Mursell, Johannes & Hartmann, Katharina. 2025. Subject relative clauses in Dagbani. *Glossa: a journal of general linguistics* 10(1). pp. 1–49. DOI: https://doi.org/10.16995/glossa.10572

Subject relative clauses in Dagbani

Johannes Mursell, Goethe-Universität Frankfurt, DE, j.mursell@lingua.uni-frankfurt.de

Katharina Hartmann, Goethe-Universität Frankfurt, DE, k.hartmann@lingua.uni-frankfurt.de

This paper is concerned with subject relative clauses in Dagbani, a Mabia language spoken in northern Ghana, as these have received little attention in the literature compared to other relative clause constructions. We will argue that a successful syntactic analysis depends on a double headed relative clause structure, with one relative clause internal and one relative clause external head. In addition to discussing the syntax of an understudied language, the paper thus provides further evidence for relative clauses being based on double headed structures, at least in some languages.

1 Introduction

Relative clauses in the Mabia languages[1] possess a surprisingly complex syntactic structure that has attracted the interest of a number of formal linguists, most prominently Bodomo & Hiraiwa (2010) and Hiraiwa et al. (2017). In this article, we focus on subject relative clauses, which have not been discussed in the aforementioned literature. Furthermore, we limit the discussion here to one particular language, Dagbani, a south central Mabia language, which is spoken by around 2 million speakers in the northern regions of Ghana (Abubakari 2018; Issah 2020). If not indicated otherwise, the data discussed here were elicited by the authors.

Relative clauses in Dagbani show a variety of possible structures, derived from the standard SVO order of the language. Looking at non-subject relative clauses first, the sentences in (1) show that the relativized DP (printed in bold throughout the paper) may be realized in its canonical, in-situ position, as illustrated in (1a). The relativized noun is followed by an element homophonous to the specific-indefinite determiner, and the whole DP is headed by the final definite marker *maa*. In (1b), the relativized object is fronted to the left periphery of the relative clause. Note that in non-subject relatives, there is an obligatory overt complementizer *ni*, which is also used in certain sentential complements. In (1a), the complementizer is preceded only by the subject; in (1b), it is preceded by the subject and the fronted relativized object.[2]

(1) a. [$_{DP}$ bihi ni yu-ri [$_{DP}$ **bua so**] maa]
children COMP like-IPFV goat SO DET
'a goat that the children like'

b. [$_{DP}$ [$_{DP}$ **bua so**] bihi ni yu-ri maa]
goat SO children COMP like-IPFV DET
'a goat that the children like'

Bodomo & Hiraiwa (2010) and Hiraiwa et al. (2017) analyse structures like (1) as showing a contrast between an in-situ (1a) and an ex-situ (1b) *head internal* relative clause. In other words, even when ex-situ, the head noun is still inside the relative clause, somewhere in its CP periphery. Independently of the position of the head noun, the subject always moves to the left periphery of the clause, as clearly evidenced by it preceding the complementizer *ni*.

Head nouns in subject relative clauses do not display this variability in their position. The head noun always appears in relative clause initial position. Whether this needs to be analysed

[1] The Mabia languages belong to the Niger-Congo languages. The term 'Mabia' has been coined by Bodomo (1994) in order to replace the unfortunate denomination 'Gur' proposed by German africanists in the 19th century. The term 'Gur' was introduced since it refers to the first syllable of some of the families' language names.

[2] The Mabia languages are all tone languages. For Dagbani, tone seems mostly to be lexical (Olawsky 1999), and for the data discussed in this paper, we could not detect any grammatical effect of tone. Due to the fact that not all our examples are toned, and to avoid inconsistencies, we leave out tonal markings for all the Dagbani examples in this paper.

as short movement of the head noun or as an in-situ relative clause will be one of the points discussed below. Another property restricted to subject relative clauses concerns the presence of a pronominal element, *ŋun*, that obligatorily follows the relativized subject. The complementizer, obligatory in the object relative clause in (1), is absent in the subject relative clause in (2).

(2) [$_{DP}$ **paɣa so**] ŋun da yili palli maa
woman SO REL.PRO buy.PFV house new DET
'a woman who bought a new house'

As we will show in Section 3, relative clauses are not the only instance where we can observe an asymmetry between subject and non-subject A'-constructions. What is unexpected, however, is the extent to which subject and non-subject relative clauses seem to differ syntactically. Our analysis will add to these differences, as we will show that subject relative clauses in Dagbani can only receive a head external analysis, however, with a relative clause internal head also playing an important role. Such a double headed analysis of relative clauses was recently advocated for in Cinque (2020), and the data from Dagbani subject relatives provide rather clear evidence that such structures need to be available, at least for some languages. Naturally, this raises the question of how non-subject relative clauses fit into the picture. We will pick up this topic at the end of the paper, arguing that the analyses in Bodomo & Hiraiwa (2010) and Hiraiwa et al. (2017) are on the right track and can be made more precise with the approach developed in this article.

Our paper is structured as follows. In Section 2, we briefly introduce some important points about relative clauses in general, before turning to relative clauses in Dagbani in more detail in Section 3, where we start out by introducing the most salient properties of the language for the discussion at hand, followed by an in-depth discussion of Dagbani relative clauses in Section 3.2. At the end of that section, we discuss some problems of trying to apply a purely head internal analysis to subject relative clauses. Section 4 then presents our analysis. Since our proposal is based on Cinque (2020), we outline the general idea of relative clauses being based on double headed structures before we finally come to some potential derivations. In Section 5, we discuss consequences of our analysis for non-subject relative clauses before we conclude in Section 6.

2 Relative clauses

Cross-linguistically, relative clauses occur in a wide variety of syntactic patterns. We limit the discussion to the variation across two dimensions. First, relative clauses can be head internal or head external, meaning that the relativized constituent, the head, is either still inside the relative clause or external to it. In the latter case, of course, the external head needs to be in some way related to its corresponding internal position. The second dimension of variation is concerned with whether the head of the relative clause is in-situ, i.e. in its base position, or ex-situ, i.e. moved out of its base position.

Consider, for example, the German relative clause in (3). Case marking on the relative head noun and on the relative pronoun makes it clear which element is interpreted as belonging to which clause. The external head of the relative clause, *den Mann*, is marked accusative and is interpreted as being Θ-marked by the verb of the matrix clause. In contrast, the fronted relative pronoun *dem* is marked dative, and thematically serves as recipient of the verb in the relative clause. Thus, German has head external relatives clauses, and because the base position of the relativized constituent in the relative clause is not overtly filled, relative clauses in German are also ex-situ.

(3) Ich sehe **den** **Mann**, [$_{\text{RELC}}$ dem Maria einen Kuchen gebacken hat].
I see the.ACC man 3SG.REL.DAT Maria a cake baked has
'I see the man for whom Maria baked a cake.' (German)

A second frequent type of relative clause constructions is head internal relative clauses where the head noun is internal to the relative clause. An example for this is given in (4) from Ancash Quechua (Cole 1987: 277). The head of the relative clause, *bestya-ta* 'the horse' is in its base position inside the relative clause and also case-marked as expected. Consequently, there is no overt argument in the matrix clause that is in some way connected to the relativized noun.

(4) [$_{\text{RELC}}$ Nuna **bestya-ta** ranti-shqa-n] alli bestya-m ka-rqo-n.
man horse-ACC buy-PFV-3 good horse-M be-PST-3
'The horse that the man bought was a good horse.' (Ancash Quechua)

In principle, these two dimension can vary independently of each other. Thus, we find head internal relative clauses which are either head in-situ or head ex-situ. The majority of head external relative clauses occur as head ex-situ relative clauses.[3]

Theoretically, two broad groups of syntactic analyses for relative clauses can be distinguished, raising analyses and matching analyses.[4] In a raising analysis, the relative clause external head actually originates inside the relative clause. It moves together with an overt or covert operator to the left periphery of the relative clause (a.o. Kayne 1994; de Vries 2002) and from there, it can even be extracted and become the head of the relative clause (a.o. Cecchetto & Donati 2015).

[3] As a reviewer rightly points out, it is possible for head external relative clauses to occur with an in-situ head. Cases like this are well known in the literature and often discussed as doubly headed relative clauses (Erlewine & Gould 2016; Cinque 2020).

[4] An anonymous reviewer points out, similar to Salzmann (2019), that the distinction between empirical differences with respect to the head position and differences with respect to the analysis of relative clauses is far from clear cut. Head external analyses are themselves a theoretical approach to relative clauses and are incompatible with head raising analyses but share much of their structure with matching analyses. However, in light of the proposal that we adopt here, Cinque (2020), it will become clear why we separate the approaches in this way.

(5) the cake$_k$ [[OP / which t$_k$]$_i$ Mary ate t$_i$]

In a matching analysis, the relative clause external head is syntactically independent of the processes in the relative clause. More concretely, it is assumed that the relative clause internal head moves into its periphery and then gets co-indexed with the relative clause external head with subsequent deletion of parts of the internal head. Depending on the particular type of matching analysis, this operator can be overt or covert (Sauerland 1998; Heim & Kratzer 1998; Salzmann 2006; 2019, among many others).

(6) the cake$_i$ [[OP / which ~~cake~~]$_i$ Mary ate t$_i$]

It is impossible here to review the arguments against and in favor of the different analyses. However, as emphasized by the ongoing theoretical debate, the issue is far from settled and the answers may vary by language and particular construction. In this paper, we will adopt a rather recent proposal from Cinque (2020) that tries to unify the different analyses by proposing one cross-linguistically uniform structure for relative clauses that can derive raising as well as matching structures and their respective associated properties. We defer the discussion of this approach to section 4, when we present our analysis of the Dagbani data.

Independent of the arguments that support one analysis or the other, the main question to be answered by both types of analyses is how to establish a connection between the relative clause internal information and information that is external to it. In head external relative clauses, this appears to be straightforward in both approaches, as the head can be directly extracted from the relative clause, or co-indexed with the element in its left periphery. In head internal relative clauses, however, no obvious element is present in the left periphery that could be integrated into the matrix clause. Much of the discussion surrounding the analysis of head internal relative clauses has focussed on the question of how to overcome this problem and on how to relate the relative head to the matrix clause.

The general consensus that has emerged in the literature is that a covert element in the head internal relative clauses moves either to a position outside the relative clause where it can be integrated into the matrix clause (Cole 1987; Lefebvre & Muysken 1987, a.o.), or into the edge of the relative clause where it can facilitate this integration (Culy 1990; de Vries 2002, a.o.); in other words, head internal relative clauses have mostly been described in terms of classical raising analyses. It has been argued that the movement assumed by the latter approach can sometimes also be overt (Basilico 1996), leading to cases of ex-situ but still head internal relative clauses, similar to what has been claimed to be the case in Dagbani and other Mabia languages. While discussions of such constructions can be found sporadically in the older literature (see for example Lehmann 1984), the first systematic description and analysis is presented in Basilico (1996). Based mostly on older descriptive literature on languages from the Yuman language family, spoken on

and around the Californian peninsular, Basilico argues that relative clause internal movement of the head of the relative clause can serve various purposes. Consider, for example, the sentences in (7) and (8) from Mojave (Basilico 1996: 502).

(7) **masahay ahvay** ʔ-u:ay-n^{y}-č ʔahot-k
girl dress 1-give-DEM-SBJ good-TNS
'The girl I gave the dress to is nice.'
'The dress that I gave to the girl is nice.' (Mojave)

The example in (7) shows that the relative clause is ambiguous, as there are two possibilities for its head, either *girl* or *dress*. Fronting one of the possible heads resolves the ambiguity, as only the fronted constituent can then serve as the head of the relative clause.

(8) **ahvay** masahay ʔ-u:ay-n^{y}-č ʔahot-k
dress girl 1-give-DEM-SBJ good-TNS
'The dress that I gave to the girl is nice.' (Mojave)

Disambiguation is, according to Basilico, not the only function of movement inside the relative clause. In addition, movement is also sometimes necessary to achieve the correct interpretation of the head noun. According to Basilico (1996), head internal relative clauses are not genuine relative clauses but quantificational structures. This type of relative clause is always associated with an operator that needs to bind a variable provided by the head of the relative clause. To provide this variable, the head has to move out of the VP, as otherwise it would be subject to existential closure (Diesing 1992), depriving the operator of the necessary variable. As the correct configuration need only be established at LF, the movement can either be covert or overt. Note that this effect of movement of the head inside the head internal relative clause essentially serves to help integrate the relative clause into the matrix clause.

When discussing the Dagbani data in more detail below, it will become clear that neither of the two functions underlies relative clause internal movement in this language. First, head internal in-situ object relative clauses are not ambiguous.[5] As there is no ambiguity, no movement is needed for disambiguation. Second, movement of the head inside the relative clause is also not forced by interpretation. In the object relative clauses, optional movement inside the relative clause only has an information-structural effect. In Basilico's approach, no interpretive differences between in-situ and ex-situ variants are expected, as both constructions require movement, the latter simply at LF. Furthermore, under such an approach, it would be difficult to provide an explanation for another observable difference between object and subject relative clauses, namely the fact that subject relatives can never occur with their head in-situ. On the other hand, an account that

[5] In principle they could be ambiguous with respect to which object is relativized if several objects are marked in the same clause with a form of *so*. Despite our efforts, we were not able to elicit data like this.

makes reference to information structure does not face such a problem, as we will show below. However, before we turn to a more detailed discussion of the Dagbani data, we want to introduce more generalizations that have been made for head internal relative clauses and briefly relate them to the data under discussion in this paper.

One of the earliest well-known generalizations about head internal relative clauses goes back to Gorbet (1976) who relates the possibility of head internal relative clauses in a language to its SOV word order. Without going into too much detail (see Hiraiwa 2017 for discussion), from the data already presented, it is clear that this generalization does not hold for Dagbani and indeed for none of the Mabia languages that show head internal relative clauses. However, while the general clause structure in Dagbani is strictly SVO, in the nominal domain, at least for the DP, the head is actually on the right, as nouns are followed, not preceded, by their determiners, which also holds for relative clauses.

A second generalization that will play a role in our analysis of relative clauses in Dagbani was proposed by Watanabe (1992) and states that head internal relative clauses only occur in languages that are wh-in-situ, as these languages lack the wh-movement operation necessary to create a head external relative clause. Despite various other counterexamples, this generalization seems to hold for Dagbani, at least under a specific interpretation of wh-in-situ. As we discuss immediately in the next section, Dagbani has ex-situ as well as in-situ wh-questions. Importantly, as argued at length in Issah (2020), the ex-situ question is not derived by wh-movement but by focus movement. Thus, Dagbani is a wh-in-situ language that lacks proper wh-movement but can front constituents due to information-structural reason. We will argue below that a comparable process is at work in relative clauses.

The last generalization that is important for the discussion to come concerns the nature of the head noun of the relative clause. As first pointed out by Williamson (1987) and confirmed by other authors (Culy 1990; de Vries 2002), the head nouns of head internal relative clauses need to be marked or interpreted as indefinite. Culy (1990: 176) discusses some exceptions to this generalization, for example the sentence in (9) from Donno Sɔ, a Dogon language spoken in Mali (from Kevran 1982: 58).

(9) [**yɛŋɔ** nɛ dabiaa u wɔ] dabulɛ
mat.DEF in lie.on.stomach.PST 2SG AUX.DEF get.up
'Get up from the mat on which you were lying on your stomach.' (Donno Sɔ)

Hiraiwa (2017) argues for another restriction on this indefinite generalization. According to him, in some languages, the head noun of the relative clause is not accompanied by an indefinite determiner but by a relative clause specific marker. This analysis has also been advanced for various Mabia languages in Hiraiwa et al. (2017).

While other constraints on and generalizations about relative clauses and head internal relative clauses in particular have been proposed in the literature, none of these are directly relevant to the discussion and our proposal below. Consequently, we now turn to a more in-depth description of the Dagbani data in the next section.

3 Dagbani and its relative clauses

After briefly introducing some important properties of the Dagbani language in general, especially its left periphery with respect to A'-processes, we present the relevant data for subject and object relative clauses in the language.

3.1 Background on Dagbani

Dagbani is an SVO language with the indirect object preceding the direct one. Adverbials are always realized clause-finally and are fronted only if focused, see (10) from Issah (2020: 27).

(10) Paɣa maa ti bihi nyuli zuŋo.
woman DET give.PFV children yam today
'The woman gave the children yam today.'

Interestingly, for the DP, the order of head and complement seems to be reversed, as the determiners are always DP final. Definite and indefinite determiners, wh-determiners, quantifiers and numerals all appear post-nominally. Similarly, in d-linked wh-phrases, the wh-determiners (*buku dini*, 'book which'; *ba ŋuni*, 'dog which'), as well as numerals (*bihi anu*, 'children five') and quantifiers (*buhi ala*, 'goats how many') in general, occur in post-nominal position. All examples are taken from Issah (2020). Without further motivation, we assume that the NP is a left complement to the D-head.

Turning back to the clausal domain, Dagbani differentiates (at least) two aspects, the perfective and the progressive. The perfective is unmarked and its interpretation contextually deduced. The imperfective aspect is morphologically expressed by a suffix. It is marked by one of the allomorphs [ti], [di], [ni] and [ri]; the distribution is driven by phonological properties of the stem (Issah 2015; 2020).

(11) O nyu / nyu-ri kom.
3SG drink.PFV drink-IPFV water
'He drank / is drinking water.'

Dagbani exhibits an additional, final suffix, which appears if the verb is the sentence final element. This suffix is strongly reminiscent of the disjoint marker well known from Bantu languages (van der Wal & Hymann 2017). With unmodified intransitive verbs, the verb is followed by a clitic *a*,

which becomes *ya* after vowels and the velar nasal, see (12). This particle may not be followed by an object, or an adverbial, see (13) (Issah 2015).

(12) O nyu-ya.
3SG drink.PFV-YA
'He drank.'

(13) *O nyu-ya kom / daa.
3SG drink.PFV-YA water market
'He drank water / at the market.'

Tense markers refer to specific time reference points and are independent morphemes preceding the verb, see (14) (Issah 2020: 29). Adverbials can be optionally added but the temporal reference is exclusively provided by the tense marker. We assume that the tense marker realizes the head of the TP. For more information on the grammar of Dagbani, see Olawsky (1999).

(14) Doo maa daa ti-ri bia maa sima.
man DET PST give-IPFV child DET groundnut
'The man was giving the child groundnuts some time ago (more than two days).'

Turning to A'-processes in the language, we argue, following the literature, that a focus phrase FocP is projected in the left periphery of ex-situ wh-questions and their focused answers (Rizzi 1997; Issah 2020). In (15) and (16), we illustrate ex-situ wh/focus constructions of subjects and objects. The wh/focus XPs are syntactically fronted and obligatorily followed by the focus markers *n* for subjects (15), and *ka* for objects (16). Wh/focused non-subjects may also appear in their base position, in which case the left-peripheral focus marker is absent, see (17). (The focus accent in the English translation is marked by capitalization.)

(15) Q: ŋuni n (*o) da bua maa?
who FOC 3SG buy.PFV goat DET
'Who bought the goat?'
A: Abu n (*o) da bua maa.
Abu FOC 3SG buy.PFV goat DET
'ABU bought the goat.'

(16) Q: Bo ka Abu da (*o)?
what FOC Abu buy.PFV 3SG
'What did Abu buy?'
A: Bua maa ka Abu da (*o).
goat DET FOC Abu buy.PFV 3SG
'Abu bought the GOAT.'

(17) Q: Abu da bo?
Abu buy.PFV what
'What did Abu buy?'
A: Abu da bua maa.
Abu buy.PFV goat DET
'Abu bought the GOAT.'

The different choice of focus markers is not the only asymmetry found with respect to wh/focus constructions. In addition, an in-situ realization is only possible for non-subjects, as testified by the obligatory presence of the subject focus marker. As show in (16) and (17), short wh/focus movement does not leave a resumptive pronoun in the base position of the moved argument.

Another important observation concerns the disjoint marker *ya*. The verbs in (16) obligatorily appear without it, as this marker is generally blocked in sentences with A'-dependencies including wh and focus. Crucially, the marker is not just blocked with an A'-dependency across it, for example object wh-movement as in (16), but also in cases in which the A'-dependency does not cross the verb, for example in subject wh-questions (18).

(18) a. O nyu-ya.
3SG drink.PFV-YA
'He drank.'
b. ŋuni n nyu(*-ya)?
who FOC drink.PFV-YA
'Who drank?'

Given this, the presence or absence of the marker *ya* can be taken to diagnose A'-movement. We will use this test when arguing for subject movement in relative clauses, see Section 4.2.[6]

Moving from local to long-distance focalization, the asymmetry between subjects and objects reveals yet another important property, the use of resumptive pronouns with subject focus in long distance extraction. In (19a), from Issah & Smith (2020), the focused subject *do so* ('a certain man')[7] is extracted from the embedded clause to the specifier of the FocP in the matrix clause.

[6] Data like (16) and (18) immediately raise the question why the presence of the disjoint marker should be sensitive to A'-dependencies in the clause, which also includes negation, blocking the presence of the marker. Speculating about a way to approach this, one could assume that there exists an (agreement) A'-dependency between an operator somewhere high in the clause and a lower position related to the disjoint marker or more generally the verb. This dependency might then be interrupted by other A'-processes due to intervention, which in turn blocks the realization of the disjoint marker.

[7] Note that in contrast to its use in relative clauses, *so* here functions as a real specific indefinite determiner. We will discuss *so* in more detail in Sections 3.2 and 4.

Its base position is obligatorily filled by the resumptive pronoun *o*. Note that there is no focus marker in the embedded clause. Example (19b) shows that such resumptive pronouns cannot be used for objects in long-distance focalization. The contrast between (19a) and (19b) clearly shows that the focus marker for the non-local subject in the matrix clause must be *ka*, i.e. the same focus marker used for non-local as well as local objects. Thus, focus marking does not show a subject vs. non-subject asymmetry, but rather differentiates local subjects from everything else. In addition to long-distance focus movement, the focused elements can also be focus-fronted inside the embedded clauses (20), where the asymmetry between the subject and non-subject focus marker reappears.

(19) a. Doo so ka n wum ni *(o) da loori.
man INDF.SPEC FOC 1SG hear.PFV COMP 3SG buy.PFV car
'I heard that a certain MAN bought a car.'
b. Loori ka n wum ni do so da (*di).
car FOC 1SG hear.PFV COMP man INDF.SPEC buy.PFV it
'I heard that a certain man bought a CAR.'

(20) a. N wum ni doo so n da loori.
1SG hear.PFV COMP man INDF.SPEC FOC buy.PFV car
'I heard that a certain MAN bought a car.'
b. N wum ni loori ka do so da.
1SG hear.PFV COMP car FOC man INDF.SPEC buy.PFV
'I heard that a certain man bought a CAR.'

While (19) and (20) clearly show that the complementizer *ni* introducing embedded clauses seems to occupy the highest position inside the embedded clause, Dagbani also has constructions in which the complementizer can be taken to occupy a position below the embedded subject. These contexts generally appear to cover certain adverbial clauses like temporal or conditional clauses, see (21), and cases in which languages that have them would employ non-finite clauses, see (22). Note the position of the tense markers, which in all examples appear below the complementizer. The presence of low complementizers in Dagbani is reminiscent of the discussion in Rizzi (1997: 288), where the Italian non-finite complementizer *di* is assumed to occupy the head of FinP, following fronted topics and foci (cf. also Ledgeway 2005 for a similar discussion for *que*).

(21) a. Ama mi shɛli polo John ni yɛn kuwarigi noo.
Ama know some place John COMP FUT slaughter fowl
'Ama knows where John will slaughter a fowl.'

b. Mary yi di kuwarigi noo, ti daan duɣi li.
Mary if PST kill fowl 1PL COND cook.PFV it
'If Mary had slaughtered a fowl, we would have cooked it.'

(22) Mary suhi sa paligi la o ni miɛ yili.
Mary heart PST bright FOC 3SG COMP build.PFV house
'Mary was happy to build a house.'

Importantly, we take data like (21) and (22) to be indicative of the base position of subjects in general. Instead of assuming that subjects move to different positions when comparing these sentences to standard declarative clauses, we assume that subjects are always in the specifier of the low complementizer position, independent of whether the complementizer is overt or covert. They move there not via spec-TP but directly from their thematic position in spec-vP, and thus the movement into this position can be considered A-movement, also in light of the A'-movement diagnostic *ya* discussed above (cf. Barbosa 2000 for European Portuguese and Messick 2020 for a more general discussion).[8]

Topicalization is also possible in Dagbani, albeit much less frequent than focalization. As (23) clearly shows, topicalization and focalization can be combined, with topicalization targeting a position higher than focalization.[9]

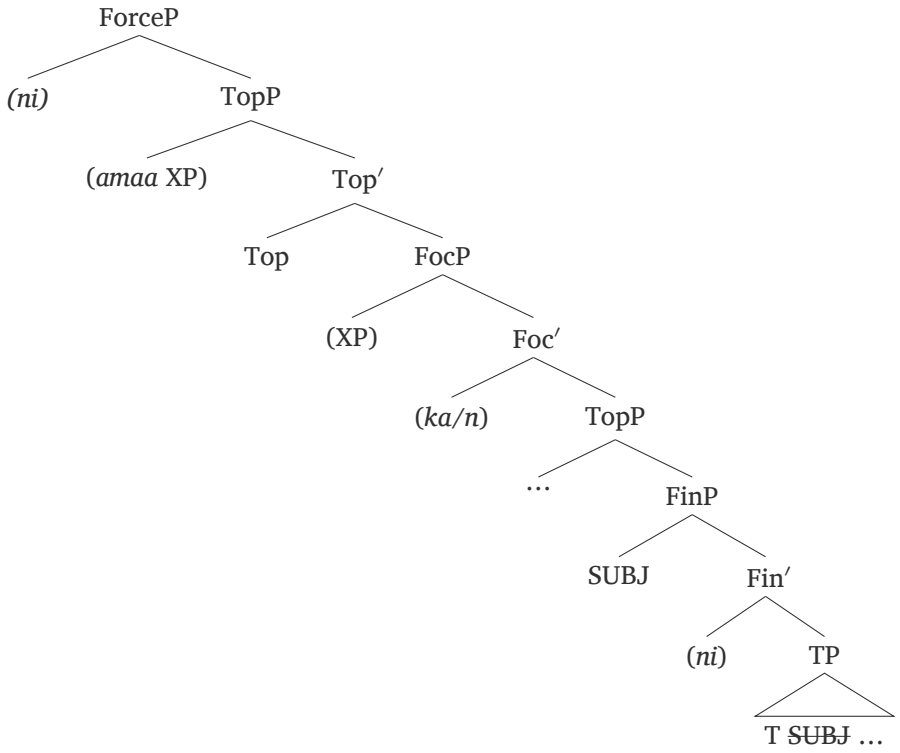
(23) Amaa loori maa, sɔh'la ka n sɔ da li.
TOP car DEF yesterday FOC 1SG PST buy.PFV it
'As for the car, I bought it YESterday.'

Summing up, the data discussed so far provide evidence for a complex left periphery of the Dagbani clause, very much along the lines of the proposal in Rizzi (1997) for Italian. Dagbani shows a high as well as a low position for complementizers, Force and Fin, respectively, as well as various information-structural positions in between. Importantly, subjects occupy spec-FinP and not spec-TP. This is summarized in the structure in (24).

[8] This might be due to feature inheritance. As proposed by Chomsky (2008), T's features, including the EPP, are actually introduced on C, the phase head, and then inherited by T. Miyagawa (2010; 2017) argues for cross-linguistic variation with respect to which features can be inherited by T and which remain in C. For Dagbani, it seems to be the case that T does not inherit any features, not even the EPP, from C, which corresponds to Category IV in Miyagawa (2017: (5)).

[9] The presence of a resumptive in object position in (23) suggests an analysis in terms of Clitic Left Dislocation. However, the only thing important for the paper at hand is that this process targets a position above the ex-situ focussed element.

(24)



3.2 Dagbani relative clauses

Moving on from the more general discussion in the last subsection, we now introduce the relevant patterns of relative clauses in Dagbani.

In general, it can be said that Dagbani, similar to all Mabia languages that have been investigated, makes a distinction between non-subject and subject relative clauses as illustrated in (25) and (26), respectively. In (25), the relativized noun is *cheche* 'bicycle', which clearly appears in the base object position inside the relative clause in (25a), and has been moved to the relative clause initial position in (25b). The example in (26) (Issah 2020: 123) shows a subject relative clause, in which the relativized noun seems to be followed by a pronoun.

(25) a. Abu je [$_{DP}$ a ni da **cheche shɛli** maa].
Abu dislike.PFV 2SG COMP buy.PFV bicycle SO DET
'Abu disliked the bicycle that you have bought.'

b. Abu je [$_{DP}$ **cheche shɛli** a ni da maa].
Abu dislike.PFV bicycle SO 2SG COMP buy.PFV DET
'Abu disliked the bicycle that you have bought.'

(26) [$_{DP}$ **paɣa so** ŋun da yili palli maa]
woman SO REL.PRO buy.PFV house new DET
'a woman who bought a new house'

3.2.1 The left periphery

Before we discuss various properties of the construction in detail, we want to briefly describe the left peripheral structure of relative clauses, especially in relation to the left periphery of declarative clauses that we saw in (24). Above we argued that the left periphery of declarative and interrogative clauses in Dagbani provides evidence for a split CP containing the positions proposed in Rizzi (1997).

In contrast, relative clauses host a much smaller left periphery. First, there is no evidence for a high complementizer in Force. Second, topicalization with *amaa* as well as focalization are impossible inside relative clauses. Even if a contrast is set up inside the relative clause, nothing can be focus-fronted there. This is shown in (27). Contrastive object focus in the subject relative clause in (27A1) must be expressed in-situ since focus fronting in the relative clause is not possible, see (27A2).[10]

(27) Q: Did you see the man that ate chicken?

A1: Aayi, n di nyɛ la [$_{DP}$ **doo so** ŋun di di zahim maa].
no 1SG PST see.PFV FOC man SO REL.PRO PST eat.PFV fish DET
'No, I saw the man that ate FISH.'

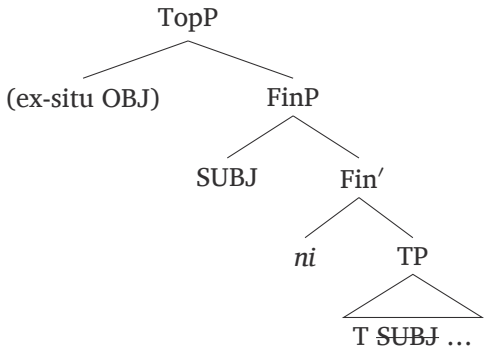
A2:*Aayi, n di nyɛ la [$_{DP}$ [$_{FocP}$ zahim ka [**doo so** ŋun di di]]
no 1SG PST see.PFV FOC fish FOC man SO REL.PRO PST eat.PFV
maa].
DET

At the same time, there is evidence that the two lowest projections in the split-CP domain are available, FinP and the TopP immediately above it. This is clearly shown by the object relative clauses. First, consider the in-situ object relative clause in (25a). Here, even though the object is in-situ, the subject precedes the low complementizer *ni*. We argued above that this is the standard position of the subject in the language in spec-FinP. Looking at the ex-situ object relative clause in (25b), the object has moved into a position above the subject. While we discuss the nature of this position below, these data seem to suggest the structure of the left periphery of relative clauses in (28).[11]

[10] Movement of the focused constituent into a different position, i.e. a position between *doo so* and *ŋun* or immediately following *ŋun* is also impossible.

[11] Bodomo & Hiraiwa (2010) also assume that the CP in relative clauses has two available positions, however, for them, these are FinP and ForceP. The existence of a projection as high as ForceP might predict that topicalization and focalization should be possible in relative clauses, contrary to fact.

(28)



We will now discuss various properties of relative clauses in more detail, starting with the determiner system which is similar across subject and object relative clauses, before focusing on these two types in turn.

3.2.2 The determiner system

Despite the many differences between subject and object relative clauses, which we will discuss shortly, various similarities can be observed between them. Starting with the right edge of the relative clause, this is marked in most cases by a final determiner *maa*, which is analysed by Hiraiwa et al. (2017) as a clausal determiner delimiting the right edge of the relative clause and indicating its nominal nature. Thus, the relative clause final determiner is in no way related to the relativized noun but to the relative clause as a whole.

The language also has a second definite determiner, *la*, which can also appear in relative clause final position (29). In our data, such occurrences are very rare and the conditions on when which determiner is used are still unclear.[12] As both determiners behave similarly syntactically, we do not discuss this further here, as it does not impact the analysis to be developed.

(29) N nyɛ [**bi** **so** ŋun di gbihi la].
1SG see.PFV child SO REL.PRO PST sleep.PFV DET
'I saw a child who slept.'

Both definite determiners, *maa* and *la*, also occur outside of relative clauses, fulfilling typical definite determiner functions (30). Again, similar to their occurrence in relative clauses, it is unclear how to differentiate the uses of the two definite determiners. Olawsky (1999), referencing Wilson (1972), mentions the tendency for *maa* to be used with previously mentioned noun phrases, whereas *la* is used for new information. Again, we were not able to verify this claim as our informants did not share this intuition.

[12] An anonymous reviewer suggests that the differences might lie in the lack of the typical uniqueness component associated with English-type definite determiners and instead, one of the determiners might mark something like the presence of the element inside the Common Ground. Unfortunately, we were not able to verify this for Dagbani.

(30) a. paɣa maa
woman DET
b. paɣa la
woman DET
'the woman'

In our data, we only found very few cases in which the relative clause final *maa* was optionally allowed to be absent. For example, in relative clauses, *maa* appears to be optional when the relative clause refers to an indefinite inanimate object (31).[13]

(31) O mi bɛ ni daa di binshɛɣu.
3SG know.PFV 3PL COMP TNS eat.PFV something
'He knows what they ate.'

Furthermore, our data could not corroborate the claim from Issah (2020: 126) that the relative clause final determiner is simply a specificity marker. Under his approach, relative clauses without final determiners are generally possible in Dagbani, as long as the head noun is interpreted non-specific. Our informants seemed to adhere to an even stronger restriction, in that the head noun has not just to be non-specific but indefinite, which is only possible with indefinite pronouns as in (31). Thus, it seems that the Dagbani spoken by our speakers lies somewhere between the obligatory relative clause final determiners reported in Hiraiwa et al. (2017) and the specificity marking in Issah (2020).

This brings the discussion to the second property shared between subject and non-subject relative clauses, the determiner-like element *so*, immediately following the relativized noun, in-situ or ex-situ. Similar to the relative clause final determiner just discussed, this element can also occur outside of relative clauses, where it serves a determiner function, more specifically as a specific indefinite determiner, showing animacy as well as number distinctions. This is shown in (32a) and (32b) for animate and inanimate nouns, respectively (both from Issah 2020: 125).

(32) a. bi so/sheba
child INDEF.SPEC.ANIM.SG/PL
'a certain child / certain children'
b. loori shɛli/shɛŋa
lorry INDF.SPEC.INANIM.SG/PL
'a certain lorry / certain lorries'

[13] Syntactically, this clause is clearly a relative clause, as evidenced by the relative clause subject moving across the complementizer in (31).

However, it is unclear whether these elements fulfill exactly the same function in relative clauses. Note that they also occur with unique relativized nouns, which immediately excludes a specific indefinite interpretation.

(33) [**n** **duuma** **so** yiŋa n ni jem-di maa] be la zimsim ni.
1SG god SO home 1SG COMP worship-IPFV DET COP LA darkness in
'My god, whose house I worship, is eternal.'

The relative clause in (33) modifies not only a unique head noun, but also allows an interpretation as a non-restrictive relative clause. Still, the element *so* appears, besides the clause final determiner *maa*. Again, this holds for subject (33) and object relative clauses (34) alike. Such examples also illustrate that there is no formal marking of the distinction between restrictive and non-restrictive relative clauses in Dagbani, which was already pointed out for the closely related Mabia languages Dagaare in Bodomo & Hiraiwa (2010).

(34) [**Ti** **saan** **so** n ni sa kpuɣi alepile paaki ni maa] na gbihi-ri
our guest SO 1SG COMP PST pick.PFV airplane park inside DET still sleep-IPFV
mi.
PRT
'Our guest, who I picked up from the airport yesterday, is still asleep.'

Moreover, the element *so* also combines with proper names as relative clause heads (35a), which is impossible outside of relative clauses (35b), again challenging the interpretation of this element as a specific indefinite marker in relative clauses. In contrast to *so*, the definite determiners *maa* and *la* can optionally combine with proper names outside of relative clauses, which leads to a more emphatic interpretation of the noun phrase according to our informants. Also note that (35a) is the only grammatical way of using a proper name as the head of a relative clause, i.e. omitting *so* also leads to ungrammaticality, similar to the head noun being accompanied by the definite determiner *maa*.

(35) a. N nya [**Peter** (*maa) **so** ŋun chaŋ daa maa].
1SG see.PFV Peter DEF SO REL.PRO go.PFV market DET
'I saw the Peter who went to the market.'
b. N nya Peter maa/*so.
1SG see.PFV Peter DEF/SO
'I saw the Peter.'

Although the distribution of *so* seems to foil an indefinite interpretation, we would like to suggest that this element nevertheless guarantees a successful combination of the relative clause and the head noun. We assume that restrictive relative clauses serve the function to determine, or

restrict, the head noun's potential referents. This implies that the head noun is indefinite or is at least formally marked as having a non-unique interpretation. This includes definite head nouns as well as proper names. Attaching a relative clause to a definite head noun implies that its reference is not yet fully determined, despite the definite article, similarly to proper names. This is not only a property of the Mabia languages. In the German (36), for example, the restrictive relative clause following the proper name forces the definite determiner on the proper name, but still requires an interpretation in which *Peter* is not the unique person with that name.[14]

(36) Ich habe **den Peter** gesehen, der gestern wild getanzt hat.
I have the Peter seen who yesterday wildly danced has
'I saw the Peter who danced wildly yesterday.'

Of course, definite head nouns in German and English are easily possible with non-restrictive relative clauses. This is not an option in Dagbani, as the language lacks a formal distinction between restrictive and non-restrictive relative clauses. It is therefore not surprising that something akin to the *Indefiniteness Restriction* (Williamson 1987 for Lakhota) holds in Dagbani and other Mabia languages like Dagaare (Bodomo & Hiraiwa 2010: 975) across the board.

Turning back to Dagbani *so*, which we will analyse as a realization of d, the head of the dP, a projection contained in the DP, i.e. below it, we assume that its inherent indefinite nature is employed to ensure the correct integration of the head noun into the relative clause, independently of the question whether the head noun is definite or indefinite itself and also independently of the restrictive or non-restrictive interpretation the relative clause might receive. This analysis of *so* as the head of dP is in line with much research on the structure of DP, for which it is often assumed that different types of determiners are generated in different positions (see for example Roehrs 2006, or Alexiadou et al. 2007 for a more general overview). More concretely, we assume with Cinque (2020) and much older work (Brugger & Prinzhorn 1996) that weak determiners, like Dagbani *so*, are generated as heads of d, whereas strong determiners, like Dagbani *maa* and *la* are generated as heads of D. We will discuss this further when introducing the ideas of Cinque (2020) in more detail in section 4.1.

A similar marking strategy has been observed by Graczyk (1991) for Crow, which also employs a second determiner, formally identical to the indefinite marker, even in clearly definite contexts. Graczyk (1991: 502) concludes that the indefinite marking is "a matter of purely formal syntax: head nouns of Crow relative clauses are marked with the indefinite determiner even if they are

[14] From a semantic point of view, it could be argued that the element *so* overtly expresses type shifting of the head noun to a property denoting noun, which is required for the noun to be able combine with the relative clause via predicate modification.

already given in the discourse and identifiable by the hearer". We will return to the d-head in Section 4.2, where we will also show that the rare contexts in which this indefinite determiner cannot occur are syntactically conditioned.

3.2.3 Object relative clauses

Besides these similarities, the relative clause final determiner and the determiner-like element following the relativized noun, non-subject and subject relative clauses also show some very important differences. First, non-subjects can be relativized with two different strategies, in-situ or ex-situ, while only one strategy is available in subject relative clauses. This is strongly reminiscent of what has been discussed in section 3.1, where we showed that A'-movement to the left periphery displays a very similar contrast: While non-subject wh-questions and focus structures could be formed in-situ or ex-situ, only the ex-situ strategy was available for subject wh-questions and subject-focus.

Repeating the two examples of object-relativization from above in (37), we discuss the differences between ex-situ and in-situ non-subject relatives first before relating them to subject relative clauses.

(37) a. Abu je [$_{DP}$ a ni da **cheche shɛli** maa].
Abu dislike.PFV 2SG COMP buy.PFV bicycle SO DET
'Abu disliked the bicycle that you have bought.'

b. Abu je [$_{DP}$ **cheche shɛli** a ni da maa].
Abu dislike.PFV bicycle SO 2SG COMP buy.PFV DET
'Abu disliked the bicycle that you have bought.'

As shown in (37a), in-situ object relative clauses, as the name suggests, leave the object in its base position. The subject still moves to spec-FinP, similar to main clauses, and precedes the low complementizer *ni*, which is obligatorily present in non-subject relative clauses.

In ex-situ non-subject relative clauses, the object simply moves into a position above the subject, as shown in (37b). Importantly, the fronting of the object is the only change from (37a) to (37b) as the subject still precedes the complementizer. This word order is obligatory, and having the subject following the complementizer leads to ungrammaticality, as shown in (38).

(38) *Abu je [$_{DP}$ **cheche shɛli** ni a da maa].
Abu dislike.PFV bicycle SO COMP 2SG buy.PFV DET
'Abu disliked the bicycle that you have bought.'

A language having both an in-situ and an ex-situ strategy for a similar construction immediately raises the questions about the differences between these two strategies. According to our

informants, the difference relates to emphasis, with an ex-situ relative clause placing more emphasis on the relativized constituent. Again, this is reminiscent of the difference between in-situ and ex-situ focus constructions, where the former is preferably used to encode new information focus, and the latter to encode more emphatic types of focus, like contrastive or exhaustive foci. This is shown in the following examples, in which (39) and (40) aim to make this notion of emphasis more precise.

(39) We have many goats in our farm, but the children like one in particular. Unfortunately, …

a. [$_{DP}$ **Bua so** bihi ni yu-ri maa] kpi-ya.
goat SO children COMP like-IPFV DET die.PFV-YA
'The goat that the children like, died.'

b. #Bihi ni yuri **bua so** maa kpiya.

Changing the context slightly, the in-situ option is preferred, see (40).

(40) There was a strange animal disease lately. What was extremely sad was that …

a. [$_{DP}$ Bihi ni yu-ri **bua so** maa] kpi-ya.
children COMP like-IPFV goat SO DET die.PFV-YA
'The goat that the children like, died.'

b. #**Bua so** bihi ni yuri maa kpiya.[15]

This contrast seems to suggest that Aboutness, or at least Familiarity, seem to play an important role with respect to the fronting of the relative clause head. This comes as no surprise, as both of these notions have been analysed as being encoded in dedicated topic positions in the left periphery of various languages in Frascarelli & Hinterhölzl (2007).

Hiraiwa et al. (2017) analyse these ex-situ non-subject relative clauses as still being head internal. In other words, the head of the relative clause has moved, but it has moved to a position in the periphery of the relative clause and not to a position outside of it. Two arguments are adduced by Hiraiwa et al. (2017) to support the assumption that fronting of the object targets a position inside the relative clause in Dagbani. First, if fronting of the object were to target a clause external position, the position of the subject is also put into question. Second, in many languages that have head external relative clauses, it is possible to dissociate the head from the actual relative clause, for example by extraposition to the right edge of the clause in a language like German.

[15] Note that, similarly to Dagbani wh-questions, the pragmatic conditions triggering ex-situ relative clauses do not lead to a perfect division of ex-situ vs. in-situ relative clauses but should be considered as tendencies, see also Hartmann & Zimmermann (2007) on focus and wh-interrogatives in Hausa.

In Dagbani, separating the relativized ex-situ object from the relative clause is generally impossible and always leads to ungrammatical structures. As extraposition is not available in Dagbani, (41) shows an attempt where the head of the relative clause is wh-moved to sentence initial position. (41a) serves as baseline, *bu so* being the ex-situ DP of an object relative clause. In (41b), the head is replaced by a wh-element and wh-moved to sentence initial position. The dissociation of the head from the relative clause leads to ungrammaticality.

(41) a. Ata di [$_{DP}$ [$_{DP}$ **bua so**] bihi ni yu-ri maa].
Ata eat.PFV goat SO children COMP like-IPFV DET
'Ata ate the goat that the children like.'

b. *__Bo__ ka Ata di [$_{DP}$ [$_{DP}$ ~~**bo**~~] bihi ni yu-ri maa]?
what FOC Ata eat.PFV children COMP like-IPFV DET
int.: 'What did Ata eat that the children like?'

3.2.4 Subject relative clauses

Turning to subject relative clauses, they behave completely differently as shown in (42) with the example repeated from above for convenience:

(42) [$_{DP}$ **paɣa so** ŋun da yili palli maa]
woman SO REL.PRO buy.PFV house new DET
'a woman who bought a new house'

First, subject relatives can only be realized with a structure like (42), and do not share the in-situ/ex-situ variability displayed by object relatives. Second, whereas the subject in object relative clauses precedes a complementizer, this complementizer is absent in subject relative clauses. Third, instead of a complementizer, the relativized subject is followed by a pronominal-like element which shares certain properties with the emphatic pronoun of the language. The two **Tables 1** and **2** show the paradigms for the emphatic pronoun and the element in relative clauses, respectively. It is obvious that the element in relative clauses is related to the emphatic pronoun, as its paradigm consists of the third person animate and inanimate forms, except for the pronoun-final *-a*.

The example in (42) illustrates the cell in the **Table 2** where the element refers to a singular 3rd person animate subject. In (43), we give examples for plural animate, singular and plural inanimate head nouns, respectively. Recall that inanimate relative head nouns require the inanimate form of the head noun accompanying marker *so*, namely *shɛli* (sg.) or *shɛŋa* (pl.) as well. The examples in (43b) and (43c) are taken from Olawsky (1999: 61).[16]

[16] The head noun in (43a) lacks the maker *so* that we discussed above. This is due to the fact that the head noun here is a pronoun. We return to this point below.

	SG	PL
1	mani	tinima
2	nyini	yinima
3 ANIM	ŋuna	bana
3 INANIM	dina	ŋana

Table 1: Emphatic pronouns.

	SG	PL
ANIM	ŋun	ban
INANIM	din	ŋan

Table 2: Pronouns in relative clauses.

(43) a. **Tinima** ban da loorinima maa duhi chaŋ Tamale.
we.EMP REL.PRO buy.PFV cars DET drive.PFV go.PFV Tamale
'We, who bought cars, drove to Tamale.'

b. **Su'** **shɛli** din pa teebuli zuɣu maa kabi-ya.
knive SO REL.PRO be.on.top.PFV table on DET break.PFV-YA
'The knive which was on the table is broken.'

c. **Su'** **shɛŋa** ŋan pa teebuli zuɣu maa kabi-ya.
knive SO REL.PRO be.on.top.PFV table on DET break.PFV-YA
'The knives which were on the table are broken.'

As we will discuss below, the pronominal-like element does actually not always express third person but is sensitive to the person features of the head noun. Thus, the forms are syncretic for person, but still able to appropriately serve as antecedent for anaphors that are not third person.

To summarize, we have shown that Dagbani relative clauses exhibit strong structural asymmetries between subject and object relative clauses. These concern not only the available structural positions of the head nouns, but also other participating morpho-syntactic elements like the overt complementizer in object relatives and the pronoun following the head noun in subject relatives.

3.3 Problems with a head internal analysis for subject relative clauses

As outlined in the last sections, Hiraiwa et al. (2017) have argued in favour of a head internal analysis for object relative clauses, even for the ex-situ type. At the same time, they do not include subject relative clauses in their analysis. In this section, we will discuss whether the head internal analysis is transferable to subject relative clauses. We will argue that this is not the case and that subject relatives require a head external analysis.

Recall from the preceding section that subject relative clauses can only be realized with one particular structure that requires the subject being followed by the pronominal-like element *ŋun*. As there is no reason to assume that the subject and *ŋun* form a constituent, a head internal analysis of subject relative clauses would have to assume movement of the relativized noun to the left periphery of the relative clause with *ŋun* remaining lower.

(44) [$_{DP}$ [$_{CP}$ [$_{DP}$ **paɣa so**] ŋun da yili palli] maa]

Under a head external analysis, the relativized noun is outside of the relative clause and connected to its theta-position in the relative clause by an A'-chain or via matching.[17] Note that under such an analysis, the position of *ŋun* is not necessarily the standard subject position, spec-FinP in Dagbani, a point to which we return shortly.

(45) [$_{DP}$ [$_{dP}$ **paɣa so**] [$_{CP}$ ŋun da yili palli] maa]

The first argument against the head internal approach to subject relative clauses concerns the relation between the head noun and *ŋun*. If the head noun moves internally to the left periphery of the relative clause, this would only be possible assuming that the subject pronoun is a resumptive pronoun, as this would create a straightforward Principle B violation otherwise. Two points suggest that this is not the right analysis. First, as we have discussed above, the relative clause exclusive pronoun *ŋun* is closely related to emphatic pronouns. Emphatic pronouns do not tend to be the paradigm from which resumptive pronouns are drawn, and additionally, it has been argued in Issah & Smith (2020) and in Issah (2020) that the resumptive pronoun in Dagbani is actually *o*, the 3sg pronoun. Second, resumptive pronouns are generally only allowed with long distance extraction of subjects in Dagbani, but never in local A'-movement, conforming to the Highest Subject Restriction on resumptives (McCloskey 1990 et seq.). Instead, if an external analysis along the lines of (45) is assumed, *ŋun* does not need to be analysed as a resumptive pronoun.

[17] In both analyses, the particle *so* is assumed to be part of the relativized DP given that it follows relativized in-situ objects.

The second argument in favor of a head external analysis of subject relatives involves relativized possessives. Possessives in Dagbani are expressed by simply combining the possessor with the possessum, cf. (46).

(46) doo yili
man house
'a man's house'

The possessor can be relativized from a possessive in object and in subject position giving rise to the by now well-known relativization patterns. In the following examples, the possessor is immediately followed by *so*. Looking at the ex-situ object case in (47) first, the entire possessive DP is fronted and precedes the subject, which has crossed the complementizer.

(47) [[**Doo so yili**] ti ni nya maa] da bua.
man SO house 1PL COMP see.PFV DET buy.PFV goat
'The man [whose house we saw] bought a goat.'

Example (48) shows relativization of a possessor from a subject possessive. Crucially, the element *ŋun* now appears in the position of the possessor in the possessive construction.

(48) [**Doo so** [ŋun paɣa] chirigi Mary maa] da bua.
man SO REL.PRO wife meet.PFV Mary DET buy.PFV goat
'The man [whose wife met Mary] bought a goat.'

It is not evident how a head internal analysis would derive (48). The first possibility would be to move only the possessor to a higher position. Note, though, that subextraction of the possessor is excluded in other cases, e.g. in wh-questions where the wh-possessor cannot be questioned individually, (49a), but only the entire possessive DP, (49b).

(49) a. *ŋuni n paɣa nya Mary?
whose FOC wife see.PFV Mary
intended: 'WHOse wife met Mary?'
b. ŋuni paɣa n nya Mary?
whose wife FOC see.PFV Mary
'Whose wife met Mary?'

The alternative, fronting of the whole string *doo so ŋun paɣa*, is also not very plausible, given the binding-theoretic problem pointed out above.[18]

[18] An anonymous reviewer points out that in the head raising analysis of Kayne (1994), head nouns can be extracted in relative clauses, even though that is not possible elsewhere. Kayne (1994: 90) provides (i):

Unfortunately, other tests for splitting up the external head and the accompanying relative clause are not available in Dagbani. Adverbials always occur sentence finally, making the insertion of such an element between the relative clause head and *ŋun* generally impossible. Furthermore, passive constructions are also not possible in the language, and in fact impossible in all Mabia languages we have encountered so far. In the next sections, we will discuss another theory-internal reason for analysing subject relatives as head external relative clauses. In the theoretical framework of Cinque (2020) that we adopt here, relative pronoun like elements can only occur in head external relative clauses.

Based on the discussion in this section, we conclude that subject relative clauses in Dagbani require a different analysis from object relative clauses. The next chapter develops a theory that is able to account for all observed properties of Dagbani relative clauses. In a nutshell, this theory assumes a doubly headed relative clause structure, as originally proposed by Cinque (2020), which offers structural positions for both the final determiner *maa* in D as well as for the marker *so* (and variations) in d, immediately following the head noun. The differences between subject and object relatives will be argued to follow from the choice of a raising or matching strategy, both argued to be available in Dagbani.

4 Analysis

We have argued that subject relative clauses need to receive a fundamentally different analysis from object relative clauses. Relating this back to the theoretical possibilities mentioned at the beginning of the paper, it appears to be difficult to provide a uniform analysis in terms of either matching, raising or a head external analysis for the different patterns discussed so far. In this section, we propose an analysis in a different theoretical framework, the one laid out in Cinque (2020). We will introduce the framework in the next subsection before we come to our own analysis of Dagbani subject relatives.

(i) the [$_{CP}$ [[$_{DP}$ man$_i$ [$_{D'}$ [$_D$ who] t$_i$]]'s wife] C …]

In English, *whose man's wife* is actually a possible constituent (even though *who man* is not), but *ŋun doo so paɣa* can never form a constituent in Dagbani. Second, for Kayne, *who* forms the head of the DP with the landing site of the head noun being spec-DP. We follow Cinque (2020) and much preceding work in assuming that relative pronouns are maximal projections instead of heads. Third, note that the head noun is accompanied by its own, crucially postnominal, d *so*, which seems difficult to reconcile with Kayne's analysis. Importantly, this element is not the same as Kayne's *the* in (i), as the relative clause final determiner *maa* fulfills that function in Dagbani. Fourth, if something like (i) was possible in Dagbani, the contrast between (47) and (48) remained a mystery, while analysing one as head internal construction and the other as head external provides a straightforward account.

4.1 Relative clauses as double headed structures: Cinque (2020)

In Chapter 2 above, we discussed the typological variation displayed by relative clauses, as well as the two (or three) different general types of analyses that have been presented in the literature. To recapitulate the discussion briefly, relative clauses can broadly vary along two dimensions: first, whether the head of the relative clause is internal or external to the relative clause, and second, whether the head is in-situ or ex-situ. Naturally, head external relative clauses will only be in-situ in cases in which a second element occurs relative clause internal, so the other possibilities are much more frequent in the languages of the world. Concerning their analysis, relative clauses have either been analysed in terms of matching, where a relative clause external element matches the relativized constituent inside the relative clause, in terms of raising, where the relativized constituent itself raises, sometimes even to a position outside of the relative clause, or in terms of a clear head external analysis in which the head is merged outside the relative clause.

A question immediately raised by the typological and theoretical variation is whether it is possible to unify the different analytical strands into one analysis that is capable of accounting for all of the typological variation.[19] This question becomes even more pertinent when looking at languages like Dagbani, where in a single language we already see different types of relative clause structures. Remember that it has been claimed in the literature by Bodomo & Hiraiwa (2010) and Hiraiwa et al. (2017) that Dagbani has head internal in-situ as well as head internal ex-situ relative clauses. In addition, as we argued above and will show again in the next subsection, subject relative clauses appear to be head external in the language. Ideally, the different types of relative clauses should be derived from one underlying structure, as the assumption of different base-structures in the same language appears to be undesirable.

One promising proposal for a structure able to derive different kinds of relative clauses is given in Cinque (2020). In this work, Cinque argues that all types of relative clauses can be derived from one universal underlying structure. In addition, this structure also allows to derive the properties typically associated with raising and matching analyses of relative clauses, respectively, without resorting to two completely different derivations.

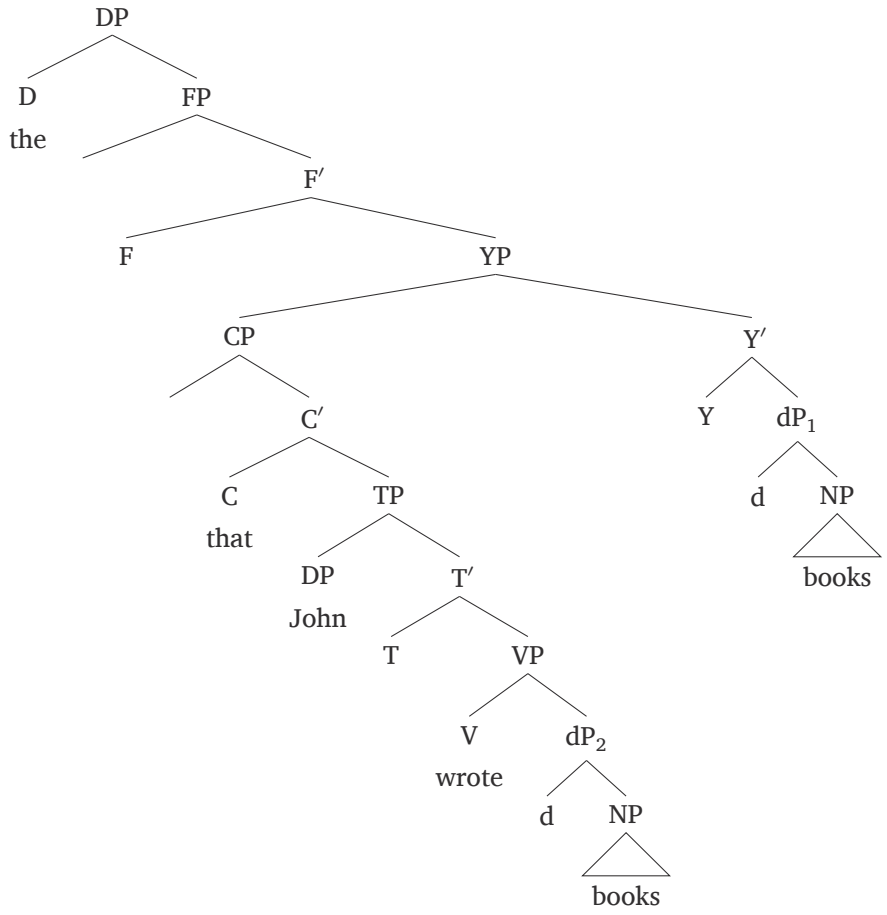
The universal structure of relative clause constructions according to Cinque (2020: 21) is given in (50), for the relativized object construction *the books that John wrote*, and we will use this subsection to mention some of the more relevant points for the discussion to follow.[20]

---

[19] As discussed in Salzmann (2019), the matching analysis in principle is already a combination of the head external and the raising analyses.

[20] Note that we will adopt the structure to fit the Dagbani data, having the D and d heads on the right, as the language shows consistently post-nominal determiners. In contrast to Cinque, we do not assume that this order is derived via movement but the d and D heads are simply base-generated to the right of the noun, see also Section 2.

(50)



The whole proposal is based on a cartographic approach to the DP, already advocated for in Cinque (2010). The general idea is that the DP is treated similarly to the CP in Rizzi (1997) and split up into various projections, with a high DP, hosting strong determiners and a low dP hosting weak determiners, as mentioned in section 3.2.2, with different functional projections in between, some of them related to information structure (Ihsane & Puskas 2001; Aboh 2002). Restrictive relative clauses are assumed to be base generated in the specifier of a functional projection below DP but above dP and NP, comparable to what has already been claimed in Partee (1975).

The main property of the structure proposed in (50) is its double-headedness. Thus, the whole complex DP-structure is projected on top of dP_1, which is the possible external head of the relative clause. This structure then has the actual relative clause in the specifier of a functional projection in the nominal spine, here in the specifier of YP.[21] The relative clause itself is a CP-structure that

[21] The exact position of the relative clause is discussed in Cinque (2020: 221–234) and depends on the semantic contribution of the relative clause. As this is not important for our point, we do not discuss this further. Note however, that for non-restrictive relative clauses, is is assumed that they attach even higher, dominating the DP (Cinque 2020: 158).

contains another dP, dP_2. This dP_2 is the relative clause internal head, which is fully identical to dP_1 in the overwhelming amount of cases.

Before discussing how the different types of relative clauses can be derived from this one structure, we want to again point out that the relativized elements are in most cases dPs and not DPs. According to Cinque (2020: 15), it follows that they can host similar elements to DPs like adjectives, quantifiers and weak determiners, but not strong determiners. Thus, their head, d, and consequently the whole dP are always interpreted as a type of indefinite. In certain cases, the internal relative clause head is assumed to be a DP and not a dP, with various important consequences to which we come back below. On top of the structure is the D head, turning the whole projection into a DP. This D head is overt in English as well as in Dagbani, but DP-initial in the former and DP-final in the latter language.

Based on the structure in (50), Cinque (2020) exemplifies raising and matching derivations, both based on the idea that one of the two dPs in the double headed structure can remain unpronounced when c-commanded by the identical second dP. Importantly, dP_1 and dP_2 do not form a chain as one is not derived by movement of the other. Instead, they are independently merged into the structure and simply co-referent due to the nature of the relative clause construction. Starting with raising, it is assumed that dP_2 raises inside the relative clause to spec-CP. From there it is able to c-command dP_1[22], leading to the phonological deletion of dP_1. This derivation corresponds to the bona-fide raising derivation that has been discussed extensively in the literature, and consequently, all properties associated with the raising operation can be found, especially those related to reconstruction of the raised dP_2. In the classical matching case, it is not dP_2 that raises inside the relative clause but dP_1 that is moving to a higher position, i.e. spec-FP in the structure in (50). From there, it c-commands dP_2 and forces its non-pronunciation. It is of course also possible in these cases that the relative clause internal head still moves inside the relative clause before it is deleted. From this, it also follows that a head internal analysis will always require the external head dP_1 to be deleted, while a head external analysis requires the internal head dP_2 to be deleted.

For in-situ head internal relative clauses, Cinque (2020) is forced to assume a different type of deletion operation, one that does not involve c-command. It is well known that certain ellipsis constructions do not require the antecedent to actually c-command the ellipsis site. This is shown for verb phrase ellipsis in English in (51).

---

[22] Cinque (2020) assumes that c-command applies as defined in Kayne (1994: 16):

(i) X c-commands Y iff X and Y are categories and X excludes Y and every category that dominates X dominates Y.

(51) Mary will bake some cookies but Peter won't ~~bake some cookies~~.

According to Cinque (2020), such a deletion operation is also required in certain relative clauses, most notably in in-situ relative clauses. In these constructions, the internal head of the relative clause, dP_2 in (50), is pronounced in its base position, meaning that the relative clause external head, dP_1 in (50), is elided. Since dP_2 is pronounced in its base position, it cannot have moved to a position where it c-commands dP_1. Consequently, deletion of dP_1 cannot depend on c-command between dP_2 and dP_1 in these cases.

Before we can move on applying this analysis to the subject relative clauses in Dagbani, three further points need to be mentioned. First, as briefly mentioned above, it is possible to combine the matching and the raising derivations. In some cases, dP_2 raises inside the relative clause to spec-CP. Additionally, dP_1 also moves to spec-FP, and, due to c-command, forces the phonological deletion of dP_2. Thus, in line with the matching derivation, the relative clause external head is pronounced, but reconstruction effects inside the relative clause are still detectable since the internal relative clause head was raised inside the clause, even though it is not pronounced in the end. Cinque (2020: 36) discusses such a derivation for a certain reading of relative clauses in (52) in English.[23]

(52) Had he continued to be a dean, he could not have written the books that he wrote.

To derive the so-called individual reading of *the books* in (52), the relative clause internal head dP_2 moves up to spec-CP. In addition, the external head dP_1 also moves to a functional projection above the relative clause. Due to the c-command relation between the two heads, the external head is pronounced.

(53) $[_{DP}$ the $[_{FP}$ $[_{dP1}$ books] F $[_{YP}$ $[_{RelC}$ ~~$[_{dP2}$ books]~~ that he wrote ~~dP_2~~] ~~dP_1~~]]]

Interestingly, the phonological deletion of one of the elements in structures like (53) does not need to be total, which is the second point of interest that needs to be mentioned. Discussing this extensively for Italian, Cinque (2020) argues that partial deletion of the relative clause internal head occurs if it differs in size from the relative clause external head. Concretely, he assumes that the relative clause external head dP_1 can find itself in a position where it c-commands a relative clause internal head of a larger size, for example a DP. The internal head then cannot be deleted due to non-distinctness, and, depending on the language, can be realized as a wh-element, a resumptive, or a comparable element. In English, this is also at the heart of the distinction between the relative complementizer *that* and the relative pronouns *which* and *who*. While the

[23] The sentence can be interpreted in three different ways. In the individual reading, *books* refers to the specific individual books; in the other two readings, *books* is either understood as the entire number of books, structurally corresponding to the raising derivation, or it is understood as *kind of books*.

complementizer is simply *that*, the relative pronouns are analysed as remnants of the relative clause internal head that, due to being a DP with the structure [$_{DP}$ which THING] or [$_{DP}$ who PERSON], instead of a dP, cannot be fully deleted. Another case involves genitives as in (54) (Cinque 2020: 49), in which the relative clause external head *the man* is a dP that has moved to spec-FP in (50). The relative clause internal head, which has moved to spec-CP inside the relative clause, *the man's son*, is a structure larger than dP, due to the accompanying genitive.[24] The internal head, being larger than the external head, cannot be phonologically deleted fully due to non-distinctness, and in English, this leads to the pronunciation of parts of the internal head as *whose*.

(54) [$_{dP1}$ the man] [$_{RelC}$ [$_{DP2}$ whose son] we met yesterday]

It is important to emphasize here that the presence of relative pronouns, wh-elements or resumptives is necessarily based on such a derivation. Thus, in all cases in which such elements are present, the relative clause external head has moved into a position c-commanding the relative clause, and the internal head is only deleted partially.

Lastly, it is quite common cross-linguistically that the periphery of the relative clause is not restricted to only one projection, one CP layer. Under the assumption that invariant relativizers like *that* are actually not heads but phrasal weak relative pronouns (Kayne 2008; Sportiche 2011), this needs to hold for languages that can combine invariant relativizers with relative pronouns, for example the German dialect spoken in Hesse (Grewendorf & Poletto 2015: 399). Once information structure is involved, the complexity of the left periphery in relative clauses can increase even further to allow dedicated information-structural projections (cf. Cinque 2020: 59 for examples).

Summing up, the system in Cinque (2020) aims to provide a uniform structure for different types of analyses of relative clauses. Variation is achieved by different behaviors of the external and internal relative clause heads and the question which of the two heads is deleted: head internal relatives will always require the deletion of the relative clause external head in its base position, while head external relative clauses will always involve the movement of the external head into a position above the relative clause with the deletion of the relative clause internal head, i.e. matching. Importantly, the movement of the external head is not motivated by any type of feature in this framework but simply dependent on which type of relative clause is going to be derived.[25] We follow this assumption here.

[24] For simplicity, we take the larger structure to be a DP, but it could also be a KP or even a PP. This distinction is not relevant for our point here.

[25] Even the possible interpretative differences between the different strategies in the same language do not trigger different movements. Rather, the different interpretations follow from different free applications of movement.

This concludes the introduction to the theoretical framework that we will use to account for the peculiarities of the subject relative clauses in Dagbani. In the next section, we will argue that the analyses presented in Cinque (2020) fits the data from Dagbani very well. The discussion will make reference to all the points discussed in this section: the double headed nature of the relative clause construction, the categorial status of the two heads as dPs as well as the movement processes inside and outside the relative clause that lead to the deletion of the internal or external head, respectively.

4.2 A double headed analysis of Dagbani subject relative clauses

This section develops an analysis of Dagbani subject relative clauses in the framework of Cinque (2020) outlined in Section 4.1. We show that a double headed approach is suitable to account for all the syntactic peculiarities we observed. Summarizing the properties of subject relatives in Dagbani again briefly, recall that Dagbani subject relatives exhibit two different determiners. The first is the determiner in D, *maa*, which is close to obligatory in relative clauses and always occurs clause finally. The second is the determiner *so* (and its variants) in d, which follows the relativized noun. Importantly, none of these determiners is obligatory with DPs outside of relativization (Olawsky 1999). A second important property of subject relative clauses concerns the pronominal-like element *ŋun*, which is morphologically related to the emphatic pronouns as discussed in Section 3.2, and follows the relativized head of the subject relative. Furthermore, subject relative clauses do not exhibit variation with respect to the position of the relative head, which distinguishes them from object relatives and mirrors the distinction found in the wh/focus fronting discussed in in Section 3.1. Lastly, while in object relatives, the subject will always precede a complementizer inside the RelC, such a complementizer cannot be found in subject relatives.

As outlined in Section 3.3, considerations concerning the element *ŋun*, especially in relativization out of possessives, led to the conclusion that the heads of subject relatives need to be outside of the relative clause, i.e. they require a head external analysis in which *ŋun* fills a relative clause internal position. Remember from the discussion in 4.1 that a head external analysis will always require the relative clause internal head to be deleted, at least partially, by moving the relative clause external head into a position in which it c-commands the relative clause. This will serve as the backbone of our analysis and the other properties follow from this more or less straightforwardly.

Considering the determiners first and starting with the clause final determiner *maa*, this determiner is present in the overwhelming majority of relative clauses and is independent of the interpretation of the clause, as discussed in Section 3.2. The determiner does not receive a definite interpretation in relative clauses. This can be witnessed in the following example in which the relativized noun is selected by a verb that can receive an interpretation as an intensional transitive

predicate. Such verbs have the property to create a context for an intensional interpretation of the DPs in their scope, see Zimmermann (1992), Moltmann (1997). The DPs are typically marked with an indefinite article in languages like English and German. The possibility of the determiner *maa* to appear in such contexts in Dagbani, (55), strongly suggests that it does not mark definiteness in Dagbani relative clauses, a function which, however, it performs in non-relative clauses.

(55) N bori la [**gbaŋŋmari so** ŋun yen tum yuuri maa].
1SG want FOC secretary SO REL.PRO FUT work for.long DET
'I am looking for a secretary who can work until late.'

We take *maa* to be the obligatory D-head in the structure in (50). Its only function is the realization of the (final) D of the DP. Thus, the determiner indicates DP phrase structure.

An argument for the nominal status of the relative structure is the fact that *maa* can be followed by quantifiers such as *shɛŋa* ('some') (56a), or *zaa* ('all') (56b), showing that the DP headed by *maa* may be dominated by higher nominal projections, QPs, for instance. The data in (56) also show again that the relative clause internal d-related marker *so* and its variants (the relative clause internal *sheŋa* in (56)) do not contribute to the interpretation of the head noun *some* vs. *all* in (56).

(56) a. John sa di [**moonsi sheŋa** Sule ni da maa sheŋa].
John TNS eat.PFV mango.PL SO Sule COMP buy.PFV DET some
'John ate some of the mangoes that Sule bought.'
b. John sa di [**moonsi sheŋa** Sule ni da maa zaa].
John TNS eat.PFV mango.PL SO Sule COMP buy.PFV DET all
'John ate all the mangoes that Sule bought.'

Turning to the second determiner in relative clauses, *so*, recall that the relativized noun is again in nearly all cases followed by the particle *so/sheba* for SG and PL animate and *shɛli/shɛŋa* for inanimate nouns, respectively. In their analysis of internally headed object relative clauses, Hiraiwa et al. (2017) argue that this element is related to indefiniteness, given that head nouns of internally headed relative clauses are inherently indefinite (Williamson 1987) and therefore cannot be accompanied by a definite article. In a similar vein, Olawsky (1999: 44) describes the post-nominal markers *so* and *shɛli* in Dagbani as emphasizing the specific indefinite nature of the head noun. Arguably for this reason, the definite determiner *maa* may not appear after the in-situ head noun, see (57) (from Hiraiwa et al. 2017: (25)).[26]

[26] A reviewer points out that the ungrammaticality in (57) might be due to a haplology effect known from related languages, as for instance Koromfe, see Rennison (1997). This might indeed be the case as two relative clause final

(57) *[$_{DP}$ [$_{CP}$ Ata ni nya **yili** **maa**] maa] vela.
Ata COMP see.PFV house DET DET nice
intended: 'The house that Ata saw is nice.'

Despite these observations, Hiraiwa (2003; 2017) and Hiraiwa et al. (2017) do not analyse the particle as an indefinite marker but assume that it is a true relativizer, which is obligatory in order to mark the relativized noun in relative clauses. Hiraiwa et al. (2017: 8) argue for Dagbani (and Gurenɛ, another Mabia language) that the relativizer is "morphologically identical" to the specific-indefinite determiner without providing evidence for the alleged formal and/or semantic proximity between these items. To our knowledge, a grammaticalization path from indefinite to relative markers has not been attested in the literature so far (cf. Heine & Reh 1984 and Heine & Kuteva 2002). In addition, the particle appears not only after ex-situ, but also after in-situ head nouns, as also argued by Hiraiwa et al. (2017). This suggests that it locally forms a constituent with the relativized noun, rather than being a relativizer in the clausal left periphery.

We therefore propose an alternative analysis of *so* and argue that it is indeed very similar to the indefinite specific determiner. In relative clauses, it serves as the little d-head in the double headed relative structure we adopt for Dagbani. As we discussed above, its function is, however, purely one of formal syntax (Graczyk 1991: 502), marking the head of the relative clause as indefinite, even in cases in which the head noun is unique (33) or a proper name (35b), to comply with the *Indefiniteness Restriction* (Williamson 1987), at least on the surface.

Analysing *so* as d predicts that it should be blocked in cases in which d is or was occupied by a different element. Note first that Dagbani allows for the relativization of pronouns.[27] In this case, *so* is excluded, showing that it cannot be responsible for relativization. This co-occurrence restriction between pronouns and the particle *so* is another argument in favor of an analysis of its status as d-head, since it is well known that pronouns are in fact merged as heads in the nominal functional sequence (Abney 1987; Ritter 1995; Roehrs 2006 and much

occurrences of *maa* are not possible for our Dagbani speakers, unrelated to whether the last noun phrase is the head noun. Instead, the first *maa* can be replaced with a demonstrative (i).

(i) paɣa so ŋun da yili palli ŋɔ maa
woman SO REL.PRO buy.PFV house new DEM DET
'the woman who bought this new house'

At the same time the head noun of the relative clause can never be accompanied by a definite determiner, independent of its position, i.e. even in cases in which there would be no haplology effect in the first place.

[27] This possibility seems to be rather restricted, though, as we were unable to elicit in-situ object relative clauses with pronominal heads.

subsequent work), and in Dagbani relative clauses, seem to end up in d, blocking the presence of *so*.[28,29]

(58) [**Mani**, ŋun da loori maa] duhi chaŋ Tamale.
1SG.EMPH REL.PRO buy.PFV car DET drive.PFV go.PFV Tamale
'I, who bought a car, drove to Tamale.'

Secondly, the particle also does not appear in relative clauses in which the head is an indefinite pronoun, see (59), showing once again that *so* cannot be a relativizer, and is more likely related to formal marking of indefiniteness.

(59) Ata duɣi la [$_{\text{RELC}}$ bihi maa ni yu-ri binsheɣu].
Ata cook.PFV FOC children DET COMP like-IPFV something
'Ata cooked what the children like.'

In conclusion, the particle cannot be a relativizer. Instead, we propose that it realizes the heads of the little (external and internal) dPs in structure (50) and marks them as indefinite.

Similar to *maa*, *so* and its variants are obligatory in nearly all relative clauses. Hence both the D- and d-heads must be overtly realized. This is peculiar to relative clauses. We assume that outside of relatives, as illustrated in (19), *so* is still merged in d but moves to D, naturally blocking double occurrences of the determiners.

This discussion, in conjunction with the framework presented in Cinque (2020) leads us to propose the base structure in (61) for the subject relative clause in (60).

(60) [$_{\text{DP}}$ **paɣa** **so** ŋun da yili palli maa]
woman SO 3SG buy.PFV house new DET
'a woman who bought a new house'

---

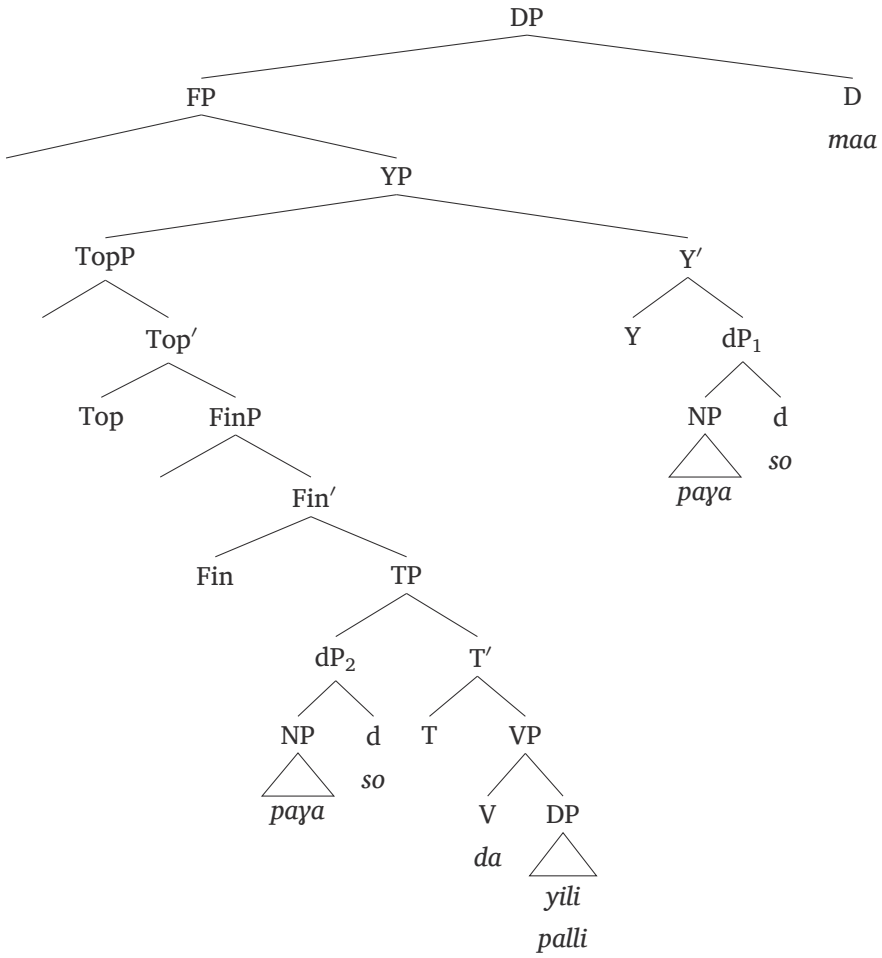
[28] Outside of relative clauses, when nominals are DP structures and not dPs, pronouns continue to move up to D, as they also do not occur with definite determiners.

[29] An anonymous reviewer points out that this might predict the existence of constructions like *we linguists* with a post-nominal pronoun, which is unexpected considering other work on Mabia languages. Our informants can produce such constructions only with the emphatic pronoun in a prenominal position and with a strong preference of the presence of a post-nominal determiner (i).

(i) Tinima Ghananima karimbaandinima maa yuri jollofi.
we.EMPH Ghanian.PL proud.PL DET love jollof.rice
'We proud Ghanaians love Jollof rice.'

The unavailability of adnominal pronouns in such constructions matching the relative position of the proposed final d-head in Dagbani could suggest that pronouns are encoded in a distinct position from d after all, see Choi (2014), Höhn (2016; 2017) for a similar perspective on Koromfe. Given this line of reasoning, the lack of the *so*-marker with pronouns would not be due to the complementary distribution with the pronoun, but rather follow from a semantic incompatibility, see Lyons (1999). We will have to leave this issue open for future research.

(61)



We showed above that subject relatives in Dagbani must be based on a head external structure, meaning dP_1 in (61) moves to spec-FP[30], from there c-commands dP_2, leading to the deletion of the latter relative clause head. As the two relative clause heads dP_1 and dP_2 are of equal size, the deletion of the relative clause internal head is total.

Such an analysis, however, would be unable to account for the presence of *ŋun*. As we discussed above, *ŋun* cannot be analysed as a resumptive pronoun, as resumptives only occur with long subject A'-dependencies and generally take the form of the third person singular pronoun *o*.

Relativization out of possessives provides some evidence to the position of *ŋun*. As illustrated again in (62), *ŋun* replaces the possessor in the possessive DP in the relative clause.

(62) [$_{DP}$ **doo so** ŋun paɣa chirigi Mary maa]
man SO REL.PRO wife meet.PFV Mary DET
'the man whose wife met Mary'

[30] In the system of Cinque (2020), which we assume here, this movement is not motivated by any kind of feature.

As we discussed for (49), this cannot be analysed as extraction of the possessor out of a larger dP. Instead, what we assume here is that *ŋun* is for all intents and purposes a relative pronoun created by the partial deletion of the relative clause internal head dP_2. Recall from the discussion of Cinque (2020) in Section 4.1 that partial deletion of the internal head occurs if the internal head is of a larger size than the external head. This structural mismatch leads to the expression of some element in the position of the internal head. This situation is exactly what we find in Dagbani subject relative clauses: The relative clause internal head dP_2 is consistently larger than the relative clause external head dP_1. Consequently, the internal head can only be partially deleted and *ŋun* is the remnant of this partial deletion. This raises the question of which additional features are carried by the relative clause internal head that make it bigger than the external one. Picking up the the discussion of focus/wh-fronting from Section 3.1, we saw an asymmetry between object and subject ex-situ focus/wh, repeated again in (63) from (15)–(17) above. Whereas wh-subjects need to be ex-situ (63a), wh-objects can either be ex-situ (63b), or in-situ (63c).[31]

(63) a. ŋuni n da bua maa?
who FOC buy.PFV goat DET
'Who bought the goat?'

b. Bo ka Abu da (*o)?
what FOC Abu buy.PFV 3SG
'What did Abu buy?'

c. Abu da bo?
Abu buy.PFV what
'What did Abu buy?'

In addition, we also showed in Section 3.2 that the optional fronting of the head noun in object relatives is triggered by information structure as well, topicality in this case. Thus, the ex-situ relativized object encodes topicality related to Aboutness or Familiarity, while the in-situ relativized object lacks this interpretation. Assuming that information-structural features trigger movement into dedicated projections in Dagbani, we consequently assume that the ex-situ movement of the head in object relative clauses targets the specifier of the low TopP and is triggered by a dedicated [TOP] feature. Unfortunately, while focus movement is clearly marked in Dagbani by the particles *n* and *ka* (63), the language does not host an overt low topic marker.

Combining these two considerations, the obligatory ex-situ subject focus and A'-topic movement in relatives very strongly suggests that the head of subject relative clauses is obligatorily ex-situ as well, mirroring the observation for ex-situ focus constructions. Thus, the

[31] We only show wh-questions here but focus fronting behaves similarly.

subject dP_2 always moves to spec-TopP in subject relative clauses due to carrying a [TOP] feature, which is not shared by the relative clause external head dP_1. As the relative clause internal head is now larger than the external one due to the additional topic feature, deletion can only be partial and *ŋun* is the remnant of this partial deletion. One piece of evidence suggests that this analysis is on the right track. As we discussed above, *ŋun* is obviously related to the emphatic pronoun *ŋuna*. In addition, as shown in (63a), it also bears a formal relation to the wh-element for *who* in the language, which is *ŋuni*. Both emphasis and wh-elements are clearly related to A'-processes, making the assumption that *ŋun* is basically the spell-out of a remnant A'-feature not too far fetched.

Cinque (2020: 48–51) discusses a potential alternative to account for the presence of relative pronouns/wh-elements in English relative clauses. It is assumed that a relative clause like (64a) is based on (64b), in which the relative clause internal head is a DP [$_{DP}$ who PERSON] and the relative clause external is a dP [$_{dP}$ boy PERSON], both *who* and *boy* occurring in the specifier of a silent functional noun PERSON.

(64) a. the boy who came
b. [the [$_{dP}$ boy PERSON] [$_{CP}$ [$_{DP}$ who ~~PERSON~~] came]]]

Due to non-distinctness of the heads, the internal head cannot be fully deleted, and *who* remains. (64) predicts correctly for English that the relative clause internal head should be third person, due to the abstract noun PERSON being the deleted head noun of the relative clause construction. We, on the other hand, assume that it is the whole internal head that is deleted except for the remaining A'-feature. Thus, we might expect that depending on the ϕ-features of the deleted element, *ŋun* is not necessarily third person. This prediction turns out to be true, as shown by *ŋun* controlling anaphors with different ϕ-features in object position when pronominal subjects are relativized.[32]

(65) a. **Nyini** ŋun sa puhi a-maŋ' sɔh-la, duhi chaŋ
2SG.EMPH REL.PRO PST greet.PFV 2SG-self yesterday-DET drive.PFV towards
Tamali.
Tamale
lit.: 'You, who saw yourself yesterday, drove to Tamale.'

[32] These elements are true anaphors that need to be bound by an appropriate antecedent as shown in (i).

(i) a. M paɣa la m-maŋa.
1SG wash FOC 1SG-self
'I wash myself.'
b. *A paɣa la m-maŋa.
2SG wash FOC 1SG-self

b. **Mani** ŋun puhi n-maŋ sɔh-la duhi chaŋ Tamali.
1SG.EMPH REL.PRO greet.PFV 1SG-self yesterday-DET drive.PFV towards Tamale
lit.: 'I, who saw myself yesterday, drove to Tamale.'

The examples in (65) show that *ŋun* is able to control other anaphors besides third person, suggesting that underlyingly, the ϕ-features of the elided head noun are present. Thus, while *ŋun* on the surface only makes a distinction between singular-plural and animate-inanimate (**Table 2**), the features of the elided head noun are still available, as predicted by our account.

It still needs to be shown that the subject has A'-moved to a position higher than its usual position in spec-FinP. In Section 3.1 we showed that perfective verbs in Dagbani show an obligatory ending *ya* when they are sentence final in declarative clause. As soon as the sentence contains A'-movement, *ya* cannot occur, even if the trace of the movement is above the verb. This is shown by the contrast between (66a) ((12) from above) and the corresponding subject question (66b).

(66) a. O nyu-ya.
3SG drink.PFV-YA
'He drank.'
b. ŋuni nyu(*-ya)?
who drink.PFV-YA
'Who drank?'

We described *ya* as akin to a disjoint marker that can occur only sentence finally. However, as the restriction on *ya* is surface oriented, the presence of the relative clause final determiner *maa* is sufficient to block the occurrence of *ya* in most cases. Fortunately, our data also contain cases in which the relative clause final determiner is absent, and even in these cases, the occurrence of *ya* is blocked, see (67).[33]

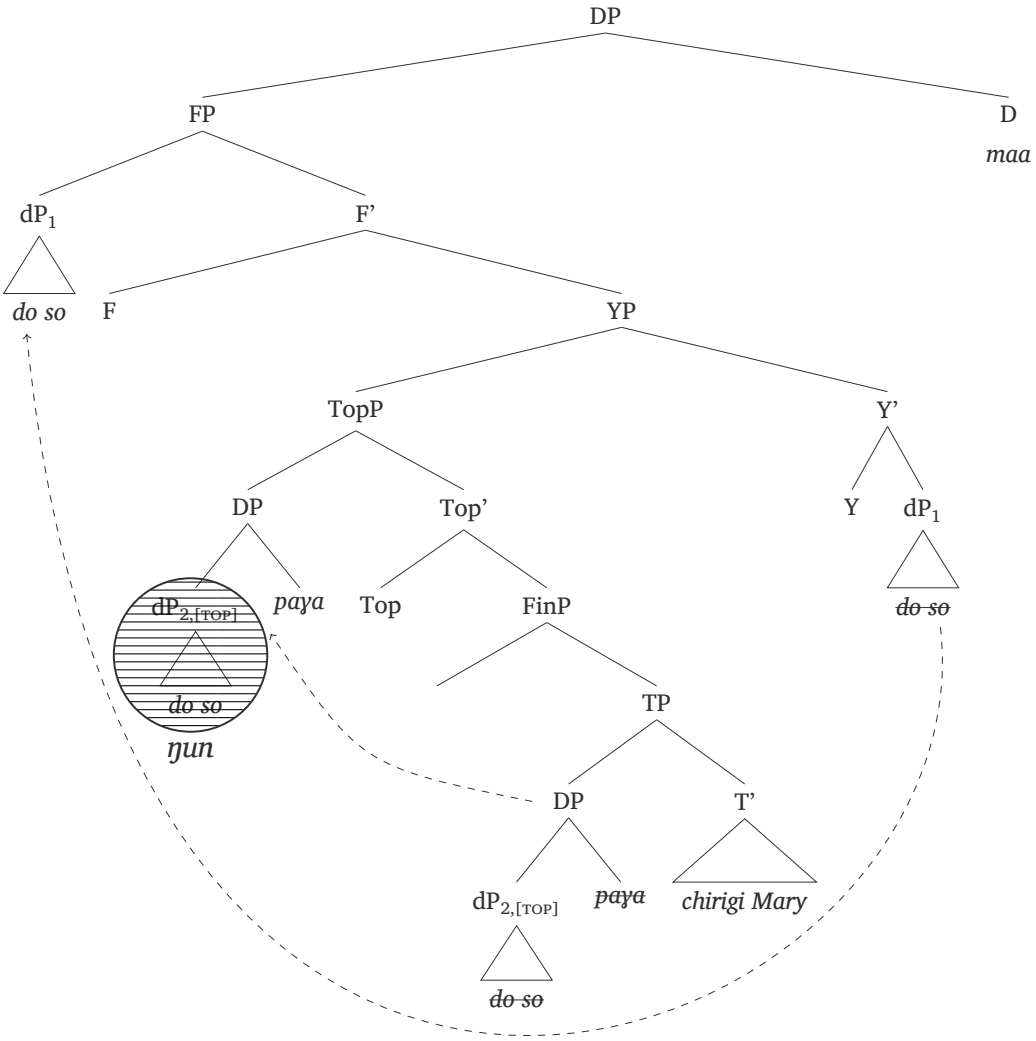
(67) O mi bi-puɣim-bila so ŋun duɣi / *duɣi-ya.
3SG know child-FEM-DIM SO REL.PRO cook.PFV / cook.PFV-YA
'He knows a girl that cooked.'

This observation provides strong support for the assumption that the subject in subject relative clauses has A'-moved into a position higher than spec-FinP. Due to the absence of higher topic and focus positions discussed in 3.2.1, we assume that this movement targets the same position as the movement of the object in ex-situ object relative clauses, namely spec-TopP of the topic projection immediately dominating FinP.

[33] The example in (67) is one of the rare examples in our data where the final determiner *máá* is absent. Unfortunately, we cannot offer an explanation for the absence of the final determiner in this case.

Our analysis carries over to possessive structures. Raising dP_1 to spec-FP leads to the deletion of dP_2. Again, the deletion is only partial, which is due to the [TOP] feature on the d_2-head. As specifiers are islands for extraction in Dagbani, the [TOP] feature on d_2 leads to the whole genitive DP being pied-piped to spec-TopP. dP_2, the possessor, is then partially deleted, and the pronoun *ŋun* in the base position of the possessor expresses the mismatch in size. This is shown in (68).

(68)



Before concluding this section, we briefly want to discuss free (or headless) subject relative clauses. Under the analysis presented here, it is not obvious how to analyse them, as the relative clause external head that triggers the deletion of the internal head is missing. Free subject relatives are possible in Dagbani and show similar properties to standard subject relatives (69).

(69) a. O mi ŋun di guu-bu maa.
3SG know REL.PRO eat.PFV run-NMLZ DET
'He knows who won the race.' (lit.: 'He knows who ate the run.')
b. ŋun suri o maŋa ŋun mali suɣupiɛli.
REL.PRO wash 3SG self REL.PRO be happy
'Who washes himself is happy.' (lit: 'Who washes himself (is) who is happy.')

In the analysis of free subject relatives, we follow Cinque (2020: 100) in assuming that an abstract unpronounced external head [$_{dP}$ THAT PERSON] is present in structures like (69) that leads to the deletion of the relative clause internal head. This suggests that anaphors inside these clauses should always be third person, as is shown in (69b).

To summarize, Dagbani subject relative clauses receive a straightforward analysis given Cinque (2020)'s double headed analysis. The relative clauses are head external, with obligatory topicalization of the subject inside the relative clause. In these constructions, *ŋun* is then the remnant of the partial deletion of the internal head, the deletion only being partial due to the obligatory [TOP] feature on the subject.

5 Object relative clauses

Even though in this paper we are mainly concerned with subject relative clauses, we briefly want to return to object relatives. These differ from subject relative clauses, as outlined in Section 3.2. We repeat the three central aspects. The first point concerns the observation that the head noun may appear in-situ (70a), or ex-situ (70b), both repeated from (25), see Hiraiwa et al. (2017).

(70) a. Abu je [$_{DP}$ a ni da **cheche shɛli** maa].
Abu dislike.PFV 2SG COMP buy.PFV bicycle SO DET
'Abu disliked the bicycle that you have bought.'
b. Abu je [$_{DP}$ **cheche shɛli** a ni da maa].
Abu dislike.PFV bicycle SO 2SG COMP buy.PFV DET
'Abu disliked the bicycle that you have bought.'

The second observation concerns the obligatory presence of the complementizer *ni* following the subject, see (70), with both in-situ and ex-situ head nouns. Note that with the latter, the fronted relativized object as well as the subject precede the complementizer. Finally, object relativization does not allow *ŋun*.

In contrast to subject relative clauses, object relatives in the Mabia languages have been discussed in the literature, most notably in Bodomo & Hiraiwa (2010) and Hiraiwa et al. (2017). In this section, we will show that previous analyses are compatible with what we have proposed for subject relative clauses above. More specifically, the properties of object relative clauses discussed in the literature also find a straightforward explanation in the kind of double headed analysis advocated for in this paper. At the same time, we believe that some of their syntactic properties can receive a more principled explanation in such a framework.

Before we begin with discussing the differences between subject and object relative clauses in Dagbani, it needs to be pointed out that they share various properties, especially with respect to the behavior of the various determiners. Recall that, similar to subject relative clauses, object relative clauses virtually always have the determiner *maa* in relative clause final position. Furthermore, again similar to subject relative clauses, the head noun is always accompanied by a form of *so*. Unsurprisingly, we assume the same reasons for this behavior as in subject relative clauses. The final *maa* is necessary to signal the DP-nature of the whole structure, whereas the form of *so* is due to the relative clause internal (as well as the external) head being a dP and needing to be formally marked as indefinite.

Coming to the differences and starting with ex-situ object relatives, it has been argued that their head nouns, dP_2 in the terms used here, are fronted inside the relative clause (Hiraiwa et al. 2017). This assumption is fully compatible with the approach advocated here, where TopP within the relative clause represents the landing site for dP_2. As discussed in Section 3.2, examples (39) and (40), fronting of the head noun is triggered by Aboutness or Familiarity. Consequently, the ex-situ movement of the relativized object should in itself not be related to the relative clause interpretation (cf. Basilico 1996) but only to information structure.

Based on the data we presented, we assume that TopP is the highest projection inside the relative clause. From its specifier, the moved dP_2 is able to c-command the relative clause external head, dP_1, and consequently, the latter is then phonologically deleted. Thus, in contrast to subject relatives, it is not dP_1 that is pronounced and dP_2 that is deleted, but the opposite applies in ex-situ object relatives. This has an important consequence. Above, we argued that the relative clause internal head dP_2 is bigger than the relative clause external head dP_1, due to a [TOP] feature being present on the former but not on the latter relative clause head, in addition to possible other differences. In subject relatives, the external smaller head leads to the phonological deletion of the internal head. However, as the internal head is bigger, the pronoun *ŋun* survives as the remnant of the deletion. In ex-situ object relatives, the reverse situation applies. Here, the bigger internal head, bigger due to the additional [TOP] feature, c-commands the smaller external head and the latter is deleted. As the external head is smaller than the internal head, nothing remains. The absence of any kind of relative clause specific pronoun in object relative clauses thus immediately follows from the nature of the two relative clause heads dP_1 and dP_2.

This again raises the question of free relative clauses. If the relative clause internal head deletes the relative clause external head in object relatives, we expect free object relative clauses to be absent, as otherwise, there would remain no head of the relative clause at all. This is what our data seem to suggest. In all cases we tried to elicit free object relatives, informants produced sentences with indefinite pronouns as heads internal to the relative clause (71).

(71) O mi bɛ ni daa di binshɛɣu.
3SG know 3PL COMP TNS eat.PFV something
'He knows what they ate.' (lit: 'He knows the thing that they ate.')

In in-situ object relative clauses, no c-command relation is created in any direction. Neither does the external head dP_1 c-command the internal head dP_2 as in subject relatives, nor does dP_2 c-command dP_1 as in ex-situ object relatives. Following Cinque (2020), we assume that in these instances, it is nevertheless the relative clause external head that is deleted. This deletion is similar to cases of forward VP ellipsis, as we discussed above, where, similarly, linearly later elements can be deleted despite the lack of c-command.[34] We want to point out again that the option of having in-situ as well as ex-situ object relative clauses in Dagbani does not come unexpected. Wh-questions, and focus constructions in general, can be in-situ or ex-situ for non-subjects, with the ex-situ variant mostly associated with stronger or more emphatic types of interpretations (Cruschina 2021). This is exactly what holds for non-subject relativization albeit with stronger types of topicality, Aboutness and/or Familiarity now being responsible for triggering the fronting of the relative clause head. At the same time, these options do not exist for subject focus or subject wh-questions, respectively, where no in-situ/ex-situ variability can be observed and only the ex-situ structure is grammatical. Again, we find a similar state of affairs in relative clauses, where subject relativization can only be realized by the ex-situ structure. In in-situ object relative clauses, the relative clause internal head lacks the [TOP] feature, which we assumed to be responsible for fronting inside the RelC. Consequently, dP_1 and dP_2 are of exactly the same size, which nevertheless allows for the full deletion of the relative clause external head dP_1.

The last difference between subject and non-subject relative clauses in Dagbani concerns the occurrence of the complementizer *ni* in the latter but not in the former type of relative clause. In non-subject relatives, independent of whether the head noun is in-situ or ex-situ, the subject precedes the complementizer *ni*, suggesting that the subject has moved into a position inside the C-domain, which we take to be spec-FinP, i.e. the lowest available specifier in the extended CP. Remember that we argued for subject relative clauses that the relative clause internal head always moves to spec-TopP, which raises the questions why *ni* should be blocked in such an instance. We assume that *ni* in spec-FinP carries an [EPP]-feature, requiring a filled complementizer. For *ni* to occur in subject relatives then, the subject would have to first move to spec-FinP before continuing

[34] VP-ellipsis is independently attested in Dagbani.

on to spec-TopP. While the first movement step is possible, as exemplified by the subject in object relatives, the second movement step, i.e. spec-FinP to spec-TopP, is blocked by anti-locality, it is simply too short (in the sense of Erlewine 2016; Erlewine & Gould 2020) within the same domain, the CP. That anti-locality plays an important role in Dagbani has already been shown by Issah & Smith (2020), and here, we extend this idea to subject movement in subject relative clauses. As pointed out by a reviewer, that makes the clear prediction that if the subject is relativized long-distance, i.e. from an embedded clause inside the relative clause, the complementizer should be able to occur. This is exactly what we find in the language, as the only available strategy for long-distance subject relativization involves marking similar to local ex-situ object relativization (72), which is again reminiscent of how long distance subject focalization is marked (19a).

(72) **doo so** Peter ni yɛli [ni o paagi Mary]
man SO Peter COMP say.PFV COMP 3SG know.PFV Mary
'the man who Peter said met Mary'

In (72), the subject to be relativized is first moved out of the embedded clause, which is importantly not a relative clause itself but simply and embedded declarative clause. Thus, we see the expected effect of long distance subject movement, i.e. a resumptive pronoun in the subject's base position. We argued above that the complementizer introducing embedded clauses occupies the head of the ForceP, the highest projection of the CP-domain, so we expect it to precede the resumptive, which is visible in (72).

Independent of the actual analysis, it is striking that subjects show a clear asymmetry with objects in various A'-constructions in that they can neither be focussed nor relativized in-situ, while this option is available for objects, not just in Dagbani but many other West-African languages.

6 Conclusion and outlook

We have presented a comprehensive analysis for the complex patterns of relative clauses in Dagbani, which exhibit subject and object, as well in-situ and ex-situ asymmetries. We believe that a double headed analysis (Cinque 2020) is able to account for the observed variation. Briefly summarizing the main claims of our analysis, we have shown for subject relatives that raising the external head across the internal head leads to the deletion of the latter. Since the lower head contains a TOP-feature, deletion is incomplete and the remnant feature is spelled out as *ŋun*, a pronoun related to the emphatic pronoun paradigm. The proposed analysis also accounts for the relativization of possessives where *ŋun* remains in the position of the possessor after deleting the internal head. Turning to object relative clauses, the ex-situ structure follows from movement of the internal head to the left periphery of the relative clause, to spec-TopP, and the complete deletion of the external head, which, in contrast to subject relatives, does not move. In in-situ

object relatives, neither the external nor the internal head moves and deletion of the external head is done by a process similar to forward ellipsis.

The framework we adopt here, Cinque (2020), allows a uniform analysis of these two types of relative clauses. While subject relatives are closer to a traditional matching analysis, ex-situ object relatives are more similar to what has previously been described as raising, with in-situ object relatives remaining as classical head internal relatives. Given this theory, the differences between the structures reduce to different movement options of the internal and external relative clause heads, which are all independently attested in various typologically unrelated languages. Subject relative clauses are head external, since it is the external head that moves and the internal one that is partially deleted, whereas object relative clauses, in-situ or ex-situ, are both head internal, since the internal head always deletes the unmoved external head. Thus, we do not deviate from assumptions by Hiraiwa et al. (2017), who develop a head internal analysis of object relative clauses, and expand the discussion of relative clauses in Dagbani to subject relatives.

Our analysis easily carries over to relative clauses in other Mabia languages, which exhibit some interesting micro-variational differences, cf. Hiraiwa et al. (2017) and Bodomo & Hiraiwa (2010) for object relative clauses. For reasons of space, we cannot offer detailed analyses here and have to leave a comparative view for future research.

Abbreviations

We follow the Leipzig Glossing Rules, also adapting the glosses from the literature to this convention. In addition, we use the following: ANIM = animate, INANIM = inanimate, PRT = particle.

Funding information

This research was funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation), grant HA 2343/1-1 "The interaction of focus, aspect, and verbal morphology at the VP-periphery in the Mabia languages of Ghana" (PI Hartmann) and SFB 1629 "Negation in Language and Beyond", Project B03 "Syntactic and morphological interactions of negation – a cross-linguistic study" (PIs Hartmann/Mursell). We gratefully acknowledge the financial support.

Acknowledgements

The data were elicited between 2022 and 2024 in Ghana as well as in Germany. The data were provided by and checked with 5 different native speakers of the language, four men and one woman, all aged between 30 and 50. We would like express our gratitude to our linguist informants Abdul Bachi Salifu, Fawziyya Issah, John Naporo Napari, Samuel Alhassan Issah, and Samuel O. Acheampong for cooperating with us and providing all the data for which no reference is given.

We also want to thank the anonymous reviewers and the editors for their comments and feedback, as well as the audience at CGG32.

Competing interests

The authors have no competing interests to declare.

References

Abney, Paul S. 1987. *The English Noun Phrase in its sentential aspect.* Cambridge, MA: Massachusetts Institute of Technology dissertation.

Aboh, Enoch Olade. 2002. La morphosyntaxe de la périphérie gauche nominale. *Recherches linguistiques de Vincennes* 31. 9–26. DOI: https://doi.org/10.4000/rlv.335

Abubakari, Hasiyatu. 2018. *Aspects of Kusaal grammar: The syntax-information structure interface*. Vienna: University of Vienna dissertation. DOI: https://doi.org/10.25365/thesis.52565

Alexiadou, Artemis & Haegeman, Liliane & Stavrou, Melita. 2007. *Noun phrase in the generative perspective*. Berlin: Mouton de Gruyter. DOI: https://doi.org/10.1515/9783110207491

Barbosa, Pilar. 2000. Clitics: A window into the null subject property. In Costa, João (ed.), *Portuguese syntax: New comparative studies*, 31–93. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/oso/9780195125757.003.0003

Basilico, David. 1996. Head position and internally headed relative clauses. *Language* 72. 498–533. DOI: https://doi.org/10.2307/416277

Bodomo, Adams. 1994. Language, history and culture in northern Ghana: An introduction to the Mabia linguistic group. *Nordic Journal of African Studies* 3. 25–43.

Bodomo, Adams & Hiraiwa, Ken. 2010. Relativization in Dágáárè and its typological implications. *Lingua* 120. 953–983. DOI: https://doi.org/10.1016/j.lingua.2009.06.008

Brugger, Gerhard & Prinzhorn, Martin. 1996. Some properties of German determiners. Manuscript.

Cecchetto, Carlo & Donati, Caterina. 2015. *(Re)labeling*. Cambridge, MA: MIT Press. DOI: https://doi.org/10.7551/mitpress/9780262028721.001.0001

Choi, Jaehoon. 2014. *Pronoun-noun constructions and the syntax of DP*. Arizona: University of Arizona dissertation.

Chomsky, Noam. 2008. On phases. In Freidin, Robert & Otero, Carlos P. & Zubizarreta, Maria Luisa (eds.), *Foundational issues in linguistic theory: Essays in honor of Jean-Roger Vergnaud*, 133–166. Cambridge, MA: MIT Press. DOI: https://doi.org/10.7551/mitpress/7713.003.0009

Cinque, Guglielmo. 2010. *The syntax of adjectives: A comparative perspective*. Cambridge, MA: MIT Press. DOI: https://doi.org/10.7551/mitpress/9780262014168.001.0001

Cinque, Guglielmo. 2020. *The syntax of relative clauses*. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/9781108856195

Cole, Peter. 1987. The structure of internally headed relative clauses. *Natural Language & Linguistic Theory* 5(2). 277–302. DOI: https://doi.org/10.1007/BF00166587

Cruschina, Silvio. 2021. The greater the contrast, the greater the potential: On the effects of focus in syntax. *Glossa* 6(1). 1–30. DOI: https://doi.org/10.5334/gjgl.1100

Culy, Christopher. 1990. *The syntax and semantics of internally headed relative clauses*. Stanford, CA: Stanford University dissertation.

de Vries, Mark. 2002. *The syntax of relativization*. Utrecht: LOT.

Diesing, Molly. 1992. *Indefinites*. Cambridge, MA: MIT Press.

Erlewine, Michael Yoshitaka. 2016. Anti-locality and optimality in Kaqchikel Agent Focus. *Natural Language and Linguistic Theory* 34. 429–479. DOI: https://doi.org/10.1007/s11049-015-9310-z

Erlewine, Michael Yoshitaka & Gould, Isaac. 2016. Unifying Japanese relative clauses: copy-chains and context-sensitivity. *Glossa* 1(1). 51. DOI: https://doi.org/10.5334/gjgl.174

Erlewine, Michael Yoshitaka & Gould, Isaac. 2020. Anti-locality and subject extraction. *Glossa* 1(5). 84. DOI: https://doi.org/10.5334/gjgl.1079

Frascarelli, Mara & Hinterhölzl, Roland. 2007. Types of topics in German and Italian. In Schwabe, Kerstin & Winkler, Susanne (eds.), *On information structure, meaning and form*, 87–116. Berlin: Benjamins. DOI: https://doi.org/10.1075/la.100

Gorbet, Larry. 1976. *A grammar of Digueño nominals*. San Diego, CA: University of California, San Diego dissertation.

Graczyk, Randolph. 1991. Relative clauses in Crow. In Ingemann, Francis (ed.), *Mid-America Linguistics Conference Papers*, 490–504. Lawrence: University of Kansas.

Grewendorf, Günther & Poletto, Cecilia. 2015. Relative clauses in Cimbrian. In Di Domenico, Elisa & Hartmann, Cornelia & Metteini, Simona (eds.), *Structures, Strategies and Beyond: Studies in honour of Adriana Belletti*, 393–416. Amsterdam: Benjamins. DOI: https://doi.org/10.1075/la.223.18gre

Hartmann, Katharina & Zimmermann, Malte. 2007. In place – out of place: Focus in Hausa. In Schwabe, Kerstin & Winkler, Susanne (eds.), *On information structure: Meaning and form*, 365–403. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/la.100.20har

Heim, Irene & Kratzer, Angelika. 1998. *Semantics in generative grammar*. Malden, MA: Blackwell.

Heine, Bernd & Kuteva, Tanja. 2002. *World lexicon of grammaticalization*. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511613463

Heine, Bernd & Reh, Mechthild. 1984. *Grammaticalization and reanalysis in African languages*. Hamburg: Helmut Buske.

Hiraiwa, Ken. 2003. Relativization in Buli. *Working Papers on Endangered and Less Familiar Languages* 4. 45–84. DOI: https://doi.org/10.1515/jall.2005.26.1.116

Hiraiwa, Ken. 2017. Internally headed relative clauses. In Everaert, Martin & van Riemsdijk, Henk (eds.), *The Wiley Blackwell Companion to Syntax, Second Edition*, 1–32. John Wiley & Sons, Inc. DOI: https://doi.org/10.1002/9781118358733.wbsyncom028

Hiraiwa, Ken & Akanlig-Pare, George & Atintono, Samuel & Bodomo, Adams & Essizewa, Komlan & Hudu, Fusheini. 2017. A comparative syntax of internally-headed relative clauses in Gur. *Glossa* 2(1). 1–30. DOI: https://doi.org/10.5334/gjgl.40

Höhn, Georg F. K. 2016. Unagreement is an illusion: Apparent person mismatches and nominal structure. *Natural Language and Linguistic Theory* 34(2). 543–592. DOI: https://doi.org/10.1007/s11049-015-9311-y

Höhn, Georg F. K. 2017. *Non-possessive person in the nominal domain*. Cambridge: University of Cambridge dissertation.

Ihsane, Tabea & Puskas, Genoveva. 2001. Specific is not definite. *Generative Grammar in Geneva* 2. 39–54.

Issah, Samuel A. 2015. Conjoint and disjoint verb alternations in Dagbani. *Ghana Journal of Linguistics* 4(2). 29–63. DOI: https://doi.org/10.4314/gjl.v4i2.2

Issah, Samuel A. 2020. *On the structure of A-bar constructions in Dagbani: Perspectives of wh-questions and fragment answers*. Frankfurt am Main: Peter Lang. DOI: https://doi.org/10.3726/b17097

Issah, Samuel A. & Smith, Peter W. 2020. Subject and non-subject ex-situ focus in Dagbani. *Glossa* 5(1). 1–36. DOI: https://doi.org/10.5334/gjgl.664

Kayne, Richard S. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press.

Kayne, Richard S. 2008. Antisymmetry and the lexicon. *Linguistic Variation Yearbook* 8. 1–31. DOI: https://doi.org/10.1075/livy.8.01kay

Kevran, Marcel. 1982. *Dictionnaire Dogon*. Bandiagara, Mali: Paroisse catholique.

Ledgeway, Adam. 2005. Moving through the left periphery: The dual complementiser system in the dialects of Southern Italy. *Transactions of the Philological Society* 103. 339–396. DOI: https://doi.org/10.1111/J.1467-968X.2005.00157.X

Lefebvre, Claire & Muysken, Pieter. 1987. *Mixed categories: Nominalization in Quechua*. Dordrecht: Kluver. DOI: https://doi.org/10.1007/978-94-009-3403-0

Lehmann, Christian. 1984. *Der Relativsatz*. Tübingen: Gunter Narr.

Lyons, Christopher. 1999. *Definiteness*. Cambridge: Cambridge University Press.

McCloskey, James. 1990. Resumptive pronouns: A'-binding and levels of representation in Irish. In Hendrick, Randall (ed.), *Syntax and Semantics, 23: The syntax of modern Celtic languages*, 199–248. San Diego: Academic Press. DOI: https://doi.org/10.1163/9789004373228_008

Messick, Troy. 2020. The derivation of highest subject questions and the nature of the EPP. *Glossa: a journal of general linguistics* 5(1). 13. DOI: https://doi.org/10.5334/gjgl.1029

Miyagawa, Shigeru. 2010. *Why agree? Why move?: Unifying agreement-based and discourse configurational languages*. Cambridge, MA: MIT Press. DOI: https://doi.org/10.7551/mitpress/8116.001.0001

Miyagawa, Shigeru. 2017. *Agreement beyond phi*. Cambridge, MA: MIT Press. DOI: https://doi.org/10.7551/mitpress/10958.001.0001

Moltmann, Friederike. 1997. Intensional verbs and quantifiers. *Natural Language Semantics* 5. 1–52. DOI: https://doi.org/10.1023/A:1008245409172

Olawsky, Knut. 1999. *Aspects of Dagbani grammar with special emphasis on phonology and morphology*. Munich: University of Munich dissertation.

Partee, Barbara. 1975. Montague grammar and transformational grammar. *Linguistic Inquiry* 6(2). 203–300.

Rennison, John. 1997. *Koromfe*. London: Routledge.

Ritter, Elizabeth. 1995. On the syntactic category of pronouns and agreement. *Natural Language & Linguistic Theory* 13(3). 405–443. DOI: https://doi.org/10.1007/BF00992737

Rizzi, Luigi. 1997. The fine structure of the left periphery. In Haegeman, Liliane (ed.), *Elements of grammar*, 281–337. Dordrecht: Kluwer. DOI: https://doi.org/10.1007/978-94-011-5420-8_7

Roehrs, Dorian. 2006. Pronouns are determiners after all. In den Dikken, Marcel & Tortora, Christina (eds.), *The function of function words and functional categories*, 251–285. Berlin: Benjamins. DOI: https://doi.org/10.1075/la.78.10roe

Salzmann, Martin. 2006. *Resumptive prolepsis: A study in indirect A'-dependencies*. Utrecht: LOT. DOI: https://doi.org/10.7551/mitpress/9780262028721.001.0001

Salzmann, Martin. 2019. A new version of the Matching Analysis of relative clauses. In Krifka, Manfred & Schenner, Mathias (eds.), *Reconstruction effects in relative clauses*, 187–223. Berlin: De Gruyter. DOI: https://doi.org/10.1515/9783050095158-006

Sauerland, Uli. 1998. *The meaning of chains*. Cambridge, MA: Massachusetts Institute of Technology dissertation.

Sportiche, Dominique. 2011. French relative qui. *Linguistic Inquiry* 42. 83–124. DOI: https://doi.org/10.1162/LING_a_00029

van der Wal, Jenneke & Hymann, Larry M. 2017. Introduction. In van der Wal, Jenneke & Hymann, Larry M. (eds.), *The conjoint/disjoint alternation in Bantu*, 1–14. Berlin: De Gruyter. DOI: https://doi.org/10.1515/9783110490831-001

Watanabe, Akira. 1992. Subjacency and S-structure movement of wh-in-situ. *Journal of East Asian Linguistics* 1. 255–291. DOI: https://doi.org/10.1007/BF00130554

Williamson, Janis. 1987. An indefiniteness restriction for relative clauses in Lakhota. In Reuland, Eric & ter Meulen, Alice (eds.), *The representation of (in)definiteness*, 168–190. Cambridge, MA: MIT Press.

Wilson, William André Auquier. 1972. *An introductory course to Dagbani*. Tamale: GILLBT.

Zimmermann, Ede. 1992. On the proper treatment of opacity in certain verbs. *Natural Language Semantics* 1. 149–180. DOI: https://doi.org/10.1007/BF00372561