

Relativization in Dagaare

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ABSTRACT

This paper examines in detail the syntax and semantics of relativization in Dagaare, a Mabia (Oti-Volta) language of the Gur branch in the Niger-Congo family. The main aim of our investigation is to explicate a cluster of features of relativization in Dagaare. In particular, we will show that Dagaare relative clauses, despite surface identity, comes in two varieties, *Head-External Relative Clause* (HERC) and *Left-Headed Head-Internal Relative Clause* (Left-Headed HIRC). The latter type of relativization has rarely been noticed cross-linguistically in the previous literature and therefore is of considerable significance for general linguistics as well as theoretical linguistics.

1. INTRODUCTION

Dagaare is a Mabia (Oti-Volta) language of the Gur branch of the Niger-Congo family spoken in the Upper-West region of Ghana¹. The language is spoken by approximately 2 million people.

The syntax and semantics of Dagaare relativization has been little described except for brief discussions in Bodomo (1997, 2000). The main aim of this investigation is, therefore, to sketch the workings of relativization in Dagaare .albeit far from thorough. In so doing, it will be revealed that Dagaare relativization has much to contribute to general linguistics and theoretical linguistics. In particular, this paper focuses on illuminating the syntactic structure of Dagaare relative clauses and argues that Dagaare has *Left-Headed Head-Internal Relative Clause*.

The organization of this paper is as follows: Section 2 describes the features of relativization in Dagaare, with occasional comparison with some other closely-related Gur languages. Section 3 investigates the syntactic structures of Dagaare relativization and argues that there are two types of relativization strategies in Dagaare, despite the surface identity, the ordinary Head-External Relative Clause (HERC) and what is called Left-Headed Head-Internal Relative Clause (Left-Headed HIRC) in Hiraiwa (2004).

2 ELEMENTS OF DAGAARE RELATIVIZATION

2.1 Syntactic Structure

Dagaare is an SVO language with no null pronouns and overt agreement. Bodomo (1997, 2000) presents a detailed overview of aspects of the grammar of Dagaare. In Dagaare relativization, the head noun of the relative - indicated in boldface - comes in the initial (i.e. left-most) position of the relative clause. The relativized head noun takes the definite determiner *a-* and the distal demonstrative determiner *na*². In addition, a particle *nang* (glossed here as REL) has to come before the verb. In Dagaare relativization, there is always a gap with a systematic exception for relativization of possessors or objects of postpositions, where a resumptive possessive pronoun is required as we will see later. Otherwise, if a resumptive pronoun is used in the examples below, they are ungrammatical³.

(1) a. Subject Relativization (Definite)

*̀̀n d̀̀a s̀̀óré lá à g̀̀ánè n̄́ e/*ò n̄́ng b̀̀ing k̄̀yê*
 1Sg.PST read F D book DEM \emptyset /3Sg. REL put here
 'I read the book that is lying here.'

b. Object Relativization (Definite)

*̀̀n d̀̀a s̀̀óré lá à g̀̀ánè n̄́ D̀̀akóráá n̄́ng ngm̀̀àà e/*ò d̀̀èyàng*
 1Sg. PST read F D book DEM Dakoraa REL write \emptyset /3Sg. last-year
 'I read the book that Dakoraa wrote last year.'

¹ We are grateful to Chris Collins, Michael Kenstowicz, and an anonymous reviewer for comments and questions. The authors are listed in alphabetical order. The list of abbreviations used in this paper are as follows: C = Complementizer; D = Definite Determiner; DEM = Demonstrative Determiner; Emph. = Emphatic; F = Focus; ID = Idefinite Determiner; NEG = Negation; PL = Plural; PST = Past; REL = Relativizer; SG = Singular.

² The deictic distal meaning seems to be absent in relativization, as in many other Gur /non-Gur languages.

³ *La* seems to function as focus/assertion marker in Dagaare. See Dakubu (1992) and Bodomo (1997, 2000).

Crucially, Dagaare does not allow Head-Internal Relative Clauses (HIRC) unlike some other Gur languages (Buli (Hiraiwa 2003, 2004), Mooré (Peterson 1974, Tellier 1989), Dagbani (Wilson 1963), where the relativized head noun can remain in the original position. Compare (1b) with (2).

(2) a. *Object Head-Internal Relativization

**̀n` d`a` s`o`r`e` l`a` [`a` D`a`k`o`r`a`a` n`a`ng` n`g`m`a`a` g`a`n`e` (k`a`m`g`a`) d`e`y`a`ng`]*
 1Sg. PST read F D Dakoraa REL write book ID last-year
 'I read the book that Dakoraa wrote last year.'

b. *Object Head-Internal Relativization

**̀n` d`a` s`o`r`e` l`a` [`a` D`a`k`o`r`a`a` n`a`ng` n`g`m`a`a` g`a`n`e` (n`a`) d`e`y`a`ng`]*
 1Sg. PST read F D Dakoraa REL write book DEM last-year
 'I read the book that Dakoraa wrote last year.'

When the relativized head is indefinite, both the definite determiner and the distal demonstrative determiner must be absent, while the indefinite determiner *kang(a)* can be used instead of the definite determiner⁴. Compare the pair below.

(3) a. Object Relativization (Definite)

̀n` d`a` s`o`r`e` l`a` `a` g`a`n`e` n`a` D`a`k`o`r`a`a` n`a`ng` n`g`m`a`a` d`e`y`a`ng`]
 1Sg. PST read F D book DEM Dakoraa REL write last-year
 'I read the book that Dakoraa wrote last year.'

b. Object Relativization (Indefinite)

̀n` d`a` s`o`r`e` l`a` g`a`n`e` (k`a`ng`(`a`)) D`a`k`o`r`a`a` n`a`ng` n`g`m`a`a` d`e`y`a`ng`]
 1Sg. PST read F book (ID) Dakoraa REL write last-year
 'I read a book that Dakoraa wrote last year.'

The element *na* in Dagaare usually functions as a demonstrative determiner in Dagaare.

(4) Demonstrative *ná*

̀n` d`a` l`a` `a` g`a`n`e` n`a`.
 1Sg. bought F D book DEM
 'I bought that book.'

⁴ The (specific-) indefinite determiner is optional in Dagaare; a bare noun usually indicates an indefinite referent. The definite determiner/ demonstrative and the indefinite determiner cannot be used at the same time to indicate definiteness/specificity, unlike Moore. As shown below, it cannot have the intended meaning; it only has an interpretation where the indefinite determiner functions as a numeral 'one'.

(i) *̀a` g`a`n`e` k`a`ng`a` l`a` b`i`ng` kyě.*
 D book ID F put here
 '*the book/*a certain book one of the books is here.'

While it appears, at first blush, that the whole discontinuous *na...nang* complex functions as a relativizer in Dagaare, we will still gloss *na* as DEM(onstrative) and *nang* as REL(ativizer), respectively. There are several reasons for this decision. First, demonstratives/definite determiners have a special function in relativization in some other Gur languages (e.g. Buli, Mooré, Dagbani, Gurene; Hiraiwa 2003, 2004, Wilson 1963, Peterson 1974, Atintono 2002 for examples). Second, it is more useful to use a transparent gloss given that the scope of this paper is descriptive. Third, whereas the distal demonstrative is optional in definite relativization, the REL particle *nang* is obligatory, as shown in the following doublet. Hence we gloss *na* and *nang* separately.

(5) a. Subject Relativization (Definite)

*̀̀n d̀̀a s̀̀r̀̀e l̀̀a à g̀̀aǹ̀e (ǹ̀a) *(ǹ̀ang) b̀̀ing kỳ̀e*
 1Sg. PST read F D book DEM REL put here
 ‘I read the book that is lying here.’

b. Object Relativization (Definite)

̀̀n d̀̀a s̀̀r̀̀e l̀̀a à g̀̀aǹ̀e (ǹ̀a) D̀̀ak̀̀oraá(ǹ̀ang) ng̀̀m̀̀à d̀̀èỳ̀ang*
 1Sg. PST read F D book DEM Dakoraa REL write last-year
 ‘I read the book that Dakoraa wrote last year.’

In Dagaare, there seems to be no grammatical relational restriction on relativizable elements (see Keenan and Comrie 1977). It is possible to relativize a possessor noun phrase in Dagaare. It is most natural to leave the possessee noun phrase in-situ with a resumptive possessive pronoun.

(6) Possessor Relativization

̀̀n d̀̀a nỳ̀e l̀̀a à p̀̀og̀̀o ǹ̀a ̀̀n ǹ̀ang s̀̀r̀̀e ò g̀̀aǹ̀e d̀̀èỳ̀ang
 1Sg. PST saw F D woman DEM 1Sg. REL read 3Sg. book last-year
 ‘I saw the woman whose book I read last year.’

Furthermore, it is also licit to relativize the object of locative, the object of postposition, and the object of comparison in Dagaare.

(7) a. Locative Relativization

̀̀n d̀̀a d̀̀a l̀̀a à p̀̀e ǹ̀a D̀̀ak̀̀oraá ǹ̀ang d̀̀e b̀̀orb̀̀e èng e
 1Sg. buy.PERF F D basket DEM Dakoraa REL take pineapple put-in
 ‘I bought the basket into which Dakoraa put a pineapple.’

b. PP Relativization

̀̀a p̀̀e ǹ̀a D̀̀ak̀̀oraá ǹ̀ang g̀̀ang ò z̀̀u é l̀̀a kp̀̀ong
 D root DEM Dakoraa REL lie.PERF 3Sg. on be F big
 ‘The roof top on which Dakoraa slept is big.’

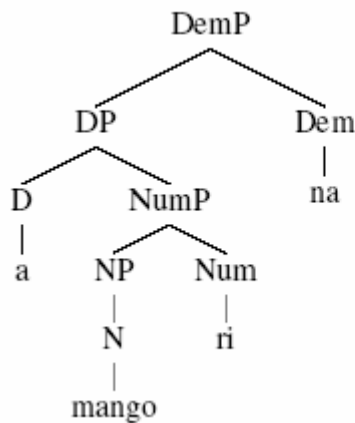
c. Comparative Relativization

̀̀a d̀̀ó ǹ̀a D̀̀ak̀̀or̀̀à ǹ̀ang è ẁ̀og̀̀i g̀̀ang̀̀e e z̀̀à kp̀̀ié l̀̀a
 D man DEM Dakoraa REL be tall pass yesterday die F
 ‘The man who Dakoraa is taller than died yesterday.’

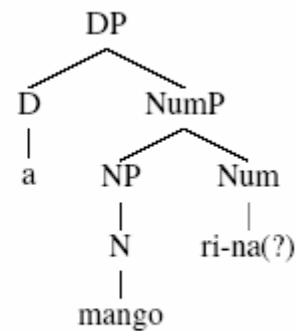
The fact that on the one hand the definite determiner is freely omitted in relative clauses but not in nonrelative contexts and that the omission in relative clauses do not show any significant semantic difference - in particular, distal function - leads us to think that the demonstrative determiner in relative clauses are syntactically and semantically bleached and grammaticalized into definite determiners. We will, tentatively, assume that the demonstrative determiner *na* is reanalyzed as a definite suffix when the DP functions as a relativized head in Dagaare, leaving for future research of the investigation of the nature of the function of the demonstrative determiner in relative clauses.

- (11) a. *à mǒngó-rí ná*
 D mango-PL DEM
 ‘Those mangoes’
- b. *mǒngó-rí ná lá kà Dàkóráá ã zààmêng*
 mango-PL.DEM F C Dakoraa ate yesterday
 ‘It’s those mangoes that Dakoraa ate yesterday’

(12) a. DP-Structure



b. Relativized Head



2.2 Long-Distance Dependency

Dagaare allows long-distance relativization. In this case a resumptive pronoun is optionally allowed for objects and obligatorily required for subjects. The relativizer *nang* must be used in the highest clause of the embedded clauses and cannot be used in the intermediate clauses.

(13) Long-Distance Relativization (Object)

- a. *Ayuo dà lá à gánè ná ñ náng b̀̀ng kà Dàkòráá *(náng) sóré (o) lá dèyàng*
 Ayuo bought F D book DEM 1Sg. REL know C Dakoraa (REL) read 3Sg. F .last -year
 ‘Ayuo bought the book that I know that Dakoraa read last year.’
- b. *Ayuo dà lá à gánè ná ñ *(náng) b̀̀ng kà Dàkòráá sóré (ò) lá dèyàng*
 Ayuo bought F D book DEM 1Sg. know C Dakoraa read 3 Sg. F last-year
 ‘Ayuo bought the book that I know that Dakoraa read last year.’

(14) Long-Distance Relativization (Subject)

- a. **Ayuo dà nyé lá à dǒǒ ná ò náng bóng kà (ò) (*náng) zàà ngmè lá Dàkòráá*
 Ayuo PST saw F D man DEM 1Sg. REL know C 3Sg. REL PST hit F Dakoraa
 ‘Ayuo saw the man who I know hit Dakoraa.’
- b. **Ayuo dà nyé lá à dǒǒ ná ò *(náng) bóng kà *(ò) náng zàà ngmè lá Dàkòráá*
 Ayuo PST saw F D man DEM 1Sg. REL know C 3Sg. REL PST hit F Dakoraa
 ‘Ayuo saw the man who I know hit Dakoraa.’

2.3 Island/Subjacency

There is a significant question whether the relationship between the relativized head and the gap (or its resumptive pronoun) is mediated by movement or control/predication. The fact that relativization in Dagaare is subject to islands/subjacency suggests that the former is right. The following pair shows that relativization out of a complex NP or an adjunct clause is illicit in Dagaare.

(15) a. Complex NP Constraint

**ò dà sóré lá gánè nǎ ò náng nyé lá à pǒgǒ ná náng ngmáá (ó)*
 1Sg. PST read F book DEM I REL saw F D woman DEM REL write (3Sg.)
 ‘I read the book that I saw the woman who wrote.’

b. Adjunct Island

**ò dà sóré lá à gánè nǎ, ò náng nyé lá à pǒgǒ ò náng ngmàà (ó)*
 1Sg. PST read F D book DEM I REL saw F D woman 3Sg. REL write (3Sg.)
 ‘I read the book that I saw the woman when she was writing it.’

No extraction out of the relative clause is allowed irrespective of whether the extraction is overt or covert. The same is true of other types of A-dependency such as Wh-Question and Cleft/Focus.

(16) Island Effects for Wh-Movement/Wh-in-situ

- a. **bòng lá ká fǒ dà nyé à pǒgǒ náng ngmàà dèyâng*
 what F C 2Sg. PST see D woman REL wrote last-year
 ‘What did you see the woman that wrote last year?’
- b. **fǒ dà nyé à pǒgǒ náng ngmáá bòng lá dèyâng*
 2Sg. PST see D woman REL wrote what F last-year
 ‘What did you see the woman that wrote last year?’

2.4 Tense and Particles within Relative Clauses

The particle *nang* cannot be omitted in Dagaare relativization and therefore is an indispensable syntactic ingredient. This section investigates the nature of the particle *nang*.

2.4.1 *Nang* and Preverbal Particles

Dagaare has a rich inventory of preverbal Tense-Aspect-Mood particles (see Bodomo 1997). The preverbal particle *nang* has other uses in the grammar system of Dagaare. Outside relative clauses, one of its clearest uses is as a preverbal particle that means ‘still’. Note that the tone is low in this use.

(17) The Preverbal Particle *nang*

à dɔ́ɔ nà̀ng àrè̀è lá
 D man still stand.PERF F
 ‘The man is still standing.’

In relativization, on the other hand, it is marked with high tone.

(18) The Relativizing Preverbal Particle *nang*

̀̀n dà sɔ́rɛ lá à gánè nǎ̀ Dàkóráá nánɡ ngmà̀à dèyầng
 1Sg. RST read F D book DEM Dakoraa REL write last-year
 ‘I read the book that Dakoraa wrote last year.’

The high-tone *nang* is also used in temporal adverbial clauses⁵.

(19) The Temporal Preverbal Particle *nang*

à dɔ́ɔ nánɡ wà tá, ̀̀n dé lá gánè kò ó
 D man when come read.PERF 1Sg. take F book give 3Sg.
 ‘When the man arrived I gave him a book.’

The relativizing particle *nánɡ* is compatible with the preverbal particle *nà̀ng*. Furthermore, it can also co-occur with other preverbal particles such as the past (PST) particle *da*.

(20) Preverbal Particle *nang* and Relativizer *nang*

̀̀n dà nyé lá a gánè ná̀ Dàkòráá nánɡ nà̀ng ngmà̀àrá.
 1Sg. PST saw F D book DEM Dakoraa REL still write.IMP.
 ‘I saw the book that Dakoraa was still writing.’

(21) a. Object Relativization (Past)

̀̀n dà sɔ́rɛ lá à gánè ná̀ Dàkóráá (*dà) nánɡ (dà) ngmà̀à dèyầng
 1Sg. PST read F D book DEM Dakoraa (PST) REL (PST) write last-year
 ‘I read the book that Dakoraa wrote last year.’

b. Object Relativization (Past)

̀̀n dà sɔ́rɛ lá à gánè ná̀ Dàkóráá (*zà̀) nánɡ (zà̀) ngmà̀à
 1Sg. PST read F D book DEM Dakoraa (PST) REL (PST) write
 ‘I read the book that Dakoraa wrote yesterday.’

⁵ The use of relativizing particle extends to temporal subordinate clauses in other Gur languages (e.g. Buli, Moore, Gurene/Frafra) as well.

One point that is worthy of attention is the ordering restriction among those particles. Whereas the relativizing particle *náng* must precede the tense and all the other particles, the preverbal particle *nàng* must follow the tense particle.

- (22) a. ò dà *nàng* bá wà séré
 2Sg. PST still NEG come yet
 ‘He hasn’t come yet.’
- b. ò nyé lá à gánè ná Dàkòráá *náng* dà *nàng* ngmàà
 1Sg. saw F D book DEM Dakoraa REL PST still write
 ‘I saw the book that Dakoraa was still writing.’

The future particle *na* also follows the relativizer, as shown below.

- (23) Object Relativization (Future)
 ò dà nyé lá à gánè nǎ Dàkòráá *náng* nà kó má biéú
 I PST see F D book DEM Dakoraa REL FUT give me tomorrow
 ‘I saw the book that Dakoraa will give me tomorrow.’

It is worth noting the fact that these tense particles can occur within the relative clauses in Dagaare indicates that the relative clauses are fully finite (and hence not ‘reduced’ in any sense)⁶. These co-occurrences and word order facts suggest that the relativizing particle *nang* is a complementizer element.

2.4.2 *nang* and Postverbal Particles

In contrast with the preverbal particles, the post-verbal particle *lá* cannot be used in relative clauses. The form *-ng* is a reduced form of *lá* in Dagaare.

- (24) Relativization and the Postverbal Particle *lá*
- a. ò nyéé à gánè nǎ Dàkòráá *náng* ngmà (*lá)
 1Sg. saw.F D book DEM Dakoraa REL wrote F
 ‘I saw the book that Dakoraa wrote.’
- b. Reduced/Cliticized Version of the Postverbal Particle *la*
 ò nyéé à gánè nǎ Dàkòráá *náng* ngmàà (*-ng)
 1Sg. saw.F D book DEM Dakoraa REL wrote F
 ‘I saw the book that Dakoraa wrote.’

⁶ The particle *nang* does not have any use as a complementizer in Wh-Question and Focus constructions, unlike Buli and Gurene. In these constructions, the complementizer *ka* is used (see (16)). It should be noted that there is no construction where *ka* and *nang* co-occur, which supports our conclusion that *nang* is a complementizer, rather than a Tense-Aspect-Mood particle.

2.8 Interim Summary

To summarize, Dagaare relativization involves a left-dislocated head noun and the relativizing particle *náng*. The relativized head noun optionally takes a definite determiner and a demonstrative for definite relative clauses and optionally takes an indefinite determiner for indefinite relative clauses. The particle *náng* is best understood as a complementizer given the co-occurrence and word order evidence. The placements of the demonstrative *na* show that it is not a complementizer. Rather it is a constituent of the relativized NP.

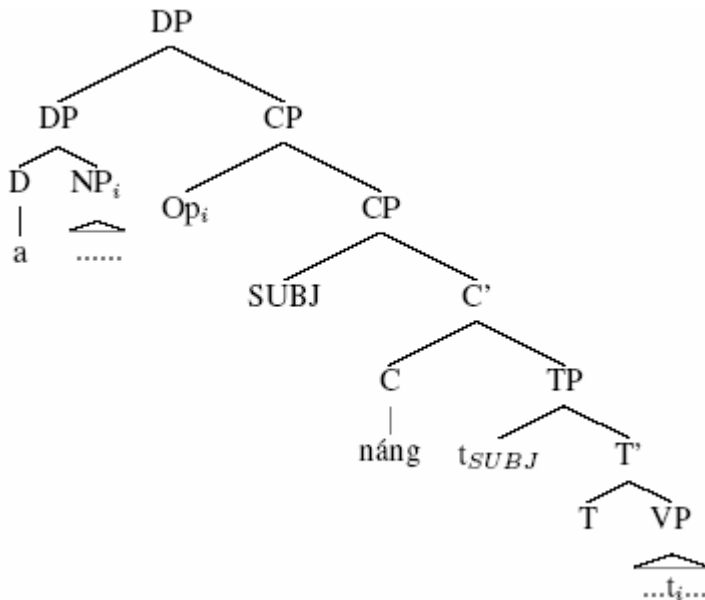
- (33) a. The relativized head always appears at the left edge of the clause.
- b. The demonstrative *ná* is not a constituent of the relative clause (i.e. it is not a complementizer).
- c. The relativizing particle *náng* is located higher than other preverbal TAMP particles.
- d. Movement is involved.

The existence of island effects suggests that the relation between the relativized head noun and its gap is mediated via movement. Assuming the standard analysis of null operator movement and the adjunction analysis of relative clauses, the structure is represented as follows.

(34) Object Relativization (Definite) (=1b))

*n̄ dà s̄óré lá à gánè n̄ǎ Dàkóráá náng ngmàà e/*ò dèyâng.*
 1Sg. PST read F D book DEM Dakoraa REL write ø/3Sg. last-year
 ‘I read the book that Dakoraa wrote last year.’

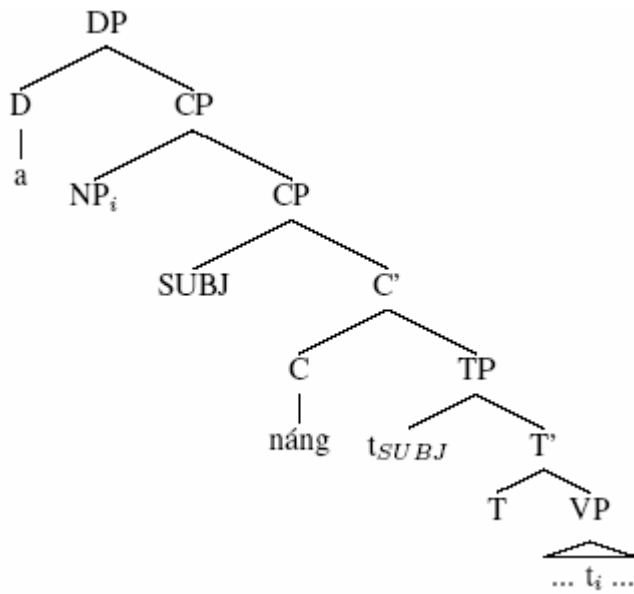
(35) HERC in Dagaare



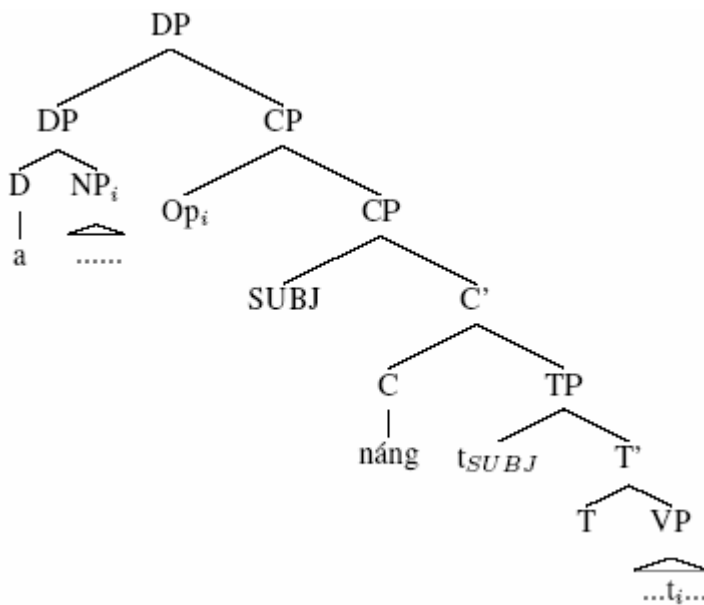
3. HEAD-INTERNAL RELATIVIZATION

As we have demonstrated in the first half of this paper, Dagaare does not allow what is clearly considered to be HIRC. Rather, the relativized head noun is always placed at the left edge of the clause, just as in English. There remains, however, a non-trivial question about the precise structure of relative clause in Dagaare - whether the fronted relativized head noun resides externally or internally to the relative clause. If evidence suggests that it is internal despite its appearance, Dagaare provides a significant example for another new type of HIRC: *Left-HeadedHIRC* (see Hiraiwa 2004)⁷.

(36) a. Left-Headed HIRC



b. HERC with Adjunction



⁷ Basillico (1996) is the first, as far as we are aware of, to note the existence of HIRC in Diegueno and Mojave with its relativized head displaced but yet clause-internally. Dagaare (and some other Gur languages) strikingly differs from these languages in that In-situ HIRC is totally impossible in Dagaare, unlike Diegueno and Mojave, whose head-raising is simply an option. In other words, the internal head-raising to the edge of the relative clause is always obligatory in Dagaare. If correct, then the existence of Dagaare-type Left-Headed HIRC is of considerable consequence in suggesting that there can be more languages with the “hidden HIRC” than previously thought.

The existence of Left-Headed HIRC, if established, has far-reaching consequences for the cross-linguistic typology of HIRC; most importantly, it demands a totally new picture of the typology of HIRC (cf. Gorbet 1977, Cole 1987, Culy 1990) and a careful reexamination of the relative clauses that have been simply assumed to be HERC. Furthermore, it provides another evidence against Cole's Generalization (Cole 1987) that HIRC is restricted to languages with null pronouns and SOV word order; Dagaare neither allows null pronouns nor shows SOV word order.

In the remainder of this paper, we demonstrate that Dagaare relativization is an instance of Left-Headed HIRC, based on four empirical arguments - Quantifier Scope, PP Relativization, Possessor Relativization, and Factive Construction.

3.1 Quantifier Interpretation

3.1.1 Universal Quantifiers

Quantifiers behave differently from English, when they are attached to the relativized head noun. Quantifiers in Dagaare must follow the demonstrative *ná* as indicated below.

(37) DP and Quantifiers

- a. *ɲ (dà) dí lá à mǒngó-rí (ná) zàà/mǐné/yágà zǐé*
 1Sg. (PST) eat F D mango-PL (DEM) al/some/many-places
 'I ate all/some/many of those mangoes.'
- b. **ɲ (dà) dí lá à mǒngó-rí zàà/mǐné/yágà zǐé (ná)*
 1Sg. (PST) eat F D mango-PL all/some/many-places (DEM)
 'I ate all/some/many of those mangoes.'

The following relative clause example is ambiguous between the two readings, although the first reading sounds are preferred. To tease apart the two interpretations, suppose that Dakoraa went to a shop and the shop has 5 mangoes in total.

(38) Relativization and Quantifier *zaa* ('all')

- ɲ (dà) dí lá à mǒngó-rí (ná) záá Dàkòráá náng dà*
 1Sg. (PST) eat F D mango-PL (DEM) all Dakoraa REL buy.PST
 'I ate all the (those) mangoes that Dakoraa bought.'
 'Dakoraa bought all the mangoes and I ate (some of) them.'

Under the first reading, the quantifier does not explicitly say anything about the quantity of the mangoes that Dakoraa bought; it only indicates that Dakoraa bought (some) mangoes and I ate all of them. Under the second reading, on the other hand, the quantifier expresses the quantity of the mangoes that Dakoraa bought. Thus under this interpretation, Dakoraa bought all (i.e. five) of the mangoes, whereas it is not explicitly committed to how many of them I ate. The interpretation under which the quantifier takes a narrow scope (i.e. clause-internal scope) is reported in HIRCs in other languages such as Buli (Hiraiwa 2004), Japanese (Shimoyama 1999) and Imbabura Quechua (Hastings 2004). Thus the fact that the relative clause (38) is ambiguous in Dagaare suggests that they are

3.1.2 Numeral Quantifiers

Numeral quantifiers also yield, if quite subtle, ambiguity. The following sentences are distinct in the ordering between the demonstrative *na* and the numeral *anuu* ‘five’. This is reflected in the semantic scope difference between: (41a) means ‘those five mangoes’. whereas (41b) indicates a partitive reading ‘five of those mangoes’. Both sentences are basically ambiguous between the two readings; under the Reading 1, the numeral indicates the amount of mangoes that Dakoraa bought, while under the Reading 2, it indicates the amount of mangoes that I ate. There seems to be a very subtle preference for one reading, depending on the ordering of the demonstrative and numeral (cf. (41a) and (41b)).

(40) a. *ñ (dà) ðí lá à mǒngó-rí ànúú ná*
 1Sg. (PST) eat F G mango-PL. five DEM
 ‘I ate those five mangoes.’

b. *ñ (dà) ðí lá à mǒngó-rí ná ànúú*
 1Sg. (PST) eat F D mango-PL DEM five
 ‘I ate five of those mangoes.’

(41) Relativization and Numerals

a. *ñ (dà) ðí lá à mǒngó-rí ànúú ná [Dàkòráá nǎng dà zààmêng]*
 1Sg. (PST) eat F D mango-PL five DEM Dakoraa REL buy.PST yesterday
 ‘Reading 1: Dakoraa bought five mangoes and I ate them.’ (slightly preferred)
 ‘Reading 2: Dakoraa bought (some) mangoes and I ate five of them.’

b. *ñ (dà) ðí lá à mǒngó-rí ná ànúú [Dàkòráá nǎng dà zààmêng]*
 1Sg. (PST) eat F D mango-PL DEM five Dakoraa REL buy.PST yesterday
 ‘Reading 1: Dakoraa bought five mangoes and I ate them.’
 ‘Reading 2: Dakoraa bought (some) mangoes and I ate five of them.’ (slightly preferred)

The relevant readings are paraphrased as follows.

(42) a. (=Reading 1)
Dàkòráá dà lá mǒngó-rí ànúú ka ñ ðí á
 Dakoraa bought F mango-PL. five C 1Sg. ate them
 ‘Dakoraa bought five mangoes and I ate them.’

b. (=Reading 2)
Dàkòráá dà lá mǒngó-rí mìné ka ñ ðí a ànúú
 Dakoraa bought F mango-PL. some C 1Sg. ate D five
 ‘Dakoraa bought (some) mangoes and I ate five of them’

The fact that in both cases the NP, the numeral and the demonstrative form a syntactic constituent can be explicitly shown by the cleft test. As shown below, those three elements can be placed in the clefted position in either of the two orders.

(43) Cleft and Constituency

- a. *móngó-rí ànúú ná lá kà Dàkóráá ã zàmèng*
 mango-PL. five DEM F C Dakoraa ate yesterday
 ‘It is those five mangoes/five of those mangoes that Dakoraa ate yesterday.’
- b. *móngó-rí ná ànúú lá kà Dàkóráá ã zàmèng*
 mango-PL. DEM five F C Dakoraa ate yesterday
 ‘It is five of those mangoes/ those five mangoes that Dakoraa ate yesterday.’

It is hard to construct a partitive relative clause sentence in Dagaare, for example, in which the amount that Dakoraa bought is five and the amount that I ate is three (e.g. I ate three of the five mangoes that Dakoraa bought yesterday.). One way to express such a situation seems to use a temporal subordinate clause as in (44).

(44) Temporal Clause and a Partitive Reading

- Dàkóráá náng zàà dà ɔ móngó-rí ànúú ná, ñ ã lá à átà*
 Dakoraa when yesterday bought D mango-PL. five DEM 1Sg. ate F D three
 ‘When Dakoraa bought the five mangoes yesterday, I ate three of them.’

3.2 PP Relativization and Pied-Piping

There are two ways to relativize the complement of PP (Postpositional Phrase) in Dagaare: either a postposition is pied-piped with the relativized head to the initial position or it is left in-situ with a resumptive pronoun of the relativized head noun, in which case, the resumptive pronoun is obligatory.

(45) PP Relativization in Dagaare

- a. *à pèé ná zú Dàkòráá náng gâng é lá kpông*
 D roof DEM on Dakoraa REL lie.PERF be F big
 ‘The roof top on which Dakoraa slept is big.’
- b. *à pèé ná Dàkòráá náng gâng *(ò) zú é lá kpông*
 D roof DEM Dakoraa REL lie.PERF 2Sg. on be F big
 ‘The roof top on which Dakoraa slept is big.’

When P is pied-piped with the relativized head noun, it must follow the demonstrative *na* (if any); it cannot come before the demonstrative.

(46) The Placement of P and the Demonstrative

- *à pèé zú ná Dàkòráá náng gâng é lá kpông*
 D roof on DEM Dakoraa REL lie.PERF be F big
 ‘The roof top on which Dakoraa slept is big.’

This shows that the demonstrative *ná* is not a complementizer or a relative pronoun, but rather forms a constituent with the relativized head noun. In Dagaare, the demonstrative determiner is morphologically different from the demonstrative pronoun.

(47) Demonstrative Determiners and Pronouns

- a. *zú-pìl bòò lá ká fó bóóró?*
 head-cover which F C 2Sg. want.IMP.
 ‘Which hat do you want?’
- b. **à nâ*
 D that
 ‘That one’
- c. *ońńg*
 that
 ‘That (one)’
- d. *à nyê*
 D this
 ‘This one’

Recall also that the quantifier *zaa* must follow *na*, which is another evidence for the constituency of the relativized head noun D-NP-DEM in Dagaare relativization. Thus it follows that the noun phrase and P forms a single constituent (the relativized head noun).

The postposition cannot be placed after the entire relative clause¹⁰.

(48) The Placement of P after the Relative Clause

- *[à pèé ná Dàkórá náng gâng] zû è lá kpông*
 D roof DEM Dakoraa REL lie.PERF on be F big
 ‘The roof top on which Dakoraa slept is big.’

All of these facts are mysterious if the relative clause in Dagaare allows only HERC, under which analysis, the relative clause would have to adjoin to the matrix PP element and the matrix predicate takes as its subject the PP.

3.3 Possessor Relativization and Pied-Piping

The third piece of evidence comes from possessor relativization. Recall that Dagaare allows possessor relativization (49a). Of great importance for our discussion is the fact that the sentences (49b)-(49d) are grammatical, where the whole possessor-possessee complex has been dislocated to the left. The sentence sounds slightly awkward although still grammatical - without the resumptive pronoun. The use of the resumptive pronoun results in perfect grammaticality (see (49d)).

(49) a. Possessor Relativization without Pied-Piping

- ń dà nyé lá à pógó ná ń nàng sóré *(ò) gánè dèyâng*
 1Sg. PST saw F D woman DEM 1Sg. REL read 3Sg. book last-year
 ‘I saw the woman whose book I read last year.’

¹⁰ Inserting a pronoun between the relative clause and the following postposition, however, makes the construction well-formed.

b. Possessor Relativization with Pied-Piping

? ñ dà nyé lá à pógó ná gánè ñ nàng sóré dèyâng
 1Sg. PST saw F D woman DEM book 1Sg. REL read last-year
 ‘I saw the woman whose book I read last year.’

c. Possessor Relativization with Pied-Piping

? ñ dà nyé lá à pógó ná à gánè (ná) η nàng sóré dèyâng
 1Sg. PST saw F D woman DEM D book DEM 1Sg. REL read last-year
 ‘I saw the woman whose book I read last year.’

d. Possessor Relativization with Pied-Piping

ñ zàá dà nyé lá à pógó ná ò gánè η nàng sóré dèyâng
 1Sg. yesterday PST saw F D women DEM 3Sg. book 1Sg. REL read last-year
 ‘I saw the woman whose book I read last year.’

The same possessor relativization with pied-piping is also allowed Buli, which allows both in-situ HIRC and Left-Headed HIRC (Hiraiwa 2003, 2004). Furthermore, in Frafra/Gurene, which is similar to Dagaare in that it does not allow in-situ HIRC, possessor relativization with pied-piping is perfectly licit¹¹.

3.4 Factive Construction

Dagaare allows the so-called Factive Construction (Collins 1994), in which a whole (relative) clause functions as an argument clause as in (50a). In the factive construction, the subject - and nothing else - must be raised to the front of the relativizer and the whole clause is headed by the definite determiner *a*. Unlike the factive constructions in Buli and other Kwa/Kru languages (e.g. Ewe, Yoruba, Fongbe), the Dagaare factive construction (i) always requires the subject to be raised and (ii) must accompany *yélé* at the right edge of the Factive clause; thus when the object has been raised, for example, it only has the relative clause reading (50b)¹².

(50) Factive Construction in Dagaare

a. à Dàkóráá náng ngmàà à gánè dèyâng yélé pèlé lá ò póg(ó)
 D Dakoraa REL write.PERF D book last-year MATTER whiten.PERF F 3.Sg wife

póó yágà
 stomach a lot

‘The fact that Dakoraa wrote a book last year pleased his wife a lot.’

¹¹ When P is pied-piped or a possessed noun phrase is pied-piped, the HERC structure (35) is impossible. The prediction, then, is that quantifier interpretation with the pied-piping type relative clause is unambiguous. This prediction is worth checking and left for future investigation.

¹² Predicates cannot come in the initial position, either, unlike the languages mentioned above.

- b. *à gánè nǎ Dàkóráá náng ngmàà dèyâng yélé pèlé lá ò póg(ó)*
 D book DEM Dakoraa REL write last-year MATTER whiten.PERF F 3.Sg wife

póó yágà
 stomach a.lot

‘The book that Dakoraa wrote last year pleased his wife a lot.’

‘*The fact that Dakoraa wrote a book last year pleased his wife a lot.’

When the whole clause functions as a factive object argument, it takes a different form; the complementizer *ká* heads the clause and no definite determiner dominates the clause. Again, when the object is raised and *nang* is used, it only allows a relative clause interpretation¹³.

(51) Object Factive

- a. *ñ bǎng lá à gánè nǎ Dàkòráá náng ngmàà dèyâng*
 1Sg. know.PERF F D book REL Dakoraa REL write.PERF last-year
 ‘I know the book that Dakoraa wrote last year.’
 ‘*I know that Dakoraa wrote the book last year.’

- b. *ñ bǎng ká Dàkòráá ngmàà lá gánè dèyâng*
 1Sg. know.PERF C Dakoraa write.PERF F book last-year
 ‘I know that Dakoraa wrote a paper/book last year.’

The fact that Dagaare allows the Factive Construction suggests that it should possess Head-Internal Relative Clause (HIRC), if Culy's generalization is correct that HIRC and Factive Construction (nominalized clauses) correlate (Culy 1990)¹⁴.

The clause-initial definite determiner can be omitted in the Factive Construction. It seems that there is no semantic effect in the omission¹⁵.

(52) Omission of the Clause-Initial Definite Determiner *a*

- (à) *Dàkóráá náng ngmáá á gánè dèyâng yélé pèlé lá ò póg(ó)*
 D Dakoraa REL write.PERF D book last-year MATTER whiten.PERF F 3.Sg wife

póó yágà
 stomach a lot

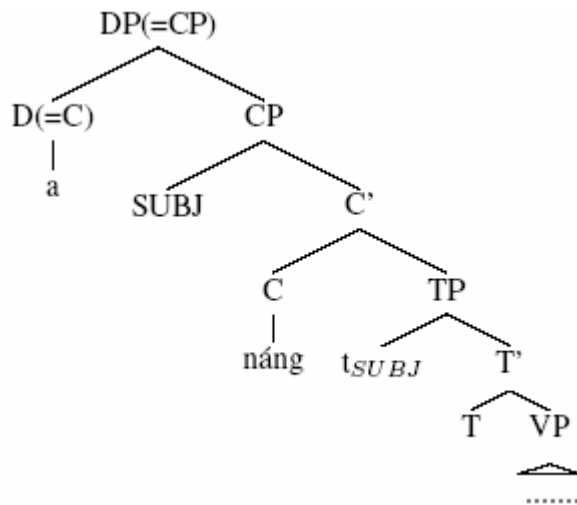
‘The fact that Dakoraa wrote a book last year pleased his wife a lot.’

¹³ The complementizer *ká*, in addition to the usage as a declarative complementizer (51b), is also used in Wh/Focus constructions.

¹⁴ In a number of languages of the world, the form of HIRC and the form of Factive Construction are morphologically identical or at least quite similar (Tellier 1989, Hiraiwa 2004, among others.). As an anonymous reviewer correctly points out, Factive Construction is also observed in languages without HIRC. However, the correlation seems to hold the other direction: languages with HIRC always have available Factive Constructions which are morphologically identical or similar to HIRC.

¹⁵ *on the other hand, the element yele ‘matter’ cannot be omitted in Factive Construction. The element yele can also be used with a noun phrase as shown below.*

(53) Factive Construction in Dagaare

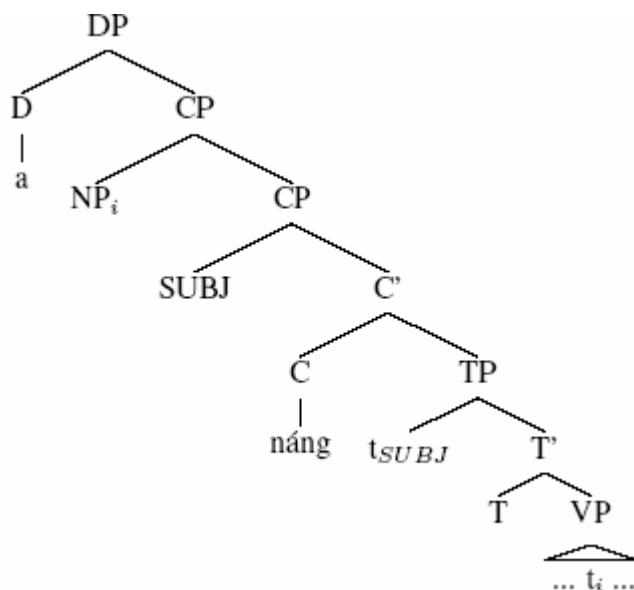


That the definite determiner *a* precedes the whole factive clause supports our earlier hypothesis that the definite determiner is the highest element introducing the relative/factive clause.

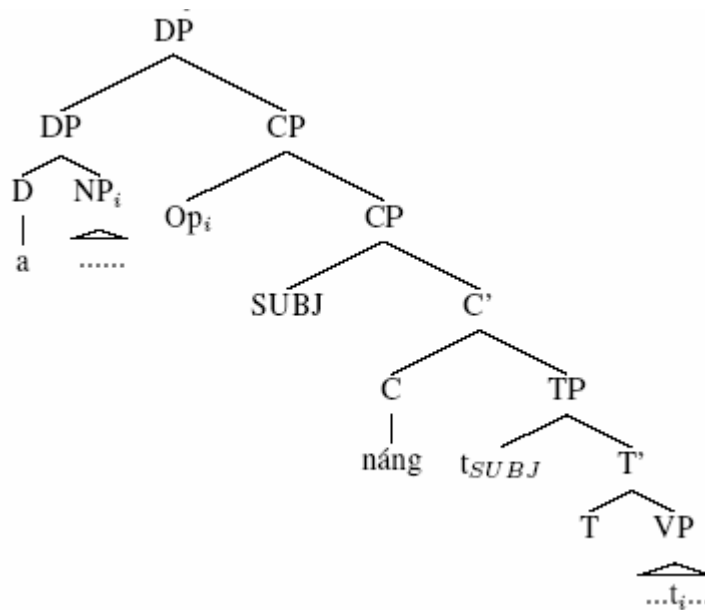
4. CONCLUSION

All in all, the quantifier interpretation and the availability of pied-piping in PP and possessor relativization indicate that what looks like externally-headed in Dagaare can be internally-headed, with the relativized head noun dislocated to the left edge but still clause-internally. The ambiguity of the quantifier interpretation suggests that Dagaare allows both HERC and HIRC although they are identical on the surface, whose representations are repeated here.

(54) a. Left-Headed HIRC



b. HERC with Adjunction



If our analysis is on the right track, Dagaare presents a new type of HIRC, called Left-Headed HIRC and opens up a possible reconsideration of the facts of relative clauses in other languages in the light of this syntactic derivation.

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