

An OT-LFG account of the syntax of the Determiner Phrase in Kafir

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Abstract

This study addresses the syntax of the determiner phrase in Kafiré in an OT-LFG perspective. This syntax is characterized by the interaction of various constraints that determine the correct output. There is a constraint that requires most nouns in Kafiré to be part of a determiner phrase whose determiner has to be lexically realized. There is also another constraint that prevents a set of nouns of gender 1 to have such a lexically realized determiner, but which forces them to fill both an N and D nodes. Yet, this does not apply when the noun and the expected lexically realized determiner are not adjacent, in which case the lexical form of the determiner appears under the D node. The study captures and formalizes these facts with an OT-LFG formalism. It is the first study to pay much attention to this phenomenon in Senufo languages, especially in Kafiré.

Introduction

The grammar of a language contains some constraints that are expected to be satisfied, otherwise there is ungrammaticality. However, in some circumstances, constraints can be overridden. For instance, French has a constraint that obligatorily contracts a sequence of a preposition followed by a definite article (Rowlett 2007: 56) as in (1) and (2).

- (1) a. *à le garçon → au garçon ‘to the boy’
b. *à les garçons → aux garçons ‘to the boys’
c. *à les filles → aux filles ‘to the girls’
- (2) a. *de le garçon → du garçon ‘of the boy’
b. *de les garçons → des garçons ‘of the boys’
c. *de les filles → des filles ‘of the girls’

But this constraint cannot be satisfied when the two are separated by another category, especially a quantifier as in (3).

- (3) a. à tout le personnel → *au tout personnel ‘to all the personnel’
b. de tout le personnel → *du tout personnel ‘of all the personnel’

Since this constraint is satisfied except for the mentioned context, it means that this context also works as a constraint that must be satisfied by violating it. Thus, it outranks it in terms of the hierarchy of importance in the language. It is interesting to note that the interaction between the constraints involved in this phenomenon can be used to fully capture and predict the correct form of the prepositional phrase in French, but also in other languages, making typological generalizations possible based on such an interaction in languages (Wescoat 2007). Apart from the prepositional phrase, other types of structures can involve an interaction between constraints in the choice of the right structure.

This study addresses the case of the determiner phrase in Kafiré, an underdescribed Senufo language. It is shown that the determiner phrase of this language can be analysed as being governed by some constraints that are ranked according to their importance and which interact to select the appropriate grammatical structure. The analysis is couched in an OT-LFG theoretical approach, an approach that considers that there exists several

potential grammatical structures for a given input in a grammar, but the one that gets chosen is the one that respects the best the hierarchy of constraints in the grammar.

1 Background information

1.1 The Kafire language

Kafire is a Senufo language belonging to the Central Senari group. Senufo is part of Niger-Congo languages, but has a variable classification within this phylum. It is sometimes considered as a language family on its own (Williamson & Blench 2000, Hammarström et al. 2024), or as being a Gur language close to Central Gur (Miehe, Reineke & von Roncador 2012, Miehe 2020). Note that Gur is also known as Mabia (Bodomo 1993, 2020).

Kafire is spoken in northern Côte d'Ivoire in the department of Korhogo. Its speakers (i.e., Kafibe) are settled in an area called 'Kafigue', i.e., the area including Sirasso, Nafoun, Kanoroba (see the map below). It is an area of 54705 people.

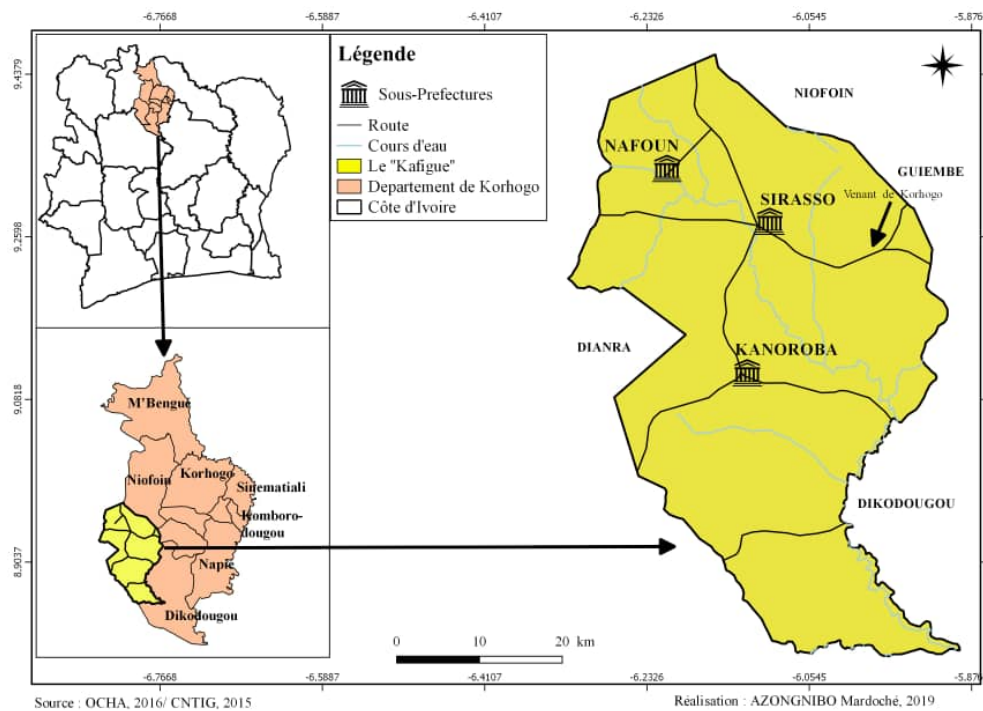


Figure 1: Kafigue : the area of settlement of the Kafibe

1.2 The OT-LFG theoretic approach

The OT-LFG theoretic approach combines OT (Optimality Theory) and LFG (Lexical Functional Grammar) tools for analyses (Bresnan 2001).

OT posits that for a given input in a language, there exist numerous potential grammatical structures, but the chosen one results from conflict resolution among universal constraints, ranked according to their importance in that language (Prince & Smolensky 1993/2002). To explain the choice of the right structure, OT considers that there are three components at work, namely **GENERATOR**, **CONSTRAINTS** and **EVALUATOR**. For a given input, **GEN** produces the candidates, i.e., the potential grammatical structures. **EVAL** assesses their compliance with ranked constraints **CON**. The chosen structure, i.e., the optimal structure is the one that minimally violates the highest-ranked constraints.

The formalization of the analyses in OT is provided in a **tableau** as in (4). It shows the work of **CON**, **GEN** and **EVAL**. Candidate 2 is chosen over Candidate 1 even if it incurs two constraints. This is because the constraint 1 Candidate 1 violates is higher ranked than the two other constraints in this given language, namely constraint 2 and constraint 3.

(4)

<i>Input</i>	CONSTRAINT 1	CONSTRAINT 2	CONSTRAINT 3
1. candidate 1	*!		
2. candidate 2		*	*

When LFG is combined with OT, the input of the tableau will be an f-structure and the candidates will be c-structures or a pair of f-structures and c-structures.

1.3 Genders and the determiner phrase in Kafire

As in any Senufo language, nouns in Kafire belong to different classes. Following some of my predecessors, I refer to those classes as genders (Carlson 1994, Baron 2016).

There are five genders in Kafire. As it is typical to gender systems (Aksenov 1984: 17–18, Corbett 1991: 8), genders in Kafire have a semantic origin, though in the synchrony nouns that belong to the same gender are not homogeneous. For instance, nouns that belong to gender 1 are typically human beings, but they can include animals, artefacts and borrowings. The humanness values of gender 1 is more obvious when an entity is personified in narratives. In this case, it has to belong to gender 1. Another way of determining the original and typical semantic values associated with a gender is by changing the definiteness markers that appear with a noun of that gender. In (5), we can see that switching the definiteness marker of gender 2 (the gender typically associated with bigness) to that of gender 3 (the gender typically associated with smallness) results in treating the tree as small.

- (5) a. cí=**gē** ‘a tree (conceptually considered as big)’
 b. cí=**lē** ‘a tree (a small one)’

In (6), I present the typical semantic values associated with different genders in Kafire.

(6)	Gender 1	humanness; personification (in narratives)
	Gender 2	bigness; augmentative values
	Gender 3	smallness; diminutive values
	Gender 4	Mass terms ; terms for unbounded quantities of objects
	Gender 5	liquids ; abstract qualities

These genders are distinguished grammatically by the way different markers associated with the noun agree with the noun (Nikitina & Silué 2023). These markers either appear in the phrase involving the noun or is adjoined to it. This applies to mainly the indefinite and the definite determiners.¹ I assume that these determiners are the head of that phrase, thus it is a determiner phrase. This analysis is based on a number of facts. The determiner is in principle obligatorily present and appears at the end of the phrase, a position usually occupied by heads in Kafire. It is the morphosyntactic locus of the phrase in the sense that it formally encodes all the grammatical information relevant for the whole phrase, namely number, gender and definiteness. Finally, there is a pronominal *wō* (corresponding roughly to the English ‘one’ as in *the one*) that can target the noun and its adjunct, leaving the determiner outside. This implies that the determiner is part of another structure where it is the head, i.e., the determiner phrase. Based on that, I assume that the minimal structure containing the noun is the determiner phrase, not a noun phrase. In the following tables, I present the different determiners of Kafire.

(7)	a.	Gender	Indefinite singular	Indefinite plural
		Gender 1	wV	bele / bVIV
		Gender 2	gV	jV
		Gender 3	IV	gele / gVIV
		Gender 4	rV	
		Gender 5	mV	

	b.	Gender	Definite singular	Definite plural
		Gender 1	wì	bèle ^H
		Gender 2	gì	jì
		Gender 3	lì	gèle ^H
		Gender 3	rì	
		Gender 5	mì	

As we can observe in those tables, the monosyllabic indefinite determiner and definite determiner have respectively an indefinite vowel V, i.e., a vowel whose nature is not defined in advance and the vowel [i] (which is usually omitted). The vowel of the monosyllabic indefinite determiner is precisely the copy of the last vowel of the noun, i.e., there is a total vowel harmony (Silué & Ballo 2018). For the disyllabic indefinite and definite determiners, the plural determiners of genders 1 and 3, the vowel is [e]. Yet, for the indefinite plural determiners of genders 1 and 3, there also exists some free variants whose vowels are also indefinite V.

Note that a minimal determiner phrase in Kafire consists of a determiner, i.e., an

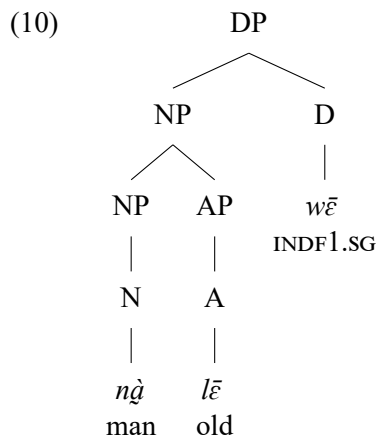
¹Note that in the literature on Senufo languages, these determiners are treated as suffixes. But we argue for an alternative analysis which consists of treating them as clitics (Nikitina & Silué 2023).

indefinite or definite determiner that is the head, and its complement that is a noun forming itself a noun phrase. This structure can be extended by various other categories, especially an adjectival phrase that modifies the noun phrase, the complement of the determiner. This can be formulated with the simplified following rules:

- (8) a. DP → NP D
 b. NP → NP AP
 c. NP → N
 d. AP → A

These rules can be illustrated with the example (9). Its c-structure is presented in (10).

- (9) nà lē=wē
 man old=INDF1.SG
 ‘an old man’



2 The puzzle in the determiner phrase in Kafiré

Apart from exceptional cases that we will account for in the rest of this study, any noun in Kafiré has to occur in the discourse with a determiner in order to be fully referential. The lexical form of the determiner has to be obligatorily realized. In other words, a noun in Kafiré has to be part of a determiner phrase whose determiner has to have a lexical form, whether the noun is modified by other categories or not, especially by an adjective. This can be illustrated with the following examples that contain nouns of different genders where the determiner is the indefinite singular one. This determiner cannot be left out.

- (11) a. nà*(=wà)
 man=INDF1.SG
 ‘a man’

- b. nà lē*(=wē)
 man old=INDF1.SG
 ‘an old man’

- (12) a. cí*(=gé)
 tree=INDF2.SG
 ‘a tree’

- b. cí lē*(=wē)
 tree old=INDF2.SG
 ‘an old tree’

- (13) a. númǒ*(=nǒ)
ant=INDF3.SG
'an ant'
- b. númǒ lē*(=wē)
ant old=INDF3.SG
'an old ant'
- (14) a. tā*(=rā)
land=INDF4
'a land'
- b. tā lē*(=rē)
land old=INDF4
'an old land'
- (15) a. sù*(=mǒ)
oil=INDF5
'some oil'
- b. sù lē*(=mē)
oild old=INDF5
'some old oil'

The same holds for nouns that occur in noun phrases with definite reference. In the examples below, we can see the same constructions as those of the previous examples, but with the determiner appearing as the definite singular determiner.

- (16) a. nǎ*(=w)
man=DEF1.SG
'the man'
- b. nǎ lē*(=w)
man old=DEF1.SG
'the old man'
- (17) a. cí*(=g)
tree=DEF2.SG
'the tree'
- b. cí lē*(=g)
tree old=DEF2.SG
'the old tree'
- (18) a. númǒ*(=n)
ant=DEF3.SG
'the ant'
- b. númǒ lē*(=n)
ant old=DEF3.SG
'the old ant'
- (19) a. tā*(=r)
land=DEF4
'the land'
- b. tā lē*(=r)
land old=DEF4
'the old land'
- (20) a. sǔ*(=m)
oil=DEF5
'the oil'
- b. sù lē*(=m)
oild old=DEF5
'the old oil'

However, there exists a set of nouns of gender 1 that behave differently with regards to the obligatory presence of the determiner. Those nouns cannot appear with an indefinite singular determiner, but are still interpreted as being in the indefinite singular. This is possible for nouns like *fjā* ‘a fish’, *pḡ* ‘a dog’, *gbòjò* ‘a pig’, *sètúgù* ‘a cat’, *picá* ‘a young girl’ and all borrowings. We can see in (21) and (22) two nouns of this set that cannot occur in the discourse with the indefinite singular determiner. This determiner as we know is expected to be of the form WV with V being the copy of the last vowel of the noun or the preceding category.

- | | | | | | |
|------|----|--|------|----|--|
| (21) | a. | fjā
fish.INDF1.SG
‘a fish’ | (22) | a. | nèʔèsó
bicycle.INDF1.SG
‘a bicycle’ |
| | b. | *fjā=wā
fish=INDF1.SG
Target : ‘a pig’ | | b. | *nèʔèsò=wó
bicycle=INDF1.SG
Target : ‘a bicycle’ |

This also happens with all de-verbal agentive nouns and nouns derived by the suffixation of the male sex suffix. De-verbal agentive nouns take a suffix that has two variants according to the context. When the unmodified noun is expected to occur in a context with the indefinite singular reading, the suffix is *-fɔlɔ* while it is *-fɛ* when it is modified or expected to occur in a context with the definite reading. The same holds with the derived male denoting noun. When the unmodified noun is expected to occur in a context with the indefinite singular, it takes *-pɔlɔ* whereas it takes *-pɛ* when it is modified or occurs in a context with a definite reading. The examples in (23) and (24) illustrate the cases where de-verbal agentive nouns and derived male denoting nouns appear in the indefinite singular (for the appearance of the second variants of their suffixes, see (26) and (28)). They cannot occur with the lexical form of the indefinite singular determiner.

- | | | | | | |
|------|----|--|------|----|--|
| (23) | a. | túgú-fóló
dig-AGT.INDF1.SG
‘a digger’ | (24) | a. | bà-póló
sheep-MALE.INDF1.SG
‘a ram’ |
| | b. | *túgú-fóló=wó
dig-AGT=INDF1.SG
Target : ‘a digger’ | | b. | *bà-póló=wó
sheep-MALE=INDF1.SG
Target : ‘a ram’ |

We can observe that with these examples, it is impossible for the noun to appear with a lexical form of the indefinite singular determiner which in this case is expected to be of the form WV with V being the copy of the last vowel of the noun. But without it, it is still interpreted as being in the indefinite singular. Nevertheless, this only happens when these nouns are unmodified and are expected to be adjacent with the determiner in the determiner phrase, otherwise the determiner has to have a lexical form as usual. For instance, in (25), (26), (27) and (28), we can see that when the same noun as those of the examples (21), (22), (23) and (24) are modified by an adjective, the determiner has to have a lexical form.

(25) a. *fjā lē
 fish.INDF1.SG old
 Target : ‘an old fish’

b. fjā lē=wē
 fish old=INDF1.SG
 ‘an old fish’

(26) a. *túgú-fē lē
 dig-AGT old.INDF1.SG
 ‘an old digger’

b. túgú-fē lē=wē
 dig-AGT old=INDF1.SG
 ‘an old digger’

(27) a. *nèʔèsò lē
 bicycle.INDF1.SG old
 Target : ‘an old bicycle’

b. nèʔèsò lē=wē
 bicycle old=INDF1.SG
 ‘an old bicycle’

(28) a. *bà-pē lē
 sheep-MALE old.INDF1.SG
 ‘an old ram’

b. bà-pē lē=wē
 sheep-MALE old=INDF1.SG
 ‘an old ram’

3 Analysis

3.1 Possible analyses

To capture and formalize the fact that in the Kafiré determiner phrase, the determiner is in principle obligatory, but the indefinite singular one cannot occur for some nouns when they stand alone, yet it occurs when they are modified by an adjective, a solution of having two different lexical entries for these nouns can be proposed. In this case, there will be a lexical entry that directly encodes the information of the indefinite singular determiner as in (29) and which is involved in a c-structure rule where the D node is not present as in (30). This absence of the D node is ensured by the principle of the economy of expression (Bresnan et al. 2016: 90). According to that principle, all nodes are optional unless required by other principles. Since the noun encodes the relevant information, the determiner is not required to be present to encode that same information. Based on that, the c-structure tree involving the lexical entry in (29) is presented in (31).

(29) *fjā* N (↑ PRED) = ‘FISH’
 (↑ DEF) = -

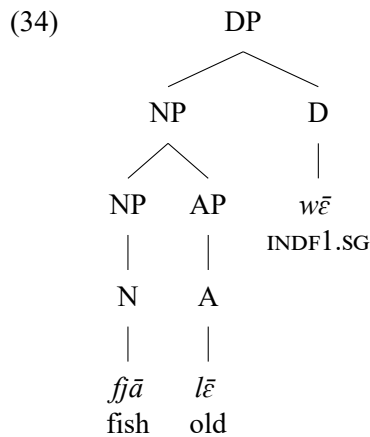
(30) DP → NP

(31) DP
 |
 NP
 |
 N
 |
fjā
 fish.INDF1.SG

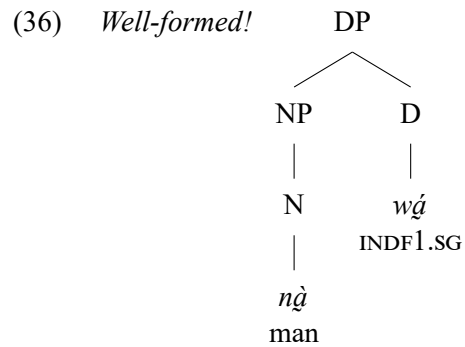
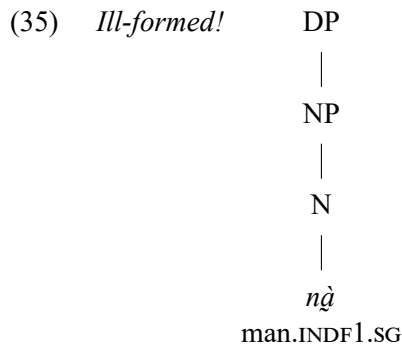
The second lexical entry will not encode the information of the indefinite singular determiner and will be involved in a c-structure rule where the D node and an adjectival phrase are present. This can be respectively presented in (32) and (33). The c-structure tree involving this lexical entry is presented (34).

(32) *ffā* N (↑ PRED) = 'FISH'

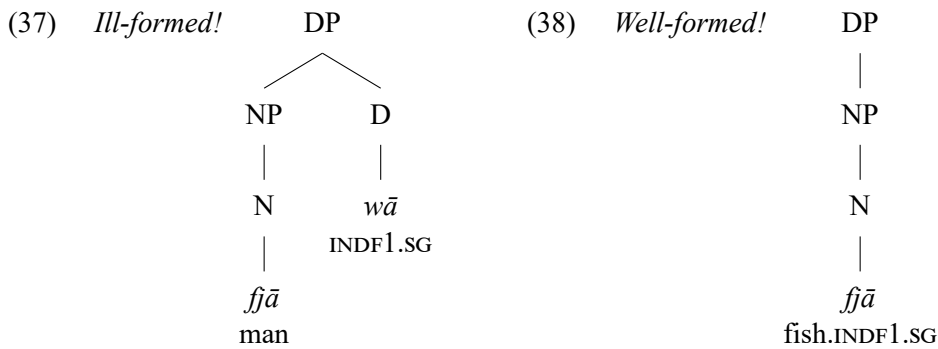
(33) DP → NP D



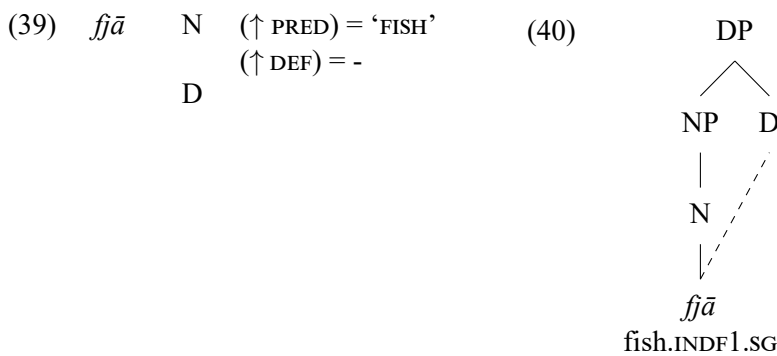
Even if such an analysis can be proposed, it encounters a difficulty. Firstly, it does not explain the inconsistency of the economy of expression. For instance, nothing explains why the noun of gender 1 referring to 'man' cannot encode the information of the indefinite singular determiner as in (35). In this case, the lexical form of the determiner has to be present as in (36).



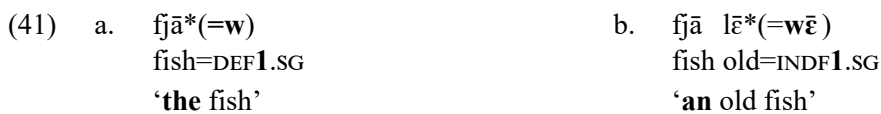
It does not also explain the reverse situation. The noun referring to 'fish' has to encode the information of the indefinite determiner as in (37), but cannot occur with the lexical form of the determiner as in (38).



A brief analysis we provided in Nikitina & Silué (2023) was that there is a set of nouns of gender 1 that allow a lexical sharing mechanism (Wescoat 2002, 2005, 2007). Thus, for that set of nouns of gender 1, the form of the indefinite singular determiner is fused in the noun in the cases where it encodes its information, allowing the noun to project two nodes, i.e., the N and the D nodes. This explains why the lexical form of the determiner cannot appear with such nouns since they already fill the D node. Thus, it can be said that the noun in that case has a lexical entry as in (39), with a c-structure tree as in (40).



The other nouns that occur with the lexical form of the determiner do so because they do not project two nodes, but only the N node as seen in the lexical entry in (32). However, that brief analysis did not explain when lexical sharing is required or not. For example, it does not explain why the lexical form of the determiner has to occur in (41-a) and (41-b) where respectively the determiner is definite and the noun is modified by an adjective.



Based on the previous facts, to make predictions on when the lexical sharing mechanism can and cannot apply in the determiner phrase in Kafire, an OT-LFG analysis using constraints can be proposed. Particularly, an analysis combining lexical sharing analysis with OT. This is formulated in the following subsection.

3.2 The OT-LFG analysis

In the cases where the lexical form of the determiner has to occur in the determiner phrase in Kafire, it can be said that a certain constraint is at work. I assume that this constraint is an instance of the following constraint.

- (42) **OB-HD**: every projected category (X' , X'') has a lexically filled (extended) head (Bresnan 2001: 352, Sells 2005: 64 and also Grimshaw 1997 for the first use).

Since the **OB-HD** constraint favours the lexical expression of the head (the exceptional cases will be explained) under another phrase structure node instead of having its information expressed by only the noun, it appears that a structure that respects it violates a constraint that prevents the use of much phrase structure nodes. I assume that that other constraint is the constraint of the economy of expression as formulated below.

- (43) ***PROJ**: Avoid projections (Wescoat 2007: 18, see also Bresnan 2001: 351).

Note that the constraint of the economy of expression also prohibits the use of empty categories (see also Bresnan 2001: footnote 30 for the effect of this constraint in avoiding empty nodes) in such a way that such a use is governed by the ‘last resort’ principle (Bresnan et al. 2016: 91–92). Thus, it would prohibit the use of a phonologically and semantically empty determiner especially as there are non phonologically empty determiners counterparts in the same contexts.

In summary, the structures involving the lexical form of the determiner are governed by the requirement of the constraint **OB-HD** to have a headed DP, instead of respecting the constraint ***PROJ** that requires the minimal use of phrase structures. This means that we have the following hierarchy of constraints: **OB-HD(FP)** \gg ***PROJ**. This hierarchy can be illustrated with a determiner phrase for the expression of the idea of ‘a man’. The choice of the optimal structure for this idea is shown in the following tableau.

Input: $\begin{bmatrix} \text{PRED} & \text{'MAN'} \\ \text{DEF} & - \\ \text{GENDER} & 1 \\ \text{NUM} & \text{SG} \end{bmatrix}$	OB-HD(FP)	*PROJ
a. $\begin{array}{c} \text{DP} \\ \\ \text{NP} \\ \\ \text{N} \\ \\ n\acute{a} \\ \text{man.INDF1.SG} \end{array}$	*!	
b. $\begin{array}{c} \text{DP} \\ / \quad \backslash \\ \text{NP} \quad \text{D} \\ \quad \\ \text{N} \quad \emptyset \\ \quad \text{INDF1.SG} \\ n\acute{a} \\ \text{man} \end{array}$		*!
c. $\begin{array}{c} \text{DP} \\ / \quad \backslash \\ \text{NP} \quad \text{D} \\ \quad \\ \text{N} \quad w\acute{a} \\ \quad \text{INDF1.SG} \\ n\acute{a} \\ \text{man} \end{array}$		*

In this tableau, three candidates are competing to be the optimal output to express the idea of ‘a man’. Candidate a is not headed, so it is ruled out by OB-HD(FP), the highest ranked constraint. Candidate b respects OB-HD(FP) by having a D node, but still violates the constraint *PROJ that prohibits empty nodes. This rules it out. As for candidate c, even if it violates *PROJ, it does not violate OB-HD(FP) which outranks the former in the hierarchy of constraints. It is therefore the optimal candidate.

As already discussed, there are many nouns of gender 1 that appear without a lexical form of the indefinite singular determiner, but are interpreted as being in the indefinite singular. There is also evidence that the D node is present in the determiner phrase hosting these nouns since no lexical form can fill that slot, as if it is already filled. In reality, the noun itself can be considered as filling two slots, that of the N node and that of the D node. This is thus the manifestation of lexical sharing, particularly an instance of the Poser blocking constraint as defined by Wescoat (2007: 15). This is defined as follows:

- (44) **PBLK** : assign a violation sign to any sequence of N and D nodes where the leaves are two independent morphologically complete words, instead of only one word as a leaf.

A structure that satisfies this constraint also satisfies OB-HD(FP) in the sense that the D node is lexically filled. Nevertheless, that structure will not satisfy *PROJ since the noun does not encode the information of the indefinite singular determiner without being obliged to project another node. This violation cannot be fatal though because it is the least important one. All this gives the following ranking: OB-HD(FP) \gg BPBLK \gg *PROJ.

Based on that, to express the idea of ‘a dog’ where ‘dog’ belongs to the set of nouns that project both the N and D nodes, we could have the following tableau.

Input: <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>PRED</td><td>'DOG'</td></tr> <tr><td>DEF</td><td>-</td></tr> <tr><td>GENDER</td><td>1</td></tr> <tr><td>NUM</td><td>SG</td></tr> </table>	PRED	'DOG'	DEF	-	GENDER	1	NUM	SG	OB-HD(FP)	PBLK	*PROJ
PRED	'DOG'										
DEF	-										
GENDER	1										
NUM	SG										
<p>a.</p> <pre> DP NP N p̄² dog.INDF1.SG </pre>	*!										
<p>b. $\epsilon\bar{a}$</p> <pre> DP / \ NP D N p̄² dog.INDF1.SG </pre>			*								
<p>c.</p> <pre> DP / \ NP D N w̄² INDF1.SG p̄² dog </pre>		*!									

In this tableau, candidate a is ruled out because the c-structure of the determiner phrase is not headed. As made clear in the tableau, this is the highest constraint in terms of hierarchy in the language. Its violation rules out the candidate that is involved in such a violation. As for candidate c, it contains a noun that should respect the lexical sharing constraint requiring such a noun to project an N and D nodes, but it does not respect that. Since the lexical sharing constraint is the second most important constraint in the hierarchy, it rules this candidate out. Finally, regarding candidate b, it respects both the constraint OB-HD(FP) that requires the determiner phrase to have lexically filled D node and the lexical sharing constraint PBLK in projecting both an N and D nodes. It is therefore the chosen candidate, even if it violates the constraint of the economy of expression *PROJ by having a D node for the expression of the information of the determiner. This constraint is the lowest one, thus this structure is the optimal one.

Moreover, for this class of nouns or any other noun, when the noun and the expected determiner are not adjacent in the determiner phrase, the constraint PBLK does not apply. Thus, the determiner has a lexical form as usual. In reality, it can be said that the poser blocking constraint does not apply because of an adjacency constraint. For the poser blocking constraint to be satisfied, the N and D nodes should be adjacent. Once they are not adjacent, the homomorphic lexical integrity theorem as defined by Wescoat (2007: 8) prevents the noun to project two nodes. This constraint is formulated below.

- (45) **HLIT** (homomorphic lexical integrity theorem): only sequences of adjacent terminals may share a lexical exponent.

The fact that this constraint blocks the effect of the poser blocking constraint, it outranks the poser blocking constraint in the hierarchy. This gives the following hierarchy: OB-HD(FP) \gg HLIT \gg BPBLK \gg *PROJ.

The following tableau illustrates the interaction between those constraints in the choice of the structure expressing the idea of ‘an old fish’.

Input: $\left[\begin{array}{l} \text{PRED} \quad \text{'FISH'} \\ \text{DEF} \quad - \\ \text{GENDER} \quad 1 \\ \text{NUM} \quad \text{SG} \\ \text{ADJ} \quad \left\{ \left[\text{PRED OLD} \right] \right\} \end{array} \right]$	OB-HD(FP)	HLIT	PBLK	*PROJ
a. $\begin{array}{c} \text{DP} \\ \\ \text{NP} \\ / \quad \backslash \\ \text{NP} \quad \text{AP} \\ \quad \\ \text{N} \quad \text{A} \\ \quad \\ \text{fjā} \quad \text{lē} \\ \text{fish.INDF1.SG} \quad \text{old} \end{array}$	*!			
b. $\begin{array}{c} \text{DP} \\ / \quad \backslash \\ \text{NP} \quad \text{D} \\ / \quad \backslash \quad \\ \text{NP} \quad \text{AP} \quad \text{wē} \\ \quad \quad \text{INDF1.SG} \\ \text{N} \quad \text{A} \\ \quad \\ \text{fjā} \quad \text{lē} \\ \text{fish} \quad \text{old} \end{array}$				*
c. $\begin{array}{c} \text{DP} \\ / \quad \backslash \\ \text{NP} \quad \text{D} \\ / \quad \backslash \quad \\ \text{NP} \quad \text{AP} \\ \quad \\ \text{N} \quad \text{A} \\ \quad \\ \text{fjā} \quad \text{lē} \\ \text{fish.INDF1.SG} \quad \text{old} \end{array}$		*!		

In this tableau, candidate a is ruled out because it does not have a lexically filled head, violating the constraint OB-HD(FP), which requires a lexically filled head. Candidate c is ruled out by HLIT because the noun projects both N and D nodes, even though they are not adjacent. As for candidate b, it is the chosen one because it not only respects the constraint HLIT, which prevents lexical sharing in this case, but also satisfies all other constraints, except for the lowest-ranking one, *PROJ. Therefore, its violation of this lowest-ranking constraint does not exclude it.

Finally, for the set of nouns that can project both the N and D nodes, it was shown earlier that they cannot project both when the information of the determiner to encode is the definite one. To account for such cases, there are two possible solutions. One approach is to consider that there is no other lexical entry available for those nouns that will project both N and D nodes with the definite singular information. Another solution is that the information of the definite still incorporates the lexical entry that projects both N and D nodes and containing the indefinite singular information. In this case, due to a clash of information between the definite and indefinite values (because of the violation of the uniqueness principle), the lexical entry that is supposed to project both N and D nodes is not used. Instead, the entry that does not project these nodes is used. Either solution could work, and there is no need for a specific formalization in this case.

4 Discussion

To my knowledge, Kafiré is the only Senufo language for which the current phenomenon has been fully analysed. Many studies on Senufo languages simply mention that some nouns of gender 1 do not have a lexical form of the indefinite singular determiner. But they do not explore the fact they can still take a lexical form of the indefinite singular determiner phrase under some conditions. Moreover, many studies propose that when the determiner does not have a lexical form, there is a zero morpheme (Traoré 2015, Coulibaly 2020). But in Kafiré, we cannot talk about a zero morpheme since there is evidence that the information of the determiner is fused in the noun and fills two slots in the c-structure. When this fusion is not possible because the noun and the expected determiner are not adjacent, the lexical form of the determiner has to be under the D node. Apart from Kafiré (and other Senufo languages), there also exists some languages in which we have situations that may involve the same types of constraints, though the phenomenon of those languages may not be exactly the same as in Kafiré. Börjars (1998: 7–8) (see also Börjars & Donohue 2000) analysed some predicative constructions of some Germanic languages, especially Swedish where the indefinite determiner of some role or function referring nouns only appears under some conditions. When the noun is alone and expected to be adjacent to the indefinite determiner, the indefinite determiner does not appear. However, the lexical form of the indefinite determiner appears when there is a pre-nominal adjective that intervenes between the noun and the expected indefinite determiner. The existence of such situations, which seem to involve the same constraints as those described in Kafiré, paves the way for undertaking typological studies to fully understand and classify them. The current study is thus interesting for such an enterprise.

Conclusion

This paper explored the syntax of the determiner phrase of Kafiré in an OT-LFG perspective. It was shown that there exist different constraints that interact to select the appropriate structure of the determiner phrase in Kafiré. One constraint that forces most nouns to have a lexical form of the determiner. However, there is a set of nouns that belong to gender 1 whose indefinite singular determiner cannot have a lexical form, but whose information has to be part of the noun. The noun projects both the N and the D nodes in such cases. Yet, this constraint applies only when the noun and the determiner are expected to be adjacent. Otherwise, when there is another category separating them, especially an adjective, the form of the determiner has to be realized on its own under the D node. It was mentioned that such types of nouns exist in many Senufo languages. But their behaviour has not been fully explored. The determiner of those nouns, which is considered in those studies as suffixes, is seen as a zero morpheme. Nevertheless, such an analysis does not apply to Kafiré where there is no evidence for a zero morpheme. Finally, it was shown that many languages like Germanic languages have a phenomenon that seems to involve the same types of constraints as those described in Kafiré. This makes the current study interesting for undertaking typological studies on phenomena involving those constraints.

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