*/Focus, long-distance extraction always results in  $\grave{a}l\grave{i}/\grave{a}t\grave{i}$  alternation. Given successive-cyclic movement, the final extraction site is the edge of  $v^*P$  as in (20) and (23). However, in this derivation, the matrix subject DP always intervenes. Therefore, the subject/non-subject asymmetries are neutralized under long-distance extraction, as shown below.

(25) The Derivation of Long-Distance Relativization



(26) The Derivation of Long-Distance *Wh*/Focus



#### 4. Adverb Intervention

In the preceding sections, I have proposed that the choice of *àtì* reduces to “intervention” at locality evaluation. I would like to add further supporting evidence from *Adverb Intervention*. Consider (27).

- (27) (Dīemwá) Àtìm (dīem(wá)) dà (\*dīem(wá)) mǎngò-kǔ (dīem(wá)).  
 (yesterday) Àtìm (yesterday) bought (yesterday) mango-D (yesterday)  
 ‘Àtìm bought the mango yesterday.’

As shown in (27), the time adverb can be placed in three possible positions, sentence-initially, between the subject and the verb, and sentence-finally. It seems uncontroversial to assume that these positions correspond to TP and *v*\*P adjoined positions, respectively.

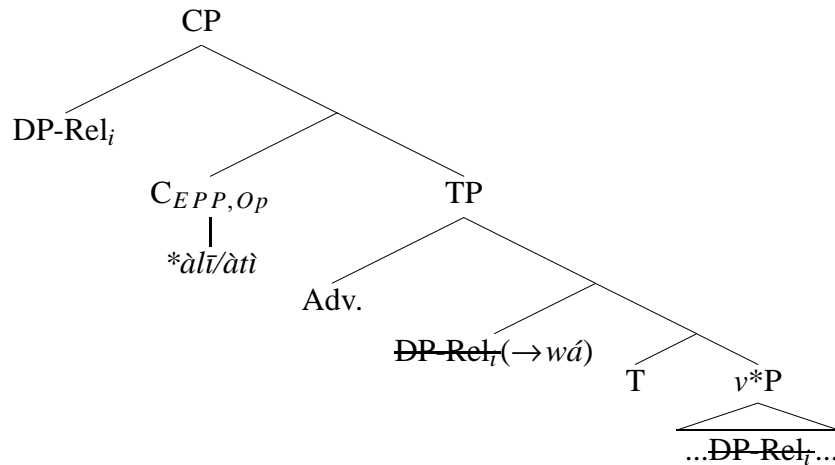
When the adverb is placed at the TP-adjoined position within a relative clause, the extracted subject DP results in *àtì* not *àlì*, as shown in (28).

- (28) a. núrú-wā(:y) \*àlì/àtì/ dīemwá \*(wà) dè mǎngò-kú lá kpī yá.  
 man-D C yesterday (he) ate mango-D Dem dead Cfp  
 ‘The man who ate the mango yesterday is dead.’  
 b. núrú-wá \*àlì/àtì dīemwá \*(wà) dè mǎngò-kū:y lá māsā.  
 man-D C yesterday he ate mango-Rel Dem good  
 ‘The mango that the man ate yesterday was good.’

This can be understood as a case of intervention –more specifically, defective intervention; the intervening adverb, although it cannot be licitly extracted by the probe EPP in Bùlì (see (29)), still counts as a defective intervenor, as shown in (30).

- (29) \* dīemwá àlì/àtì núrú-wā:y dè mǎngò-kú lá kpī yá.  
 yesterday C man-Rel ate mango-D Dem dead Cfp  
 ‘The man who ate the mango yesterday is dead.’

- (30) The Derivation of Bùlì Subject Relativization and Adverb Intervention



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## References

- Chomsky, Noam. 1981. *Lectures on government and binding: The Pisa lectures*. Berlin: Mouton de Gruyter.
- Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. Michael Kenstowicz, 1–52. Cambridge, MA.: MIT Press.
- Chomsky, Noam. 2004. Beyond explanatory adequacy. In *Structures and beyond: The cartography of syntactic structures*, ed. A. Belletti, 104–131. New York: Oxford University Press.
- Chung, Sandra. 1998. *The design of agreement*. Chicago: The University of Chicago Press.
- Collins, Chris. 1994. The factive construction in Kwa. In *Travaux de recherche sur le créole haïtien*, ed. Claire Lefebvre, 31–65. Monreal: Groupe de recherche sur le créole haïtien, Département de linguistique, Université du Québec à Montréal.
- Collins, Chris. 1997. *Local economy*. Cambridge, MA.: MIT Press.
- Ferreira, Marcelo, and Heejeong Ko. 2003. Questions in Buli. In *Studies in Buli grammar*, ed. George Akanlig-Pare and Michael Kenstowicz, MIT Working Papers on Endangered and Less Familiar Languages Vol. 4, 35–44. Cambridge, MA: MITWPL.
- Hiraiwa, Ken. 2003. Relativization in Buli. In *Studies in Buli grammar*, ed. George Akanlig-Pare and Michael Kenstowicz, MIT Working Papers on Endangered and Less Familiar Languages Vol. 4, 45–84. Cambridge, MA: MITWPL.
- Hiraiwa, Ken. 2005. *Dimensions of symmetry in syntax: agreement and clausal architecture*. Unpublished Ph.D. dissertation, MIT.
- Hiraiwa, Ken. To appear. Predicate clefts in Bùli: Phase and category. In *Linguistic Analysis: a special volume: African linguistics in the new millennium*, ed. R. Letsholo and N.C. Kula.
- McCloskey, James. 2001. The morphosyntax of WH-extraction in Irish. *Journal of Linguistics* 37:67–100.
- McCloskey, James. 2002. Resumption, successive cyclicity, and the locality of operations. In *Derivation and explanation in the minimalist program*, ed. Samuel Epstein and Daniel T. Seely, 184–226. New York: Blackwell.

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