

The Head-Internal Relativization Parameter in Gur: D and Its Typological Implications*

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1. Introduction: HIRCs in Gur

Some Gur languages of the Niger-Congo family in West Africa allow (in-situ) Head-Internal Relative Clauses (HIRCs). In-situ HIRCs are relative clauses in which the head noun phrase remains in-situ as illustrated in the example from Bùlì (1).

(1) Bùlì: (Hiraiwa 2005c)

Àtìm dè [Àmòak àlì dà **mángò-kū:-y** dīem lá].
Àtìm ate Àmòak C bought mango-Rel yesterday Dem
'Àtìm ate the mango that Àmòak bought yesterday.'

Other Gur languages, in contrast, disallow in-situ HIRCs, as summarized in the table.¹

(2) Typology of HIRCs in Gur

HIRC	"HERC"	Languages
√	√	Bùlì, Kabiyé, Mooré, Dagbani, Supyre, (Dogon), etc.
*	√	Dàgáárè, Gurenε/Frafra, Sisaala-Pasaale, Kōnni, etc.

The main goals of this article are to show that HIRCs in Gur do not conform to previous generalizations and to present a new word order generalization that is responsible for parametric differences among the Gur languages. Building on the generalization, I propose a parameter in D_{EPP} and demonstrate that it explains other correlations.

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¹Data sources: Bùlì (Hiraiwa 2005c, fieldnotes), Kabiyé (Hiraiwa 2005b, fieldnotes), Mooré (Peterson 1974, Culy 1990, fieldnotes), Dagbani (Wilson 1963), Dàgáárè (Bodomo and Hiraiwa 2004, 2007), Gurenε (Atintono 2002, fieldnotes), Supyre (Carlson 1994), Sisaala-Pasaale (McGill et al. 1999), Kōnni (Cahill 1999), Dogon (Culy 1990).

2. HIRCs Cross-Linguistically

Cross-linguistically, HIRCs are roughly classified into two types: the nominalization-type and the D-type (see Hiraiwa 2005c). The former includes Japanese, Quechua, Korean, Mohawk, etc. and the latter includes Georgian, Lakhota, Miskitu, Diegueño, Navajo, Mojave, etc. The nominalization-type HIRCs are relative clauses where the entire relative clauses are nominalized by a nominalizing suffix or a complementizer. On the other hand, the D-type HIRCs use an external determiner instead of a nominalizer/C. The schematic structures are given in (3) (VO order irrelevant). Examples are illustrated in (4a) and (4b), respectively.²

(3) a. Nominalization-Type: [SUBJ OBJ V-Nml/C]_{RC}

b. D-Type: [[SUBJ V OBJ] D]_{RC}

(4) a. Cuzco Quechua: (Lefebvre and Muysken 1988)

[Xwancha-q **runa-θ** riku-**sqa-n**] wasi-ta rura-n.
Juan-Gen man-Obj see-Nml-3 house-Acc build-3

‘The man that Juan saw builds a house.’

b. Navajo: (Platero 1974, 204, Barss et al. 1991)

[TI'éédáá **ashkii** ałháá']-**áá**] yádoółtih.
last.night boy snore-D will.speak

‘The boy who was snoring last night will speak.’

One of the most significant questions to ask in the P & P framework is what kind of parameter(s) the UG has for making HIRCs available. The research in the P & P framework has uncovered various parameters such as The Polysynthesis Parameter, The Serial Verb Parameter, The Pro-Drop Parameter, and The Head Parameter. The most famous generalization proposed for HIRCs is *Harada-Kuroda-Cole's Generalization*, which finds a correlation between word order, a null pronoun, and HIRCs.

(5) Harada-Kuroda-Cole's Generalization: (Kuroda 1992, Cole 1987; cf. Kayne 1994)
HIRCs are restricted to languages with (i) SOV word order and (ii) a null pronoun.

Another generalization has been proposed by Watanabe (1992) that HIRCs correlate with *Wh-in-situ*.

(6) *Wh-in-situ* Generalization: (Watanabe 1992)
HIRCs are restricted to *Wh-in-situ* languages.

As I will show, however, these generalizations are challenged by Gur languages and hence it becomes necessary to seek an alternative generalization and parameter.

²The determiner and the nominalizer/complementizer may well have connection at some level. Then, the question is whether there is any parametric differences between the two types. HIRCs in Japanese, which belong to the nominalization-type, exhibit some peculiar properties (e.g. split pivots, the absence of infiniteness restriction, adjunct properties in some cases etc.), which have not been reported for the D-type HIRCs in the literature. I will leave an investigation of these issues for future research.

- (11) Sisaala-Pasaale: (McGill et al. 1999, 135)
- a. kuwori ha bi na [**biŋ hu** u áá kyε].
 chief still Neg see faces D he Imp want
 ‘The chief still didn’t see the faces he was wanting.’
- b. *kuwori ha bi na [u áá kyε **biŋ hu**].
 chief still Neg see he Imp want faces D
- (12) Kɔnni: (Cahill 1999)
- a. naa yI [**vɔri-ka** fi yala].
 pick give person-Cl.D you want
 ‘Give it to the person you want.’
- b. *naa yI [fi yala **vɔri-ka**].
 pick give you want person-Cl.D
- (13) Dàgáárè: (Bodomo and Hiraiwa 2004)
- a. ñ dà sɔré lá [**à gánè** (ná) Dàkóràà náng ngmàà dèyâng].
 1Sg. Pst read F D book Dem Dakoraa Rel write last-year
 ‘I read the book that Dakoraa wrote last year.’
- b. *ñ dà sɔré lá [Dàkóràà náng ngmàà **à gánè** (ná) dèyâng].
 1Sg. Pst read F Dakoraa Rel write D book Dem last-year
- (14) Gurenɛ: (Atintono 2002, 2003, S. Atintono p.c.)
- a. [**bu-a-la** ti Atia da’ da’a zaam la] bɔi mɛ.
 goat-D C Atia buy market yesterday D lose Part.
 ‘The goat that Atia bought at the market yesterday got lost.’
- b. *[Atia n da’ **bu-a-la** da’a zaam la] bɔi mɛ.
 Atia C buy goat-D market yesterday D lose Part.

3.2 Some Generalizations

Gur languages provide new insights into the typology of HIRCs. First, all of these Gur languages show SVO word order. Furthermore, none of them allow pro-drop. Second, Gurenɛ and Kɔnni are optional *Wh*-in-situ languages but they still disallow HIRCs.⁷ Thus they call for reconsideration of the previous generalizations and the proposed parameters for HIRCs.

However, a close scrutiny brings some intriguing correlations into light. First of all, all of these languages have head-final DP structures (except Dàgáárè). But if we look at the schematic structures of HIRCs, the following correlations emerge. To see this, let us examine the schematic structures of relative clauses of these Gur languages.

The Gur languages that allow HIRCs have the schematic syntactic structure (15).

⁷Tellier (1989) is the first to observe that Mooré allows HIRCs even though the language has SVO word order and disallows pro-drop.

- (15) [[... SUBJ V OBJ-Rel ...] **D**]

In contrast, the Gur languages that disallow in-situ HIRC have one of the following syntactic structures in (17). The relativized head nouns are uniformly located at the left edge.

- (16) a. [OBJ **D** [... SUBJ V e ...]] (Sisaala-Pasaale)
 b. [OBJ-D [... SUBJ V e ...]] (Kɔnni)
 c. [OBJ **D** [... SUBJ V e ...] **D**] (Gurenɛ)
 d. [**D** OBJ [... SUBJ V e ...]] (Dàgáárè)
 e. [**D** [... SUBJ V OBJ ...]] (Unattested cross-linguistically)

As we notice, the Gur languages with in-situ HIRC exhibit the D-type HIRC and the determiner uniformly appears at the right edge. In contrast, in those Gur languages without in-situ HIRC, the determiner D appears adjacent to the left-dislocated head noun (Gurenɛ, in addition, doubles the determiner at the right edge). Furthermore, as far as I know from the limited number of Gur languages, there is no HIRC attested in the form (16e) within Gur and in fact, cross-linguistically.

- (17) a. Those Gur languages with in-situ HIRC show a D element at the right edge of the RC.
 b. Those Gur languages without in-situ HIRC show a D element adjacent to the head noun at the left edge.

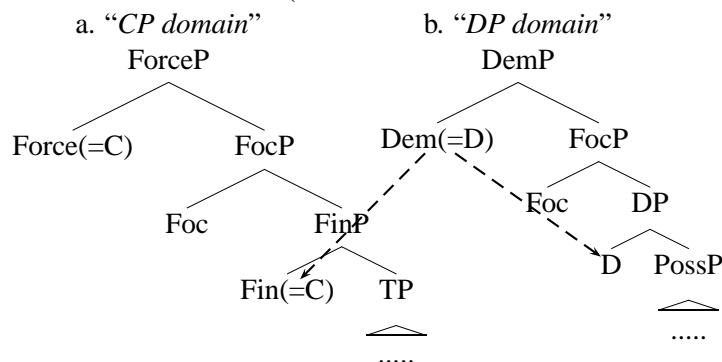
Building on the generalization (17), in the next section, I will propose a parameter governing the (un)availability of HIRC.

4. HIRC and The Fine Structure of the CP/DP Parallelism

4.1 The Fine Structure of the CP/DP Parallelism

Before proceeding, let us first introduce a few assumptions about the clausal architecture and the mechanism of the CP/DP Parallelism. Following Hiraiwa (2005c), I will assume that CPs and DPs are structurally parallel and allow interweaving. Thus, the D(em) head can select not only D but also Fin.

- (18) CP/DP PARALLELISM (cf. Rizzi 1997 for an articulated CP domain)



I assume that selection is a head-to-head relation (Collins 2001) and can be a multiple relation: SELECT (P, G₁...G_n) (cf. Hiraiwa 2005c).

4.2 The Syntax of DP

The key to understanding the parameter underlying the variation among the Gur languages lies in the syntax of DP. Significantly, the structure of DP and the structure of the relativized head are morphologically quite similar.

As shown below, DPs show head-final word order –the head noun is followed by a determiner (D), demonstrative (Dem), and/or a reinforcer (D(R)).

(19) The demonstrative *lá* and DP in Bùlì

- | | | |
|---|---|--------------------|
| a. mángo- kú
mango-D.Sg.
'the mango' | b. mángo- kú-lá
mango-D.Sg.-Dem
'that mango' | c. N-Adj-Cl.-D-Dem |
|---|---|--------------------|

(20) The reinforcer *yó* and DP in Kabiyé

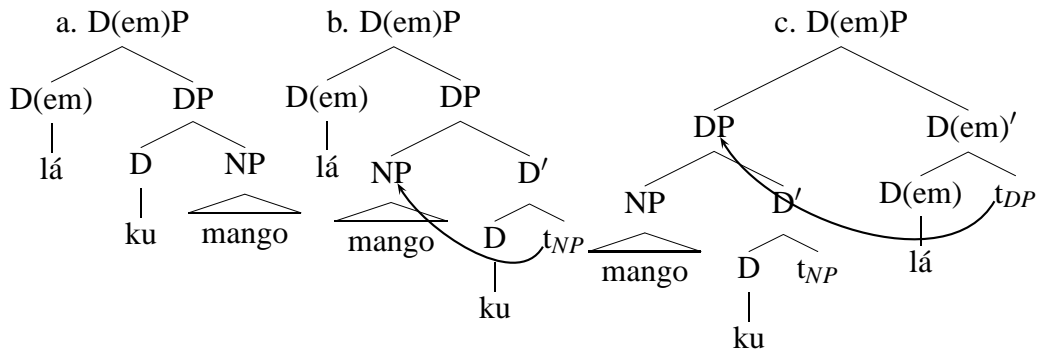
- | | | |
|--|--|-----------------------|
| a. há ń-gá
dog.Sg. N-Cl.
'that dog' | b. há ń-gá-yó
dog.Sg. N-Cl.-D(R)
'that dog there' | c. N-Adj-Cl.-Dem-D(R) |
|--|--|-----------------------|

The fact that the clausal word order is head-initial (i.e. SVO) and that the nominal word order is head-final leads us to think that the latter order is derived by movement. I propose that this is due to the EPP on D.

(21) D in these Gur languages (except Dàgáàrè) has an EPP_[DP] feature and attracts DP to its specifier to avoid being stranded.

The derivations are illustrated below. D's EPP first attracts NP and then Dem's EPP triggers heavy pied-piping of the whole DP to its specifier. This results in the surface head-final order.

(22) The Head-Final Order of Gur DP



Now, it should be noted that morphological similarity between the DPs and the HIRCs is non-trivial. Let us compare the HIRCs and the DP in (19) and (20). The relativized head noun in Bùlì consists of the same class marker (Cl.) followed by the morpheme

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-y. The relativized head noun in Kabiyé has the same complex *n+class marker* (with a tonal difference). But notice that the external determiners at the right edge *-lá* and *yó*. They are separated in relative clauses, but still they also appear in DPs, as we have just seen above. Thus, the relative clauses shares much with the DPs.

(23) The relativized head noun in Bùlì

[... [mángò-**kū-y**] ... **lá**]
mango-Cl-Y

‘the mango which...’

(24) The relativized head noun in Kabiyé

[... [hâ **ñ-gá**] ... **yó**]
dog.Sg. N-Cl ...

‘the dog which...’

Given the parallel, I propose that the external determiner selects the relativized internal head DP at a long-distance, while it selects the relative clause CP locally at the same time.

4.3 The EPP Parameter on D

Given the parallelism between DP and CP, I propose that the EPP feature comes in two varieties in Gur.

(25) The EPP Parameter on D:

D in the languages with HIRCs has either an $EPP_{[CP]}$ feature or an $EPP_{[DP]}$ feature, whereas D in the languages without HIRCs has only an $EPP_{[DP]}$ feature.

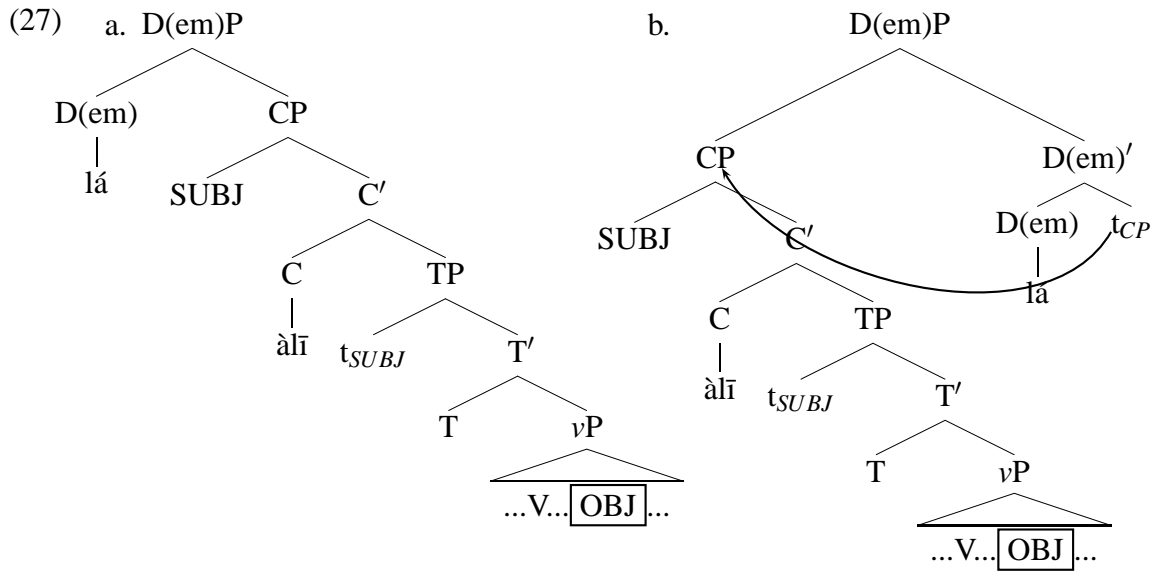
The proposed parameter explains the HIRCs in Gur in the following way. D in the languages with HIRCs has either an $EPP_{[CP]}$ feature or an $EPP_{[DP]}$ feature and hence attracts CP to its specifier and as a result, the relativized head noun remains in-situ. As a result, D selects the relativized DP at a distance and CP locally. The derivation is illustrated in (27). It should be noted that the heavy pied-piping is completely parallel to that in the derivation of DP above.⁸

(26) Bùlì:

Àtìm dè [Àm̀àk àlī dā **mángò-kū:-y** dīem **lá**].
Àtìm ate Àm̀àk C bought mango-Rel yesterday Dem

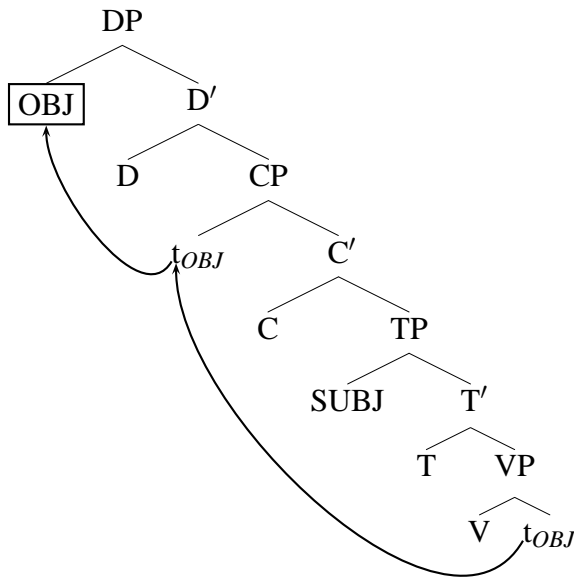
‘Àtìm ate the mango that Àm̀àk bought yesterday.’

⁸In Bùlì and some other Gur languages, the subject moves to the position in front of the complementizer in certain \bar{A} -constructions. The complementizer also changes its morphological forms (*àlī* vs. *àtì*) depending on what is extracted. See Hiraiwa (2005a,c) for a theory of C and EPP and its relation to the morphological changes.



On the other hand, suppose that D has an EPP_{DP} feature instead of EPP_{CP} by the parameter (i.e. Dàgáárè, Gurene, and others). Then, EPP_{DP} must attract the closest DP. Thus, in relative clauses, the relativized head noun is moved to [Spec, DP], as represented in the derivation below.

(28) *HIRCs without D_{EPP}



5. Parametric Gur Syntax

5.1 Prediction One: Culy's Generalization and Beyond

The proposed parameter on D's EPP makes several theoretical predictions. First, it is expected that in the Gur languages with HIRCs, there should also be other constructions in which D takes CP.

(29) **Prediction One:**

D's $EPP_{[CP]}$ feature should be active in constructions other than RCs.

Culy (1990) makes a highly important generalization that languages with HIRCs have a particular type of nominalized constructions.

(30) Culy's Generalization (Culy 1990, 203)

A language will have HIRCs only if it also has other similar nominalized sentences with the independency properties.

Following Collins (1994), let us term such nominalized sentences *Factive* constructions. Factive constructions are complement clauses which function as arguments. In (31a), the factive clause serves as the direct object and in (31b), it is the subject. What is noteworthy here is the fact that these factive clauses are the same as the HIRCs (4a) and (4b), except that there is no relativized head noun.

(31) a. Navajo: (Platero 1974)

hastiin [h'éechaa'í nishxashi-**ígíí**] yi-íinii'.
man dog 2.Perf.3.bite-D 3.Perf.3.hear

'The man heard about the fact that the dog bit you.'

b. Cuzco Quechua: (Lefebvre and Muysken 1988)

[Xwan-pa hamu-**sqa**-n]-qa manchari-chi-wa-n-mi.
Juan-Gen come-Nml-3-Top afraid-Caus-1Obj.-3-Af

'That John has come frightens me.'

The same RCs (without any relativized head nouns) function as factive constructions in at least three of the four Gur languages with HIRC ($\sqrt{\text{Bùlì}}$, $\sqrt{\text{Kabiyé}}$, $\sqrt{\text{Mooré}}$, $\ddagger\text{Dagbani}$).⁹

Furthermore, determiners in Bùlì can also take root clauses, as in (32a) and certain adjunct clauses are also headed by the same determiner as in (32b) ($\sqrt{\text{Bùlì}}$, $\sqrt{\text{Kabiyé}}$, $\ddagger\text{Mooré}$, $\ddagger\text{Dagabani}$).

(32) Bùlì: (Hiraiwa 2005c)

a. [[Àtìm nàyi Àmòak] **lǎ**].

Àtìm hit Àmòak Dem

'Àtìm hit Àmòak (as I said).'

b. Àtìm nàyi Ayuo, [[wa àlī dè wa mángò-kú dīem] **lǎ**] piŋ.

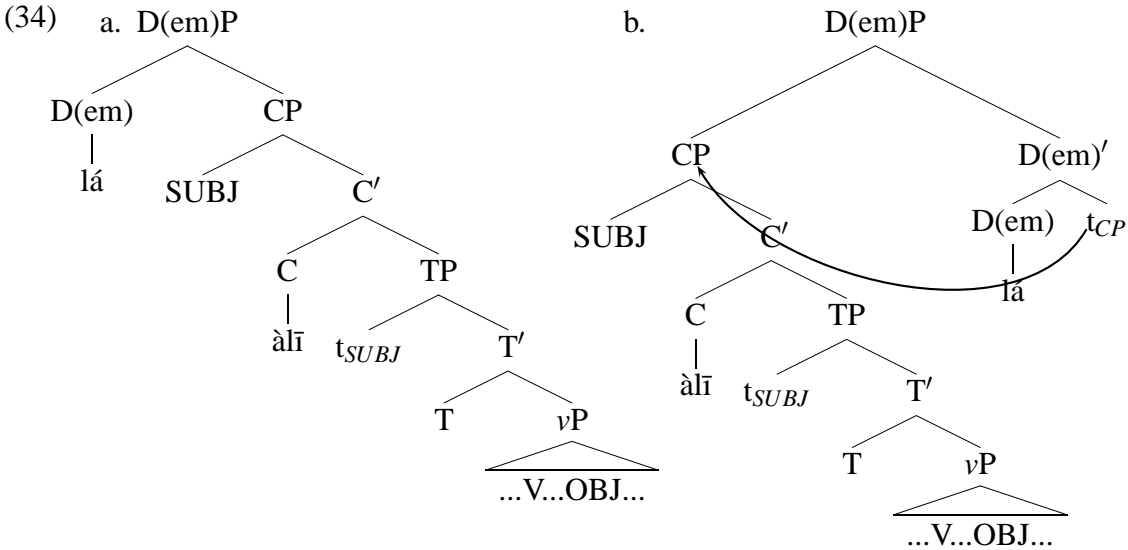
Àtìm hit Ayuo 3Sg. C ate 3Sg.Poss. mango-D yesterday Dem reason

'Àtìm hit Ayuo because he ate his mango.'

Note that D's EPP_{CP} explains the existence of factive constructions (and hence Culy's generalization), as shown in (34).

⁹In what follows, $\sqrt{}$ means "attested" and \ddagger means "no data".

- (33) [Àtìm àlī dè mángò-kú dīem **lá**] tɛ̀ Àm̀ðak pò pìèntì.
 Àtìm C ate mango-D yesterday Dem gave Àm̀ðak's stomach whiten
 'That Àtìm ate the mango yesterday pleased Àm̀ðak.'



5.2 Prediction Two: *Indefinite HIRC

As the proposed parameter indicates, the availability of HIRC crucially rests on the existence of D in the structure. Thus, the second prediction is that in in-situ HIRC languages, if an overt D is not projected, HIRC should be prohibited. This is because there is no $EPP_{[CP]}$ available due to the absence of D.

The prediction is borne out by three of the four Gur languages with HIRC ($\sqrt{\text{Bùlì}}$, $\sqrt{\text{Kabiyé}}$, $\sqrt{\text{Mooré}}$, $\ddagger\text{Dagabani}$). As shown below, when the entire relative clause is interpreted as indefinite, the overt D must be missing. In such cases, in-situ HIRC are prohibited and only the left-headed relative clauses are allowed.

- (35) Bùlì: (Hiraiwa 2005c)
- a. *Àm̀ðak pà [Àtìm àlī s^wà **ná:b**].
 Àm̀ðak saw Àtìm C own cow.Indef.
 'Àm̀ðak saw a cow which Àtìm owns.'
- b. Àm̀ðak pà [**ná:b** àtì Àtìm s^wà].
 Àm̀ðak saw cow.Indef. C Àtìm own

- (36) Mooré: (Peterson 1974, 77)
- a. *[fo sē mi **daw**] kula me.
 2Sg. C know man went-home Part.
 'A man who you know went-home.'
- b. [**daw** fo sē mi] kula me.
 man 2Sg. C know went-home Part.

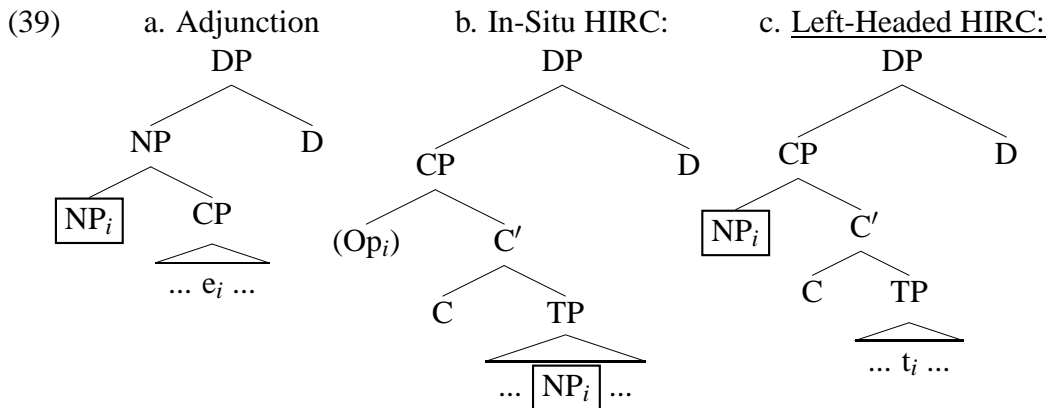
- (37) Kabiyé: (Hiraiwa 2005b)
- a. *[màà sòm hâ] kò-gôŋ.
 1Sg.Neg. know dog.Indef. 3Sg.-come.Prog.
 ‘A dog that I don’t know is coming (toward me).’
- b. *[hâ màà sòm] kò-gôŋ.
 dog.Indef. 1Sg.Neg. know 3Sg.-come.Prog.

5.3 Prediction Three: Left-Headed HIRCs

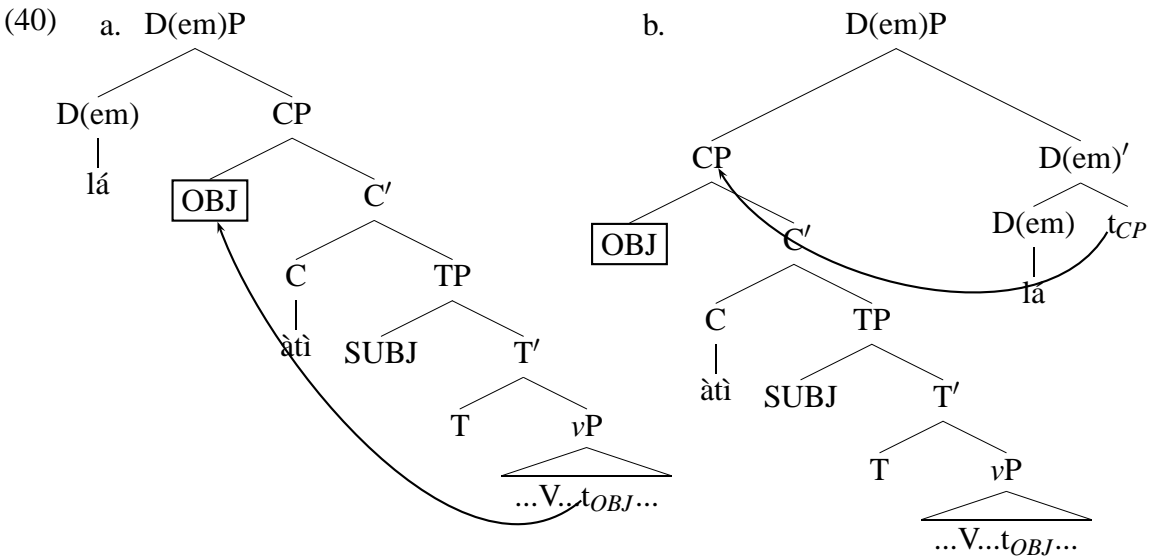
The third prediction is that in in-situ HIRC languages, the relative clauses in which the head noun appears at the left edge (38) should be still internally-headed even though it may initially appear that the head noun is outside the RC. (see Basilico 1996). Let us examine the relative clause where the head noun appears at the left edge.

- (38) Bùlì:
- Àtìm dè [mángò-kū:-y àtì Àmòak dà dīem lá].
 Àtìm ate mango-Rel C Àmòak bought yesterday Dem
 ‘Àtìm ate the mango that Àmòak bought yesterday.’

Theoretically, there are at least three plausible analyses of the surface structure of the relative clause (38).



The proposed parameter makes possible the derivation (39c). As shown in the derivation in Bùlì (40), the relativized head noun undergoes clause-internal movement to [Spec, CP] and the entire CP is moved to [Spec, DP] due to the EPP_{CP} of D.



Adverb placement straightforwardly confirms this. An embedded adverb can precede the left-dislocated head noun in at least two of them: $\sqrt{\text{Bùlì}}$, $\sqrt{\text{Kabiyé}}$, $\ddagger\text{Mooré}$, $\ddagger\text{Dagabani}$.

(41) Bùlì: Adverb Placement

Àtìm dè [(**dīem**) mángò-tí: (**dīem**) àti Àmòak dà (**dīem**) lá].
 Àtìm ate yesterday mango-Rel yesterday C Àmòak bought yesterday Dem

‘Àtìm ate the mango that Àmòak bought yesterday. (i.e. Àmòak bought yesterday)’

Another evidence comes from possessor relativization. A possessed noun can be pied-piped in all the four Gur languages with HIRCS.

(42) Bùlì: Possessor Relativization

- a. Àtìm dà [Àmòak àlī ηmìrìsì **gbán-kā:y nà:η-ká** lá].
 Àtìm bought Àmòak C designed book-Rel cover-D Dem
 ‘Àtìm bought the book whose cover Àmòak designed.’
- b. Àtìm dà [**gbán-kā:y** àti Àmòak ηmìrìsì *(kà) **nà:η-ká** lá].
 Àtìm bought book-Rel C Àmòak designed 3Sg. cover-D Dem
- c. Àtìm dà [**gbán-kā:y nà:η-kă** àti Àmòak ηmìrìsì lă].
 Àtìm bought book-Rel cover-D C Àmòak designed. Dem
- d. Àtìm dà **gbán-kā nà:η-kă**.
 Àtìm bought book-D cover-D
 ‘Àtìm bought the book’s cover.’ *‘Àtìm bought the book.’

In (42a), the possessor NP is relativized and remains in-situ. In (42b), the possessor NP is relativized and undergoes movement. In (42c), on the other hand, the possessum NP is pied-piped with the possessor. The absence of the resumptive pronoun, in contrast with (42b), confirms that the entire complex DP is moved. The grammaticality of (42c) would be

unexpected if it has the structure (39a) (note that (42d) can only mean that Àtìm bought the book's cover). Put differently, the fact that (42c) is licit indicates that it is still internally-headed even though it looks as if the head noun were outside of the relative clause.

6. Concluding Remarks

In this article, I have shown that HIRCs in Gur correlate with D's EPP and proposed a parameter in D's EPP. In the Gur languages where D has an EPP_{CP} feature, in-situ HIRCs are licit. On the other hand, in the Gur languages whose D lacks such a feature, in-situ HIRCs are not attested. I have argued that the proposed parameter not only correctly explains the distribution of HIRCs, but also some correlations within and outside relative clauses.

There is an interesting fact about the D-type HIRCs outside Gur. In the languages of the world, as far as I know, D-type HIRCs uniformly exhibit the determiner element at the right periphery and never at the left periphery. Thus (43b) is not attested so far. Although a full discussion is far beyond the limitation of this article, I suggest that it is due to locality and islands. Namely, in (43b), D is too non-local to the internal head H, crossing a CP phase boundary (see Chomsky 2001). One possibility is that the movement of CP to [Spec, DP] makes the relation between D and H local. As shown in (43c), the fact that long-distance in-situ HIRCs are not licit suggests that such heavy-pied-piping cannot make D and H local enough if H is embedded under another CP phase. More cross-linguistic data will help to examine what patterns the UG allows and what others it disallows.

(43) Possible and Impossible HIRCs

- a. $V \dots [DP \underline{[CP \ C \ [TP \ \dots H \dots]}]_i [D' \ D \ t_i]]$ (Attested HIRCs)
- b. $V \dots [DP \ D \underline{[CP \ C \ [TP \ \dots H \dots]}]]$ (Unattested HIRCs: cf. Kayne 1994)
- c. $*V \dots [DP \underline{[CP \ C \ [TP \ \dots [CP \ C \ [TP \ \dots H \dots]]]}]_i [D' \ D \ t_i]]$ (Unattested HIRCs)

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