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Issues in Jula complementation

Structures, relations and matters of interpretation

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Alassane Kiemtoré

aus Cocody (Abidjan),
Côte d'Ivoire

Hauptberichter: Prof. Dr. Daniel Hole

Mitberichter: Prof. Dr. Malte Zimmermann

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When a king reigns, it is thanks to the people. When a river sings, it is thanks to the stones.

African Proverb

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Abstract

The present thesis investigates a set of issues related to the domain of complementation within the West-African Manding language Jula. We focus on two complement types: infinitival clauses and finite *ko*-clauses. The discussion of these two complement types is centered on four topics: (i) the relation of the complement clause to the (hosting) matrix clause, (ii) the internal and external syntax of complement clauses, (iii) the function and syntax of complementizers, and (iv) referential dependencies within complementation sentences. On these topics, the thesis makes the following contributions in connection to Jula: it is established that both infinitival and *ko*-clauses function as arguments of some predicates, even though they cannot occur inside the boundaries of their hosting matrix clause. Their relation to the matrix clause and their restricted position towards the latter is uniformly derived from three interacting factors, i.e., base generation, predication, and Case assignment. Syntactically, however, infinitival clauses and finite *ko*-clauses represent two distinct complement types. While the former act as FinP-projections, the latter behave like ForceP projections. This appears to be a direct consequence of the role played by their heading complementizers: *kà* for infinitival clauses and *ko* for *ko*-clauses. Specifically, *kà* is a Fin head complementizer whose function is associated with non-finiteness, i.e., the information that the content of the clause it introduces is not related to an evaluation world. *Ko*, on the contrary, is a Force head complementizer that anchors a clause to a speech context different from the actual speech context, i.e., the speech context in which the actual speaker utters the *ko*-clause sentence. We discuss two phenomena related to referential dependencies within complementation sentences: control, which manifests itself in infinitival complement clauses, and logophoricity, which is observed with finite complement *ko*-clauses. Control in Jula is always an instance of obligatory control (OC), which comes about via binding. As for logophoricity, evidence suggests the importance of another factor than binding. In fact, we proposed contrastive focus to play a crucial role in logophoricity in Jula.

Zusammenfassung (German abstract)

Die vorliegende Arbeit untersucht Aspekte der Komplementierung in der westafrikanischen Manding-Sprache Jula. Der Fokus liegt auf zwei Komplementtypen: Infinitivsätze und finite *ko*-Sätze. Es werden in Bezug auf beide Komplementtypen vier Themenbereiche diskutiert: (i) die Beziehung des Komplementsatzes zum Matrixsatz, (ii) die interne und externe Syntax von Komplementsätzen, (iii) die Funktion und Syntax der Komplementierer und (iv) die Interpretation von Pronomina in Komplementsätzen. Zu diesen Themen leistet die Arbeit im Zusammenhang mit Jula folgende Beiträge: Es wird festgestellt, dass sowohl Infinitivsätze als auch *ko*-Sätze als Argumente einiger Prädikate fungieren können, auch wenn sie keine Argumentposition innerhalb des Matrixsatzes einnehmen dürfen. Ihre Beziehung zum Matrixsatz und ihre rigide Position gegenüber diesem erklären sich einheitlich aus dem Zusammenwirken von drei Faktoren, nämlich Basisgenerierung, Prädikation und Kasuszuweisung. Syntaktisch gesehen stellen Infinitivsätze und finite *ko*-Sätze jedoch zwei verschiedene Komplementtypen dar. Während die Ersten sich wie FinP-Projektionen verhalten, weisen die Letzteren Eigenschaften einer ForceP-Projektion auf. Dies ergibt sich durch die Funktion der einleitenden Komplementierer: *kà* für Infinitivsätze und *ko* für *ko*-Sätze. Tatsächlich ist *kà* ein Fin-Kopf-Komplementierer, dessen Funktion mit „Nicht-Finitheit“ verbunden ist, d.h. mit der Information, dass der Inhalt des von ihm eingeleiteten Satzes keinen Bezug zur Welt hat. *Ko* hingegen ist ein Force-Kopf-Komplementierer, der einen Satz in einem anderen Äußerungskontext verankert als dem Äußerungskontext, in dem der aktuelle Sprecher den Satz mit dem *ko*-Teilsatz äußert. Wir erörtern auch zwei Phänomene, die mit der Interpretation von Pronomina in Komplementierungssätzen zusammenhängen: Kontrolle, die sich in infinitivischen Komplementsätzen manifestiert, und Logophorizität, die bei finiten *ko*-Komplementsätzen zu beobachten ist. Kontrollbeziehungen in Jula sind immer eine Instanz von obligatorischer Kontrolle (OC) und kommen durch Bindung zustande. Was Logophorizität betrifft, so gibt es Hinweise auf die Bedeutung eines anderen Faktors als Bindung. In der Tat wird vorgeschlagen, dass Kontrastfokus eine entscheidende Rolle für Logophorizität in Jula spielt.

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Symbols and glosses

⇒	implies/entails
✓	possible reading/use
✗	impossible reading/use
*	ungrammatical
#	infelicitous
1	first person
2	second person
3	third person
ACC	accusative
AUX	auxiliary
C(omp)/COMP	Complementizer
CONJ	conjunction
COP	copula
DAT/Dat	Dative Case
DC	Declarative
DEF	definite (marker)
DEM	demonstrative
DIR	direct
Det	determiner
EMP	emphatic
FOC	focus marker/particle
FUT	future
Gen	Genitive
HAB	habitualis
IMP	imperative
INDEF	indefinite pronoun/marker
INF	infinitive
INV	inverse

LOC	Locative Case/marker
LOG	logohoric pronoun/marker
NOM	Nominative Case
Neg/NEG	negation (marker)
OBV	obiative
Obj	Object (marking)
PART/PRT	particle
PART/PTCP	participle
PFV	Perfective
PL	plural
POSS	possessive
PROG	progressive
PostP	Postposition
Q/QP	question particle/marker
RECP	reciprocal
REL	relative pronoun/marker
SBJV	subjunctive
SG	singular
Subj/SUBJ	subject (marking)
TA	transitive animate verb stem
TOP/Top	topic marker/particle
pst/PST/PAST	past tense marker

Part I

Getting started

Chapter 1

Introduction

1.1 Overview

The present thesis is *an explorative journey* within unexplored areas of an under-studied language system. Specifically, we investigate a set of issues related to the domain of complementation in Jula, a West-African Mande language of the Manding group (Niger-Congo).

Noonan (2007, p. 52) defines *complementation* as “the syntactic situation that arises when a notional sentence or predication is an argument of a predicate.” The English sentence in (1) is a typical example of a complementation sentence.

- (1) *John thinks* [**that Mary loves him**]

The sentence in (1) consists of two clauses or predications. The first one, in italics, is the matrix clause. The second one, the bold-marked finite *that*-clause, named after the introducing complementizer *that*, is the complement clause, i.e., the object argument of the matrix predicate, *think*.

Cross-linguistically, complements come in a variety of types and shapes that go beyond the English *that*-clause above. So, a complement can also be a subjunctive clause (2a) or an infinitival clause (2b).

- (2) a. Subjunctive complement clause in Lori (Noonan 2007, p. 62)

Zine vae pia xas [**ke tile-ye be-doze**].
woman from man wanted comp chicken-obj 3sg-sjunct-steal
'The woman wanted the man to steal the chicken.'

- b. Infinitival clause in English
John wants [**to go to France**].

It may, in addition, have the form of a nominalized clause (nominalization) or a participial, as in (3a) and (3b), respectively.

- (3) a. Nominalization in Uzbek (Noonan 2007, p. 71)
 Is ionadh liom Seáin [**a bhualadh Thomáis**]
 cop surprise with me John comp hit-nzn Thomas-gen
 ‘I’m surprised that John hit Thomas.’
- b. Participial complement in Classical Greek (Noonan 2007, p. 73)
 Éggellen [**autoùs paúsantas**]
 report-3sg them-acc stop-part-aorist-masc-pl-acc
 ‘He was reporting that they stopped.’

As will be discussed in 2.6, these different complement types are all attested in Jula. However, this thesis will focus on two complement types: (4a) infinitival complement clauses and (4b) finite complement *ko*-clauses.

- (4) a. infinitival complement clause
 Awa ban-na [**kà mobili san**]
 Awa refuse-PFV INF car buy
 ‘Awa refused to buy a car.’
- b. finite complement *ko*-clause
 Awa ye a fɔ [**ko Adama ye bon lo**]
 Awa PFV 3SG say COMP Adama PFV house build
 ‘Awa said that Adama has built a house.’

Concentrating on these two complement types, I will discuss topics concerning

- i. the relation of the complement clause to the (hosting) matrix clause,
- ii. the internal and external syntax of complement clauses,
- iii. the function and syntax of complementizers, and
- iv. referential dependencies within complementation sentences.

These topics have already been the object of extensive research within different frameworks and languages. Nevertheless, with this umpteenth investigation, we aim to bring in perspective topics that, although related, have been chiefly treated independently. Besides, in choosing Jula as the primary language of investigation, I hope to fill a research gap since none of these issues have been discussed for the language so far. More generally, it is my aspiration that the discussion of the Jula data will provide new insights and perspectives on those topics and help better understand them.

1.2 The approach

The description and analysis of the data and issues involve combining insights from different theoretical and descriptive frameworks. Thus, even if we adopt the general mindset of generative grammar, we also pay attention to works couched within typological and functional research traditions and beyond to any framework-free works, as long as they are insightful about the data discussed. In doing so, we aim at capturing at

best the empirical details of the issue discussed without being forced to exclude data based on theoretical considerations. Therefore, in the discussion, the topics within complementation are often put in perspective or compared with other domains that exhibit similar aspects. For instance, in chapter 6 the interpretation of the null subject of infinitival complement clauses is compared with its interpretation within infinitival purpose and consecutive clause constructions. Similarly, in chapter 9 the function of the complementizer *ko* within *ko*-clause complementation is determined in perspective with the occurrence of the complementizer within main clauses and causal clause construction. This approach offers a general picture of the relevant topics and a better understanding of how they are related to complementation.

1.3 The data

We use secondary and primary data. Secondary data were obtained from the consulted literature (and partly corpora) and are acknowledged accordingly. Primary data have been collected via both elicitation and translation methods. One part of the data was collected during a fieldwork between December 2017 and January 2018 in Burkina Faso, especially in Ouagadougou, Bobo-Dioulasso and Banfora. Here, I have worked with questionnaires and conducted interviews in which 43 native speakers have participated. The other part was gained based on the introspective judgments of another group of speakers on social media. To that end, I have created a Facebook discussion group with 11 Jula native speakers. The speakers were asked to judge sentences' grammaticality or construct sentences against a given context. Besides this, being a Jula speaker, I have also made use of my introspective judgments to generate data that have been counterchecked with other Jula speakers' intuitions. By that, over 250 data sets were obtained. They are discussed throughout 9 chapters (not included are the introduction and conclusion).

1.4 Outline

Chapter 2 contains a general presentation of the language Jula and an overview of some essential aspects of its grammar. We discuss general aspects concerning morphology and syntax. We also offer an overview of the pronominal and complementation systems.

Chapter 3 offers the first analytic description of infinitival complementation in Jula, and by extension, in Manding. We make two contributions. The first one is supportive evidence that infinitivals can function as the argument of another predicate. The second one is the investigation of the internal structure of infinitival complements.

Chapter 4 is concerned with the infinitival marker *kà*. It is shown that *kà* is a Fin head complementizer, and consequently, infinitival clauses are FinP projections. As for its semantic function, it is proposed that *kà* is associated with the information that the content of the clause it introduces is not related to an evaluation world.

Chapter 5 takes on the syntactic derivation of the relation between infinitival complement clauses and their hosting matrix clause. A unifying syntactic derivation is proposed for the two types of infinitival complements clauses, i.e., infinitival clauses with and without

correlates.

Chapter 6 discusses the control phenomenon in Jula, i.e., issues concerning the interpretation of the null subject PRO of infinitival complement clauses. The chapter aims to characterize the referential dependency relation between PRO, i.e., the controllee, and an argument of the matrix clause, i.e., the controller.

Chapter 7 is a description of *ko*-clause complementation. We look at the form and meaning of the predicates that take *ko*-clauses as arguments and present arguments supporting the idea that complement *ko*-clauses are embedded. The chapter also contains a discussion of issues concerning argumenthood and the syntactic position of *ko*-clause, as well as an exploration of aspects related to their internal and external syntax.

Chapter 8 argues for the existence of three instances of *ko* complementizer in Jula, occurring in main, causal and complement clause constructions. They have the same verbal origin and, syntactically, they all behave like Force head complementizers, thus making *ko*-clauses ForceP projections associated with the implication that the source of their content should be identifiable.

Chapter 9 aims at capturing the function of the complementizer *ko* within complementation sentences. Building on the conclusion from chapter 8, this is done by bringing complement *ko*-clauses in perspective with main and causal *ko*-clauses. It is proposed that in all these cases, *ko* has the same function: it anchors a clause to a speech context different from the actual speech context, i.e., the speech context in which the actual speaker utters the *ko*-clause sentence. This proposal has, among others, consequences for the syntax of *ko*-clause complementation, which we propose to derive along the lines of the derivation carried out for infinitival complementation in chapter 5.

Chapter 10 deals with the second phenomenon concerning referential dependencies within complementation: *logophoricity*. What that means in Jula is the following: in *ko*-clause complementation, the third-person emphatic pronoun *ale* exclusively refers to the third-person source DP of the *ko*-clause and is interpreted *de se*. We relate the logophoric interpretation of *ale* within *ko*-clause to the contrastive focus meaning associated with the use of the pronoun.

Chapter 11, finally, summarizes the central insights of the thesis.

Chapter 2

Jula: an overview

2.1 Introduction

This chapter contains a general presentation of the language Jula, and an overview of some essential aspects of its grammar. The goal here is to familiarize the reader with the language, especially with the data types discussed in the upcoming chapters. We first provide general information on the language (2.2), and then discuss relevant aspects concerning typology (2.3). Next, we discuss the structure and the sentence types in the language (2.4). Then follows a brief but informative immersion within the pronominal system (2.5). Finally, section 2.6 contains a short description of the complementation system. Section 2.7 concludes the chapter.

2.2 The language

Jula (aka Dioula or Dyula) is a West African Mande language. It is part of the language and dialect linguistic continuum of Manding, which also includes other languages like Bambara/Bamana, Maninka, Mandinka. In terms of expansion and number of speakers, Jula is, besides Wolof and Hausa, one of the most important *linguae francae* in West Africa (cf. Slezak 2009). It is spoken by about 7 million L1 speakers and 10 million L2 speakers (cf. Ethnologue 2019), mainly in Côte d'Ivoire, Burkina Faso and some parts of Mali. The maps below show the expansion area of Manding languages and that of Jula, respectively.¹

¹Figure 2.1 is available under <http://www.sil.org/silesr/2000/2000-003/Manding/MandingLinguaFranca.htm> (SIL), Figure 2.2 under https://joshuaproject.net/people_groups/12375/IV (Bethany World Prayer Center)

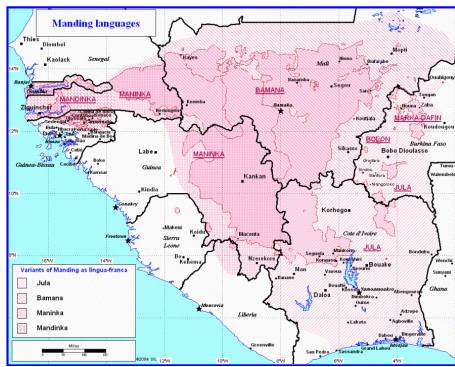


Figure 2.1: The Manding area

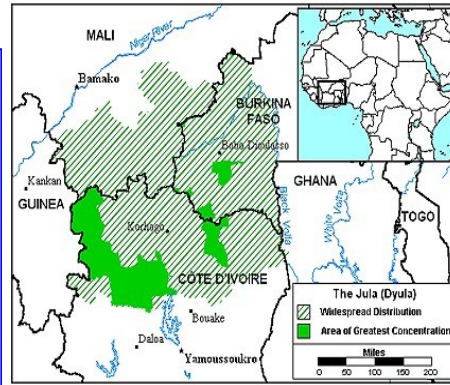


Figure 2.2: The Jula area

In the present thesis, the descriptive generalizations presented are primarily based on judgments from speakers living in or native of Burkina Faso. However, as will be apparent throughout the discussion, we may extend some of the observations and conclusions made to other variants of Jula or even to a certain extent to other Manding languages (e.g., Bambara).

2.3 Typological aspects

2.3.1 Tone

Jula is a two-tone language, with the distinction between high (´) and low tone (˘). The role of tone marking in Jula is essentially lexical (cf. Hien 2000). As the pairs of words in (1) show, tone marking helps distinguish the meaning of morphologically identical words.

- (1) a. *bá* ‘river’ vs. *bà* ‘goat’
- b. *cí* ‘send’ vs. *cì* ‘break, smash’
- c. *fúru* ‘marriage’ vs. *fùru* ‘stomach’
- d. *túgù* ‘close’ vs. *tùgù* ‘follow’
- e. *sán* ‘buy’ vs. *sàn* ‘sky’

Throughout the thesis, I will only make use of tone marking to differentiate morphologically identical words.

2.3.2 Morphology

Morphologically, Jula is an isolating language, like other Manding languages. As such, it does not mark subject-verb-agreement, Case or gender distinctions (cf. Koopman 1992, Creissels 2007). The only extra morphological marking allowed on nominals is the suffixal plural marker *-w*.

- (2) a. *ce* ‘man’ + *-w* = *cew* ‘men’
- b. *muso* ‘woman’ + *-w* = *musow* ‘women’

Nevertheless, the language has a rich inventory of derivation morphemes. Conversion, composition and reduplication are also productive word-formation mechanisms. An overview and examples of the different strategies are given in (3).²

²For an exhaustive list of derivation morphemes, see in Hien (2000, p. 41)

- (3) a. Derivation
la- + *taga* (V) ‘to go’ = *lataga* (V) ‘to make go’
suma (V) ‘to be/get cold’ + *-ya* = *sumaya* (N) ‘coolness’
- b. Conversion
boli (V) ‘to run’ + \emptyset = *boli* (N) ‘race’
kuma ‘to speak’ + \emptyset = *kuma* (N) ‘word’
- c. Composition
sin (N) ‘breast/teat’ + *ji* (N) ‘water’ = *sinji* (N) ‘breastmilk’
pan (V) ‘jump’ + *kurun* (N) ‘canoe’ = *pankurun* (N) ‘plane’
- d. Reduplication
menε (V) ‘to light’ + *menε* (V) ‘to light’ = *menεmenε* (V) ‘to shine’
sɔgɔ (V) ‘to pierce/sting’ + *sɔgɔ* (V) ‘to pierce/sting’ = *sɔgɔsɔgɔ* (V/N) ‘(to) cough’

2.3.3 Syntax

As for the syntax, Jula exhibits a general rigid SOV-word order. Typically, verbs are preceded by so-called TAM-markers, i.e., inflectional makers, which express grammatical categories such as tense, aspect and mood. However, they follow their object arguments and are followed by optional oblique arguments and adjuncts. Within adpositional phrases, postpositions, instead of prepositions, are the rule. This is illustrated below in (4).

- (4) **Subject TAM Object Verb Oblique Adjunct**
 Adama ye wari di Awa ma kunu
 Adama PFV money give Awa PostP yesterday
 ‘Yesterday, Adama gave (some) money to Awa.’

The structure exemplified by the sentence in (4) constitutes only one way of structuring a Jula sentence. A complete picture of the different sentence structure patterns is presented in the next section.

2.4 Sentence types

Generally, in Jula, we can distinguish between two types of clauses: verbal and non-verbal clauses.

2.4.1 Verbal clauses

Verbal clauses typically contain a verb and a TAM-marker. Besides expressing grammatical categories such as tense, aspect, and mood, TAM-markers in Jula are involved in the expression of sentence negation. In that respect, the TAM-system is organized so that, for any positive TAM-marker, there is a corresponding negative form. The following table illustrates this.

(5) List of TAM-markers

Forms		Functional domains
Affirmative	Negative	
<i>be</i>	<i>te</i>	Imperfective - Habitualis
<i>be...-ral-lal-na</i>	<i>te...-ral-lal-na</i>	Imperfective - Progressive
<i>bena</i>	<i>tena</i>	Imperfective - Future
<i>ye</i>	<i>ma</i>	Perfective - Transitive
<i>-ral-lal-na</i>	<i>ma</i>	Perfective - Intransitive
\emptyset	<i>kana</i>	Imperative - Singular
<i>ye</i>	<i>kana</i>	Imperative - Plural
<i>ká</i>	<i>kana</i>	Subjunctive
<i>ma...-ral-lal-na</i>	<i>kana</i>	Optative

Sentence negation in Jula is accordingly achieved by means of *commutation* (cf. Creissels 1997). Explicitly, negating an affirmative sentence consists in replacing a positive TAM-marker with the corresponding negative form. Thus, the negation of the sentence in (6a) is (6b), where the negative form *ma* has replaced the perfective marker *ye*.

(6) a. Affirmation

Awa *ye* mɔbili boli
 Awa PFV car drive
 ‘Awa drove the car.’

b. Negation

Awa *ma* mɔbili boli
 Awa PFV.NEG car drive
 ‘Awa did not drive the car.’

TAM-marking in Jula also goes along with a specific sentence structure. In this respect, we can distinguish between four clause patterns depending on the position of the TAM-marker. The TAM-second structure, which is the most common pattern, has been already illustrated above in (4) for transitive verbs. However, with intransitive verbs, the preverbal object position is not filled, giving rise to the following sentence structure (7).

(7) **Subject TAM Verb Oblique Adjunct**

Adama bena jine wari kɔ so
 Adama FUT forget money PostP home
 ‘Adama will forget the money at home.’

There exists also a TAM-first structure with a missing subject position. Accordingly, the first element in the clause is a TAM-marker. The rest of the sentence is structured as in TAM-second structures in accordance with the verb’s valency. TAM-first structures only occur with imperative singular TAM-markers (8).

- (8) a. intransitive verb
- | | | | |
|------------|-------------|----------------|-------|
| TAM | Verb | Adjunct | |
| ∅ | boli | mòbili kò | |
| IMP.SG | run | car | PostP |

‘Run after the car!’

- b. transitive verb

TAM	Object	Verb	Oblique
kana	wari	di	Awa ma
IMP.SG.NEG	money	give	Awa PostP

‘Don’t give money to Awa!’

The TAM-marker is in only one case suffixed to the verb. This is the case with perfective marking involving intransitive verbs, as shown in (9).

- (9) a. **Subject Verb-TAM Oblique Adjunct**
- | | | | |
|-------|------------|---------|------------|
| Adama | pine-na | wari kò | so |
| Adama | forget-PFV | money | PostP home |
- ‘Adama forgot the money at home.’

- b. **Subject Verb-TAM Adjunct**
- | | | |
|-------|---------|-----------|
| Adama | boli-la | mòbili kò |
| Adama | run-PFV | car PostP |
- ‘Adama ran after the car.’

Finally, the TAM-marker for imperfective progressive and the Optative is made up of two parts. The first follows the clause’s subject, while the second attaches to the verb (transitive or intransitive). The clause structure, in that case, is as follows.

- (10) a. Progressive with intransitive verb

Subject	TAM	Verb-TAM	Adjunct
Adama	be	boli-la	mòbili kò
Adama	PROG	run-PROG	car PostP

‘Adama is running after the car.’

- b. Optative with transitive verb

Subject	TAM	Object	Verb-TAM	Oblique
Ala	ma	Burkina	kisi-la	kɛɛ ma
God	OPT	Burkina	save-OPT	war PostP

‘May God save Burkina from wars.’

2.4.2 Non-verbal clauses

Unlike verbal clauses, non-verbal clauses do not contain any verb. Instead, the predicate position is filled with an adjective, a nominal or a postpositional phrase. Characteristically, unlike in verbal clauses, the subject position is not followed by a TAM-marker but a copula. Nevertheless, non-verbal clauses are also negated through commutation, for like TAM-markers, copulae in Jula are organized in pairs of positive and negative forms. The following table presents the copulae and the types of non-verbal clauses in which they occur.

(11) List of copulae

Forms		Functional domains
Positive	Negative	
<i>bé</i>	<i>té</i>	existential/locative clause
<i>bé...ye</i>	<i>té...ye</i>	equative/specificational clause
<i>lo</i>	<i>tè</i>	identificational clause
<i>ka</i>	<i>man</i>	predicational/descriptive clause

As the table shows, depending on the type of copula and the nature of the information expressed, we may distinguish four subtypes of non-verbal clauses.

In existential/locative clauses, the predication is headed by the copulae pair *bé/té*. The predicate can be either a DP or a postpositional phrase. Filling the predicate position is, however, optional.

(12) Existential/locative clause

Subject Copula (DP) / (PostPP)
 Nɛnɛ *bé/té* (yan) / (bon kɔnɔ)
 coldness COP/COP.NEG here house PostP
 ‘It is / is not cold (here) / (in the house).’

The predication within equative/specificational clauses is also headed by the pairs of copulae *bé/té*. However, unlike in existential/locative clauses, here, the predicate must be a postpositional phrase introduced by *ye*.

(13) equative/specificational clause

- a. **Subject Copula PostPP**
 [Adama face] *bé* [Awa face *ye*]
 Adama.POSS father COP Awa.POSS father PostP
 ‘Adama’s father is Awa’s father.’
- b. **Subject Copula PostPP**
 Adama *té* [sufɛwulu *ye*]
 Adama COP.NEG night.watchman PostP
 ‘Adama is not a night watchman.’

In identificational clauses, the DP that semantically corresponds to the predicate occurs to the left of the copulae *lo/tè*.

(14) identificational / specificational clause

- a. **DP Copula**
 mɔgɔjugu *lo*
 person.wicked COP
 ‘She/he is a wicked person.’
- b. **DP Copula**
 Adama *tè*
 Adama COP.NEG
 ‘That is not Adama.’

Finally, predicational/descriptive clauses can only contain an adjective or adjectival phrase in the predicate position. They are headed by the copula *ka* and its negative counterpart *man*.

(15) predicative/descriptive clause

Subject	Copula	AP
Adama	<i>kalman</i>	jugu
person.bad	COP/COP.NEG	wicked

‘Adama is/is not wicked.’

2.4.3 A note on *tun*

In addition to TAM-markers and copulae, Jula possesses the anteriority or past marker *tun*, which marks the event as non-actual relative to the utterance time (cf. Blecke 2004, Tröbs 2009). Typically, *tun* is used in association with TAM-markers and copulae, as illustrated in (16)

- (16) a. Adama *tun* bena wari di Awa ma
Adama PAST FUT money give Awa PostP
‘Adama would give money to Awa.’
- b. Adama *tun* bé yan
Adama PAST COP here
‘Adama was here.’

The sentence in (16a) illustrates the effect of combining *tun* with the future TAM-marker *bená*. The one in (16b) does the same for the copula *bé*.³

2.4.4 A note on questions

All the sentence structures discussed so far are not affected by question formation. The word order in question sentences is the same as within non-question sentences. Accordingly, content questions are formed in situ, i.e., the question word occurs in the original position of the questioned constituent. Compare (17a) and (17b).

- (17) a. Adama ye *wari* di Awa ma
Adama PFV money give Awa PostP
‘Adama gave money to Awa.’
- b. Adama ye *mun* di Awa ma?
Adama PFV what give Awa PostP
‘What did Adama give to Awa?’

Polar questions are formed by adding to the original sentence the sentence-final particle *wa*, as illustrated in the contrast between (18a) and (18b).

- (18) a. Adama ye wari di Awa ma
Adama PFV money give Awa PostP
‘Adama gave money to Awa.’
- b. Adama ye wari di Awa ma *wa*?
Adama PFV money give Awa PostP PART
‘Did Adama give money to Awa?’

³Blecke (2004) provides an in-depth description of the different uses of *tun*.

2.5 The pronominal system

This section describes the main aspects of the pronominal system of Jula. It is meant to introduce the third-person pronouns *a* and *ale* to the reader, as they will be the main topic of chapter 10. Accordingly, all points presented here are illustrated with these two forms. However, unless mentioned otherwise, the generalizations apply to both first and second pronouns.

2.5.1 The two series

Like many African languages in general and other Manding languages, in particular, Jula has two morphologically different sets of personal pronouns: the simple pronouns and the emphatic pronouns, as illustrated in the table in (19).

(19) Table 1: Personal pronouns of Jula

	simple forms		emphatic forms	
	singular	plural	singular	plural
1. person	n	an	ne	anu
2. person	i	á	ile	alu
3. person	a	o	ale	olu

As the table (19) shows, for each simple pronominal form in the left column, there is a corresponding emphatic form in the right column. In bold are the third person simple pronouns *a* and *o*, and the corresponding emphatic forms *ale* and *olu*.

Morphologically, the emphatic pronouns seem to be composed of the simple pronouns plus the focus marker *le*. This may be illustrated as follows.⁴

(20) a. Singular forms

- (i) $n + le = ne$
- (i) $i + le = ile$
- (i) $a + le = ale$

b. Plural forms

- (i) $an + le + -w = anu$
- (i) $á + le + -w = alu$
- (i) $o + le + -w = olu$

Synchronically, this is particularly evident if we look at the singular forms. So for both the second and third person emphatic forms, we have $i + le = ile$, and $a + le = ale$, respectively. Accordingly, the first person emphatic *ne* could have been obtained in the following way: $n + le$, whereby the *l* of the focus marker has been deleted or fused with the *n*. Even if plural emphatic forms also seem to be derived from simple forms, the presence of the focus marker is less apparent, maybe due to some diachronic changes. However, it is possible to posit that they evolved in the same way as singular forms. For example, the third-person plural emphatic pronoun *olu* is decomposable into $o + le + -w$, whereby the plural marker *-w* has possibly fused with the focus marker *le*. The two other forms (e.g. *anu* and *alu*) resulted from the same process. Support for this scenario comes from a dialectal variant of Jula spoken in Kong, a town in northern Ivory Coast.

⁴The term "focus marker" is used here only for descriptive purposes in lines with most works in the Manding literature. I will show, nevertheless, in chapter 10 (section 10.7) that *le* is, in reality, a contrastive focus marker.

As described by Sangaré (1984), Jula of Kong possesses alternative forms for plural emphatic pronouns, whose morphological make-up corresponds to the pattern just described above. For example, the second-person plural emphatic pronoun *aleri*, the equivalent of *alu*, composes of *a* + *le* + *-ri*, where *a* is the second person simple plural pronoun, *le* the focus marker and *-ri* the plural marker. This confirms that in Jula emphatic pronouns are morphologically built up from simple pronouns and the focus marker *le*.⁵

2.5.2 Morpho-syntactic properties

Let start mentioning that at the clause level, personal pronouns, both simple and emphatic forms, can occupy any argument positions available to nominals. For instance, they can occur in subject (21a), object (21b), and oblique positions (21c).

(21) a. Subject

a / **ale** ye Adama yee
 3SG / 3EMP PFV Adama see
 ‘S/he saw Adama.’

b. Object

Adama ye **a** / **ale** yee
 Adama PFV 3SG / 3EMP see
 ‘Adama saw him/her.’

c. Oblique

Adama ye wari di **a** / **ale** ma
 Adama PFV money give 3SG / 3EMP PostP
 ‘Adama gave him/her money.’

However, the two forms differ in five key aspects. Firstly, only the emphatic ones can be modified. As a rule, in Jula, adnominal modifiers follow the modified noun. Typical cases of adnominal modification are illustrated in (22).

(22) a. Modification by an adjective

mɔgɔ **jugu** te jɛ
 person bad HAB.NEG be.good
 ‘A bad person does not succeed (end well).’

b. Modification by a relative clause

cɛ [**min** ye an dɛmɛ] man jugu
 man REL PFV 1PL help COP.NEG bad
 ‘The man who helped us is not is bad (is nice).’

c. Modification by an appositive noun

I tericɛ **Adama** na-na yan
 2SG.POSS friendP Adama come-PFV here
 ‘Your friend Adama has come here.’

⁵However, this is by nothing specific to Jula. Abubakari (2019) and Perekhval'skaya (2020) make a similar observation concerning Kusaal (Niger-Congo, Gur) and San-Maka (Niger-Congo, Eastern-Mande), respectively.

An adnominal modifier may be an adjective like *jugu* ‘bad’ (22a), a relative clause headed by *min* as in (22b), or an appositive nominal phrase like the proper name *Adama* (22c). Now, as the examples in (23) show, the simple pronoun *a* takes none of these modifiers. Its emphatic counterpart *ale*, in contrast, can be modified by either a relative clause or an appositive nominal phrase, though, unlike other nominals, not by an adjective.

(23) a. Modification by a relative clause

An ka Ala fo. *a / ale [min ye an lakisi]
 1PL SUBJ God praise 3SG / 3EMP REL PFV 1PL save

‘Let’s praise God. He who saved us.’

b. Modification by an appositive noun

*a / ale Adama na-na yan
 3SG / 3EMP Adama come-PFV here

‘He Adama has come here.’

c. Modification by an adjective

*a / *ale jugu te jε
 3SG / 3EMP bad HAB.NEG be.good

Int. ‘*A bad he/she does not succeed (end well).’

Secondly, there exist constructions or environments in which only the emphatic forms, but not the simple forms, are allowed. For example, only *ale*, but not *a* can occur as the second conjunct of a conjunctive coordination, e.g. after the conjunction *ni* ‘and’, as shown in (24).

(24) Conjunctive coordination

Awa ni *a / ale na-na
 Awa and 3SG / 3EMP come-PFV

‘Awa and her/him came (together).’

Disjunctive coordination constructions impose even more restrictions: here, simple pronouns are not allowed, either as first or second conjunct. For this reason, the pronoun *a*, unlike *ale*, is infelicitous in (25a) and (25b).

(25) disjunctive coordination

a. Jon na-na yan? Awa wa *a / ale ?
 who come-PFV here Awa or 3SG / 3EMP

‘Who came hier? Awa or s/he ?.’

b. Jon na-na yan? *a / ale wa Awa ?
 who come-PFV here 3SG / 3EMP or Awa

‘Who came here? S/he or Awa? ’

It is also the emphatic pronoun, and not the simple pronoun that, like other nominals, can occupy the predicative complement position within equative/specificational (26a) and identificational (26b) non-verbal clauses (see table in 11).

- (26) a. equative clause
 Adama te **Awa / *a / ale** ye
 Adama COP.NEG Awa / 3SG / 3EMP PostP
 ‘Adama is not Awa / her.’
- b. identificational clause
Awa / *a / ale lo
 Awa / 3SG / 3EMP COP
 ‘That is Awa / her.’

Thirdly, both focus-marking and ex-situ topicalization is only possible with emphatic pronouns. As can be seen below, the focus marker *le* cannot associate with *a* (27a), but it is allowed with *ale* (27b).

- (27) Focus-marking
- a. Adama ye **a** (***le**) nɛni
 Adama PFV 3SG FOC insult
 Int. ‘It is HIM/HER that Adama insulted.’
- b. Adama ye **ale** **le** nɛni
 Adama PFV 3EMP FOC insult
 ‘It is HIM/HER that Adama insulted.’

The following pair of examples shows that *ale* can undergo ex-situ topicalization, in which case it is resumed by *a* (28a). However, ex-situ topicalization is not possible with *a* (28b), whatever the resumptive pronoun is.

- (28) Ex-situ topicalization
- a. **ale_i**, **a_i** ye Adama nɛni
 3EMP 3SG PFV Adama insult
 ‘S/HE, s/he has insulted Adama.’
- b. ***a_i**, **a_i** / **ale_i** ye Adama nɛni
 3SG 3SG / 3EMP PFV Adama insult
 Int. ‘S/HE, s/he has insulted Adama.’

Fourthly, another difference between *a* and *ale* lies in the linguistic type of antecedent they may have. While *ale* exclusively refers to nominal (referring) expressions, *a* can have a clause as antecedent (29).

- (29) [Adama na-na yan]_i. I bɔ-la **a_i/*ale_i** kala ma wa ?
 Adama come-PFV here 2SG get.out. 3SG/EMP sens PostP Q
 ‘Adama came here. Did you get to know it?’

Fifthly and lastly, the third-person pronouns *a* and *ale* contrast as for their ability to have non-anaphoric uses. In this respect, the generalization is that *ale* is exclusively anaphoric, while *a* allows non-anaphoric uses. For example, while *a* can have deictic uses, that is, it can refer to a contextually salient entity (cf. Stirling and Huddleston 2002), *ale* cannot (30).

(30) [Pointing at someone]

a / ***ale** bugo !
3SG / 3EMP beat
'Beat him/her!'

Besides, when used as a correlate, *a* use extensively discussed in sections 3.3.1 and 7.4.1, the pronoun *a* stands in a cataphoric (anticipatory) relationship with a postverbal complement clause. The emphatic pronoun *ale* is never used in such a way (31).

(31) Awa be **a_i** / ***ale_i** lɔn [ko Adama ye wari sonya]_i
Awa HAB 3SG / 3EMP know COMP Adama PFV money steal
'Awa knows that Adama has stolen the money.'

The pronoun *a* is also used within various idiomatic and colloquial expressions, where it is not associated with any identifiable antecedent. To put it differently, here, the pronoun has no meaning that is independent of other parts of the expression. In these cases, too, *a* could never be replaced by *ale*. Some examples given in (32) illustrate this.

- (32) a. **a** / ***ale** bε di?
3SG / 3EMP COP how
'What's up?'
- b. **a** / ***ale** kε-la di?
3SG / 3EMP happen-PFV how
'What happened?'
- c. **a** / ***ale** se-la!
3SG / 3EMP arrive-PFV
'It is time (to go).'

2.5.3 Making reflexives and possessives

In terms of use, personal pronouns play a central role in Jula since they constitute the basis for forming other pronominal forms. To begin with, note that the language does not have any dedicated possessive pronouns. Instead, personal pronouns are used to express relations of possession. There exist two possession constructions. The inalienable possession construction in (33), which expresses kinship or body-part relations, is formed by directly adjoining a pronoun at the left of the possessed relational noun.

- (33) inalienable possession: pronoun + noun
- a. n bamuso
1SG mother
'my mother'
- b. a bamuso
3SG mother
'his / her /its mother'

In the case of alienable possession, a possessive marker *ka* intervenes between the possessor pronoun and the possessed non-relational noun. This construction is typically used for the expression of ownership, like in (34).

- (34) alienable possession: pronoun + *ka* + noun
- a. n ka mɔbili
1SG POSS car
'my car'
- b. a ka mɔbili
3SG POSS car
'his / her / its car'

Personal pronouns are also involved in the formation of reflexive pronouns. The following examples illustrate the different reflexive strategies used in Jula.

- (35) a. Awa kò-la
Awa wash-PFV
'Awa washed (herself).'
- b. i ye i (yɛɛ) kò
2SG PFV 2SG SELF wash
'You washed (yourself).'
- c. Awa ye a *(yɛɛ) kò
Awa PFV 3SG SELF wash
'Awa washed (herself).'

Besides inherently reflexive verbs (35a), Jula has reflexive pronouns that morphologically pattern with SELF-anaphora in the sense of Reinhart and Reuland (1993). Formally, they consist of a personal pronoun plus the reflexivizing morpheme *yɛɛ* 'SELF'. While the SELF-morpheme is optional for the second (and first-person), if not dis-preferred (35b), it cannot be omitted with third persons (35c).

2.6 Complementation

We identify six complement types in Jula, which I briefly describe.

2.6.1 Participial complements

Participials in Jula are formed by attaching either the present participle suffix *-tɔ* or the past participle suffix *-nin* to a verbal root.⁶ Participial complements are exclusively found with predicates expressing perception. Examples of present and past participial complements are given in (36a) and (36b), respectively.

- (36) a. Awa ye [Adama kule-tɔ] men
Awa PFV Adama scream-PTCP.PRS hear
'Awa heard Adama screaming.'
- b. Awa ye [Adama sigi-nin] yee
Awa PFV Adama sit-PTCP.PST see
'Awa saw Adama sitting.'

As shown in (36), participial complements occupy the same argument positions as nominal arguments, here above the preverbal object position.

⁶There is also a third participle suffix *-ta*, which encodes potential or future actions. Kastenzholz (1998) refers to its meaning contribution as Potentialis.

2.6.2 Nominalized complements

Nominalized complements are types of zero nominalization from verbal phrases. As such, they contain as a minimum a verb and its object argument (37a - 37b). In addition, they may contain a subject, which in this case is encoded as possessor (37c - 37d).

- (37) a. Awa ye [bon lo] damine
Awa PFV house build start
'Awa started building a house/houses.'
- b. [Bon lo] be Awa kono
house build COP Awa.POSS belly
'Awa plans to build a house.'
- c. Awa ye [Adama ka bon lo] lakali an ye
Awa PFV Adama POSS house build tell 1PL PostP
'Awa told us about Adama's house building.'
- d. Awa miiri-la [Adama ka bon lo] la
Awa think-PFV Adama POSS house build PostP
'Awa thought about the fact that Adama has built a house.'

Like participial complements, nominalized complements typically occupy the same argument positions as nominal arguments. In terms of distribution, they are found with a significant number of semantically different types of predicates.

2.6.3 Infinitival complement clauses

Infinitival complements are introduced by the infinitival marker *kà*. Their form, distribution, and other issues relative to their syntax and semantics will be the topic of Part II. For this reason, they will not be described here any further.

2.6.4 Subjunctive complement clause

Subjunctive complements are semi-finite clauses in the sense that they can only be inflected with the subjunctive TAM-marker *ká* (not to be confused with the low-tone infinitival marker *kà*). Besides, subjunctive complement clauses typically lack an introducing complementizer.

- (38) a. Awa be a fe [Adama ká bon lo]
Awa COP CORR at Adama SBJV house build
'Awa wants Adama to build a house.'
- b. Awa ye Adama waajibiya [a ká bon lo]
Awa PFV Adama oblige 3SG SBJV house build
'Awa obliged/compelled Adama to build a house.'
- c. Awa ye Adama labila [a ká bon lo]
Awa PFV Adama allow 3SG SBJV house build
'Awa allowed Adama to build a house.'

As shown in (38), unlike nominal arguments, a subjunctive complement clause must occur to the right of the hosting matrix clause. This is the canonical position for complement clauses in Jula. In terms of distribution, subjunctive complements mostly occur with volitional (38a), mandative (38b) and manipulative (38c) predicates.

2.6.5 Complement *ko*-clauses

Complement *ko*-clauses are introduced by the complementizer *ko*, which is derived from the speech verb *ko* ‘say’. Complement *ko*-clauses are the topic of Part III and will therefore not be discussed here any further.

2.6.6 Complement *ni*-clauses

With a very restricted distribution, complement *ni*-clauses are introduced by *ni*, which is both a complementizer and a nominal conjunction meaning ‘and’. Typically, *ni*-clauses are finite clauses, with the syntactic make-up of an independent clause.

- (39) a. Awa ye an jiniga [**ni** Adama ye bon lo]
Awa PFV 1PL answer COMP Adama PFV house build
‘Awa asked us if Adama has built a house.’
- b. Awa ma la a la [**ni** Adama ye bon lo]
Awa NEG.PFV believe CORR PostP COMP Adama PFV house build
‘Awa is not certain if Adama has built a house.’
- c. Awa ma a lon [**ni** Adama ye bon lo]
Awa NEG.PFV CORR know COMP Adama PFV house build
‘Awa did not know if Adama has built a house.’

As shown in (39), complement *ni*-clauses are involved in the expression of indirect questions or doubts. They obligatorily occur to the right of their hosting matrix clause, like any complement clauses in Jula.

2.7 Conclusion

This chapter has provided an introduction to Jula and some aspects of its grammar. We shortly touched upon general aspects concerning morphology and syntax, and briefly described specific domains such as the pronominal system and complementation. These aspects will be necessary for the discussion and argumentation developed in the upcoming chapters, organized around issues related to infinitival complementation, on the one hand, and to finite *ko*-clause complementation, on the other hand.

Part II

Infinitival complementation

Chapter 3

Aspects of infinitival complementation

3.1 Introduction

This chapter offers the first analytic description of infinitival complementation in Jula, and by extension, in Manding. We make two contributions. The first is supportive evidence that infinitivals can function as the argument of another predicate. The second is the investigation of the internal structure of infinitival complements.

In Jula, and throughout Manding, infinitival structures are introduced by the morpheme *kà*, which Manding Grammars conventionally refer to as an infinitival marker (cf. Friedländer 1992, Dumestre 2003, Creissels 2013b). Infinitival complements constitute one of many structures that are introduced by *kà*, as illustrated in (1)¹.

- (1) a. Consecutive
- Awa ye baara ke [kà mobili san.]
Awa PFV working do INF car buy
'Awa worked and (then) bought a car.'
- b. Purposive
- Awa nan-na yan [kà mobili san.]
Awa come-PFV here INF car buy
'Awa came here to buy a car.'
- c. complement clause
- Awa ban-na [kà mobili san.]
Awa refuse-PFV INF car buy
'Awa refused to buy a car.'

Intuitively, the basic difference between the sentences in (1) is the semantic interpretation of the infinitival structure relative to the preceding clause. Otherwise, they are formally all identical. It is thus the goal of sections 3.2 and 3.3 of this chapter to show that the infinitival in (1c) has the behavior of an argument. We do that by comparing the latter with nominal arguments.

¹I make a distinction between two main functional domains: (i) the clausal domain and (ii) the non-clausal domain. The examples in (1) are cases of the clausal domain. The non-clausal functions include idiomatic uses with different meanings corresponding cross-linguistically to that of functional expressions such as comparative markers, aspectual modifiers, or prepositions, and more. We do not discuss the non-clausal domain in this chapter.

We shall show that infinitivals can fulfill almost all syntactic functions of nominal arguments, though they do not occur in the same syntactic position. Crucially, unlike nominal arguments, infinitival complements cannot be Case-marked due to their clausal status. Because they are clauses, infinitivals cannot occur within their hosting matrix clause, and correlates often indicate their argument status. When no correlates occur, the infinitival constitutes an alternant of a nominal argument. Consequently, the left-dislocation of nominal arguments parallels that of infinitivals. The remaining sections deal with the internal structure of infinitival complements, e.g., their clausal status.

A clause in Jula typically contains at minimum a subject, a Tense-Aspect-Mood-marker (henceforth TAM-marker), and a verb in a strict order. The presence of an object between the verb and the TAM-marker depends on the transitivity of the verb.

- (2) a. clause with intransitive verb

Awa bena (*mobili) boli
 Awa FUT car run
 ‘Awa will run.’

- b. clause with transitive verb

Awa bena *(mobili) boli
 Awa FUT car drive
 ‘Awa will drive a car.’

In section 3.4, we show that the argument realization within the verbal domain in infinitival complement mirrors that of canonical clauses. Subjects, TAM-markers and negation, however, cannot be realized in infinitivals. In section 3.5, the scope of adverbs shows that infinitival clauses contain an IP and VP. Finally, I argue in section 3.6 for a null subject position in infinitival complements. The section 3.7 summarizes the points discussed in the chapter.

3.2 Distribution

This section paves the way for the discussion in section 3.3. I give an overview of the types of predicates that take infinitivals as their arguments, and go through the syntactic functions of infinitival complements.

3.2.1 Predicates with infinitival complements

From a morpho-lexical perspective, predicates that select for infinitivals fall into two main classes: lexical and periphrastic predicates. By the number of members, lexical predicates constitute the most significant class. Semantically, predicates within this class can be grouped into five subclasses, illustrated from (3) to (7).

- (3) **Achievement**
- a. List of predicates
banba ‘manage’, *se* ‘succeed’, *jija* ‘try hard’, *dεεε* ‘fail’, *dεmε* ‘help’, *son* ‘dare’,
lamine ‘dare’, *jine* ‘forget’
 - b. Representative example
Awa banba-la [kà bon lɔ]
Awa manage-PFV INF house build
‘Awa managed to build a house.’
- (4) **Bouletic/volitional**
- a. List of predicates
bàn ‘refuse’, *son* ‘accept’, *nikanko* (N) ‘will/intention’ *labennin* (PTCP) ‘be ready to’
 - b. Representative example
Awa bàn-na [kà bon lɔ (Adama ye)]
Awa refuse-PFV INF house build Adama PostP
‘Awa refused to build a house (for Adama).’
- (5) **Emotive**
- a. List of predicates
malo ‘be ashamed’, *siran* ‘be afraid’
 - b. Representative example
Awa be malo [kà bon lɔ (Adama ye)]
Awa HAB be.ashamed INF house build Adama PostP
‘Awa is ashamed of building a house (for Adama).’
- (6) **Mandative/manipulative**
- a. List of predicates
karaba ‘force/oblige’, *waajibiya* ‘to force/oblige’, *bali* ‘prevent’, *kepe* ‘prevent’
 - b. Representative example
Awa ye Adama karaba [kà bon lɔ]
Awa PFV Adama force INF house build
‘Awa forced Adama to build a house.’
- (7) **Modal**
- a. Predicate
se ‘be able to’,
 - b. Example
Awa be se [kà bon lɔ (Adama ye)]
Awa HAB be.able INF house build Adama PostP
‘Awa can build a house (for Adama).’

Of all the lexical predicates listed above, it is essential to note that only two are non-verbal: *nikanko* ‘will/intention’ is a noun, *labennin* (PTCP) ‘be ready to’ is a participle, as mentioned in the parentheses in (4a).

Apart from lexical predicates, there exist periphrastic predicates involving non-verbal predication (with a copula). They are constructed so that they can only have their idiomatic, i.e., non-literal meaning, if used with an infinitival complement. The attested examples are presented below.

(8) **Periphrastic predicates**

a. bouletic/volitional *want*

Awa bɛ a fɛ [kà bon lɔ]
Awa COP 3SG at INF house build

‘Awa wants to build a house.’
lit. ‘Awa is at it to build a house.’

b. bouletic/volitional *intend*

a bɛ Awa kɔnɔ [kà bon lɔ]
3SG COP Awa.POSS belly INF house build

‘Awa intends to build a house.’
lit. ‘It is in Awa’s belly to build a house.’

c. bouletic/volitional *hope*

Awa hakili bɛ a la [kà bon lɔ]
Awa.POSS mind COP 3SG PostP INF house build

‘Awa hopes to build a house.’
lit. ‘Awa’s mind is on it to build a house.’

d. emotive *please*

a ka di Awa ye [kà bon lɔ]
3SG COP good Awa PostP INF house build

‘It pleases Awa to build houses/a house.’
lit. ‘It is good to Awa to build houses/a house.’

e. modal *have to*

Awa ka kan [kà bon lɔ (Adama ye)]
Awa COP equal INF house build Adama PostP

‘Awa has to build a house (for Adama).’
lit. ‘Awa is equal to build a house (for Adama).’

In all the examples in (8) above, the absence of the infinitival affects the meaning of the matrix predicates. The different literal translations give an idea of what the matrix predicate would mean without the infinitival. These cases provide clear evidence for the contribution of complement clauses to the overall meaning of the complementation sentences (cf. Cristofaro 2008). In section 3.3, we consider arguments in support of the idea that infinitivals of Jula can function as arguments of a predicate. Before that, we describe their syntactic functions in what follows.

3.2.2 Syntactic functions of infinitival clauses

Infinitival complements fulfill three primary syntactic functions: subject, oblique object, and oblique predicative. In Jula, subjects are preverbal, occurring before the TAM-marker. Object oblique and predicative oblique are all postverbal and introduced by postpositions.

As for their syntactic position, there is, however, a clear difference between infinitival complements and the corresponding nominal arguments. Consider the pairs of examples below.

- (9) a. subject nominal
feti ba-w ka di Awa ye
 party big-PL COP good Awa PostP
 ‘Awa enjoys big parties.’
- b. subject infinitival
 a ka di Awa ye [*kà bon lɔ*]
 3SG COP good Awa PostP INF house build
 ‘It pleases Awa to build houses.’
- (10) a. oblique object nominal
 Awa bàn-na *feti ba-w ma*
 Awa refuse-PFV party big-PL PostP
 ‘Awa refused big parties.’
- b. oblique object infinitival
 Awa bàn-na [*kà bon lɔ*]
 Awa refuse-PFV INF house build
 ‘Awa refused to build a house.’
- (11) a. oblique predicative nominal
 Awa hakili be *feti ba-w la*
 Awa.POSS mind COP party big-PL PostP
 ‘Awa remembers big parties.’
- b. oblique predicative infinitival
 Awa hakili be a la [*kà bon lɔ*]
 Awa.POSS mind COP 3SG PostP INF house build
 ‘Awa hopes to build a house.’

Notably, unlike the nominal arguments in (9a), (10a) and (11a), whatever subject, oblique object, or oblique predicative, infinitival complements always occur in a fixed position: to the right of the matrix clause (9b - 11b).

As the example below further illustrates, a subject infinitival cannot be in the preverbal subject position (12).

- (12) subject infinitival
- **kà bon lɔ* ka di Awa ye
 INF house build COP good Awa PostP
 Int. ‘It pleases Awa to build houses.’

Similarly, oblique object (13a) and oblique predicative infinitivals (13b) cannot occur inside a postpositional phrase.

(13) a. oblique object infinitival

Awa bàn-na **kà bon lɔ** (**ma*)
Awa refuse-PFV INF house build PostP

‘Awa refused to build a house.’

b. oblique predicative infinitival

Awa hakili bɛ **kà bon lɔ** (**la*)
Awa.POSS mind COP INF house build PostP

‘Awa hopes to build a house.’

One may think, based on this positional dissimilarity with nominal arguments, that infinitival are not truly syntactic arguments (cf. Dixon 2006). However, this does not rule out the possibility that infinitivals can be semantic arguments. Even from a syntactic point of view, it seems, compared to nominals, they are just a different type of arguments (cf. Huddleston and Pullum 2005). Especially, as will be argued later, infinitivals are clausal arguments.²

Clausal arguments, Dryer (1980) reported, show cross-linguistically a high tendency not to be adjacent to the predicate on which they depend. In many cases, they occur, unlike their nominal analogs, right to the matrix predicate in a sentential-final position. This observation has also been made by Noonan (2007) and Schmidtke-Bode (2014). One syntactic reason for the positional restriction on clausal arguments is Case marking. Specifically, it has been proposed that, unlike nominal arguments, clausal arguments are not Case-marked (cf. Stowell 1981, Pesetsky 1982, Moulton 2009). If so, we can expect them not to occur in the same syntactic environment like nominals, mainly when these environments imply Case-marking. Nevertheless, like other Manding languages, Jula exhibits no morphological manifestation of Case marking (Creissels 2007, 2020). It appears, then, the only way to relate the position of the infinitival complement to Case marking is to subscribe to the idea that both positional and adpositional Case-marking exist (see Kibort 2008 and the literature mentioned therein).

Indeed Koopman’s work on Bambara proposes this view. She argues that in this language, Case marking happens in specific syntactic positions. First, inflectional elements (e.g., TAM-markers) assign nominative Case to nominals in the subject position. Second, transitive verbs assign accusative Case to preverbal object nominals. And third, postpositions assign oblique Case to their nominal complements (Koopman 1992). Interestingly, the Case assignment rule of Bambara extends straightforwardly to Jula without exception.³

With this in place, the reasoning follows: given the fact that infinitivals function as subjects and obliques (object and predicative) and subject and oblique positions are Case-marked, it appears natural that infinitivals cannot occur in these positions. In conclusion, their syntactic position does not constitute an argument against the argumenthood of infinitivals in Jula.

In what follows, we shall see that even though infinitivals differ from nominal arguments by their position, they behave like the latter in many aspects. Crucially, not only do infinitivals contribute to the meaning of the predicate with which they occur (cf. 3.3.1), but also, like their nominal alternates, they can be optional or obligatory depending on the predicate of which they are arguments (cf. 3.3.2). Finally, as for dislocation,

²I shall discuss the clausal status of infinitivals later starting from section 3.4

³I use this insight to propose a syntactic derivation for infinitival complementation in chapter 5.

infinitivals behave precisely like their nominal counterparts (cf. 3.3.3). For this reason, we shall argue that they are arguments on par with nominal arguments.

3.3 Infinitivals as arguments

Fairly numerous mention has been made throughout the literature on Manding languages of the argument status of infinitivals. There is a consensus: infinitivals introduced by *kà* can function as arguments. Of the major contributions, we may cite the grammar of Malinke (Friedländer 1992), the grammar of Bambara (Dumestre 2003) and the grammar of Mandinka (Creissels 2013b). It is no doubt possible to report the same for Jula, given the close relationship between the language and the other Manding languages (especially with Bambara). However, all the works mentioned above describe the argument status of infinitivals with illustrative examples, but they do not provide supportive evidence. The main purpose of this section is to provide such evidence for Jula. Three points are considered. First, with the discussion on correlates in 3.3.1, we argue that despite its position, it is the infinitival, but not the correlate, that contributes to the meaning of the matrix predicate. Second, in 3.3.2, we show that like their nominal alternates, infinitivals can be optional or obligatory depending on the predicate of which they are arguments. Third, in 3.3.3 infinitivals are shown to behave the same as nominal arguments as for left-dislocation.

3.3.1 Correlates

Subject infinitivals and some oblique predicative infinitivals co-occur with so-called *correlates*. They are pronominal forms that stand in a sentence-internal relationship with a clause. As such, they typically indicate the argument status of that clause within the matrix clause (cf. Köhler 1976, Pütz 1986, Bussmann and Lauffer 2008, Schwabe 2011, Mollica 2010, Frey 2011, Frey 2016, i.a.). In Jula, this function is carried out by the third-person pronoun *a*.

(14) a. subject infinitival

a bε Awa kɔnɔ [kà bon lɔ]
 3SG COP Awa.POSS belly INF house build
 ‘Awa intends to build a house.’

b. predicative oblique infinitival

Awa hakili bε *a* la [kà bon lɔ]
 Awa.POSS mind COP 3SG PostP INF house build
 ‘Awa hopes to build a house.’

In (14a) and (14b), the subject and oblique predicative position within the matrix position is filled by the pronoun *a*, which relates to the rightward occurring infinitival. The relationship between the correlate *a* and the infinitival is shown first by two facts.

First, in the presence of the infinitival, a noun cannot replace the correlate *a*.

- (15) a. subject infinitival
 **kuma* bɛ Awa kɔnɔ [kà bon lɔ]
 saying COP Awa.POSS belly INF house build
 Int: ‘*A saying is inside Awa to build a house.’
- b. predicative oblique infinitival
 *Awa hakili bɛ *feti* la [kà bon lɔ]
 Awa.POSS mind COP party PostP INF house build
 Int: ‘*Awa remembers the party to build a house.’

The fact that in (15), although it occupies a nominal argument position, *a* cannot be substituted by a noun indicates that the latter does not act as an independent argument. Instead, it appears, its function consists in standing for or filling the syntactic position of the infinitival. Consequently, that position can no longer be filled by another nominal element, for this will result in attributing the same argument status to two different constituents.

Second, substituting *a* with a noun is only possible when the latter is not associated with the infinitival. However, leaving out the infinitival has semantic consequences, not only for the interpretation of *a* but also for the meaning of the sentence predication. Observe the change that occurs in (16b) and (16c), after the subject infinitival has been removed from (16a) and the change in (17b) and (17c) in absence of the predicative oblique infinitival (cf. 17a).

- (16) a. *a* bɛ Awa kɔnɔ [kà bon lɔ]
 3SG COP Awa.POSS belly INF house build
 ‘Awa intends (*it/him/her) to build a house.’
- b. *a* bɛ Awa kɔnɔ
 3SG COP Awa.POSS belly
 ‘It/she/he is inside Awa (in Awa’s belly).’
- c. *kuma* bɛ Awa kɔnɔ
 saying COP Awa.POSS belly
 ‘Awa has something to say.’
- (17) a. Awa hakili bɛ *a* la [kà bon lɔ]
 Awa.POSS mind COP 3SG PostP INF house build
 ‘Awa hopes (*it/him/her) to build a house.’
- b. Awa hakili bɛ *a* la
 Awa.POSS mind COP 3SG PostP
 ‘Awa remembers it/him/her.’
- c. Awa hakili bɛ *feti* la
 Awa.POSS mind COP party PostP
 ‘Awa remembers the party.’

Because in (16b) and (17b), *a* is not associated with an infinitival, unlike in (16a) and (17a), it can be replaced by a noun (16c)-17c). Now, comparing (16a)-17a) and (16b)-17b), one observes that the interpretation *a* differs depending on whether the infinitival is present or not. In the first case, it is interpreted along with the meaning of the infinitival and cannot have an anaphoric reference. In the second case, by contrast, the interpretation

of *a* recalls that of a variable, i.e., an expression whose content is specified by the context. In (16b), it stands for "whatever" that may be inside Awa, and in (17b) for "whatever" of which Awa may remember. As the English translations show, only knowing the context may help to tell whether that "whatever" refers to an individual or an abstract entity (events, state of affairs...).

But, that is not all: in comparing (16a) with (16b), on the one hand, and 17a with 17b, on the other one, it appears that the meaning of the matrix predicate also changes depending on the presence of the infinitival.

So the absence or presence of the infinitival does affect not only the interpretation of *a* but also the meaning of the matrix predicate. This is crucial: on the general premise that an argument is that element of the sentence that contributes or completes the meaning of the sentence predicate, we may conclude from the discussion on the relationship between infinitivals and their relating correlate that it is the infinitival that serves as the semantic argument of the matrix predicate within complementation sentences. Explained differently, the correlate, being a variable, stands for the argument of the matrix predicate, but the information on what the relevant argument is about, i.e., its content, is provided by the infinitival.⁴ That this is indeed the case is further illustrated by content questions.

Unlike a sentence containing a nominal argument (18b), a sentence with a pronoun *a* alone in the argument position as in (18c), cannot be used as an answer to the content question in (18a).

- (18) a. Awa hakili be **mun** la ?
 Awa.POSS mind COP what PostP ?
 ‘What does Awa remember?’
- b. Awa hakili be **feti** la
 Awa.POSS mind COP party PostP
 ‘Awa remembers the party.’
- c. # Awa hakili be **a** la ?
 Awa.POSS mind COP 3SG PostP ?
 # ‘Awa remembers it/him/her.’

Answering a content question requires supplying specific information about individuals or other entities. For this reason, it is possible to answer a question about what Awa remembers with a referential expression such as the noun *feti* ‘party’. Reversely, since *a* behaves like a variable, i.e., having no specific content, it cannot provide the specific piece of information necessary to answer the content question. Consequently, the sentence with *a* is uninformative with respect to the question and thus infelicitous.⁵

In light of this, we may conclude that infinitivals that co-occur with a correlate constitute the semantic argument of the matrix predicate: they contribute or complete the meaning of the predicate in that they provide information on what the predicate is about. Accordingly, the correlate *a* is the syntactic representation of the infinitival within the

⁴Some authors have already acknowledged the semantic weakness of correlate-elements. For example, Stirling and Huddleston (2002, p. 1482) consider English *it* in its correlate use “as a dummy, semantically empty pronoun”. Similarly, Sudhoff (2016, p. 40) distinguishes the anaphoric use of German *es* from its correlate use in the following terms: “Anaphoric *es* fills an argument slot of the matrix predicate on its own. Correlate-*es*, on the other hand, has a cataphoric relation to the focused embedded clause and must be semantically specified by it”.

⁵The infelicity of (18c) is not directly related to the fact that *a* cannot be stressed. The use of both the emphatic pronoun *ale* and the demonstrative pronoun *o* ‘that’ would have been, for more or less the same reasons, equally infelicitous.

matrix clause predication. While this is true, not all infinitivals co-occur with correlates. For these, the argumentation must take another form, to which we now turn.

3.3.2 Alternation with nominals

The majority of infinitivals does not co-occur with correlates. That includes all object oblique infinitivals and a subset of predicative oblique infinitivals. Interestingly, in many cases, the infinitival alternates with a nominal argument. On the one hand, the nominal or the infinitival argument is optional. That is true of most predicates with an object oblique argument position. Two representative examples are given in (19) and in (20).

- (19) a. Awa sɔn-na [kà bon lɔ]
 Awa accept-PFV INF house build
 ‘Awa accepted/agreed to build a house.’
- b. Awa sɔn-na [fɛti *ma*]
 Awa accept-PFV party PostP
 ‘Awa accepted/agreed to (do) the party.’
- c. Awa sɔn-na
 Awa accept-PFV
 ‘Awa accepted/agreed.’
- (20) a. Awa jine-na [kà bon lɔ Adama ye]
 Awa forget-PFV INF house build Adama PostP
 ‘Awa forgot to build a house for Adama.’
- b. Awa jine-na [fɛti *kɔ*]
 Awa forget-PFV party PostP
 ‘Awa forgot the party.’
- c. Awa jine-na
 Awa forget-PFV
 ‘Awa has forgotten (it).’

The examples in (19) show that the verb *sɔn* ‘accept, agree’ takes oblique object arguments, which can be either an infinitival (19a) or a noun (19b). Remarkably, the latter must be followed by the postposition *ma*. In each case, the position may remain empty, as the sentence in (19c) is perfectly grammatical. The same is true for the verb *jine* ‘forget’ in (20).

With some predicates, on the other hand, the infinitival or the nominal argument is obligatory. It cannot be deleted without yielding an ungrammatical sentence. For example, the adjectival predicate *kan* ‘equal’ obligatorily occurs with an argument that may be either a noun (21a) or an infinitival (21b). Importantly, each argument type corresponds to a different meaning of the predicate.

- (21) a. Awa ka kan *(ni saya ye)
 Awa COP equal with death PostP
 ‘Awa deserves to die.’
- b. Awa ka kan *([kà bon lɔ])
 Awa COP equal INF house build
 ‘Awa should build a house.’

In sum, infinitivals that do not co-occur with correlates behave exactly like nominal arguments. Like the latter, they can be optional or obligatory. That is evidence that, like for nominal arguments, the distribution of infinitival complements is dependent on the predicates with which they occur.

3.3.3 Left-dislocation

Further evidence for the argument status of infinitivals comes from left-dislocation. The point is, in Jula, the fronting of arguments from their initial position requires a left dislocation configuration, i.e., the fronted arguments must be resumed by a pronominal element. By contrast, adjunct fronting does not necessitate left-dislocation. Crucially, since, as for fronting, infinitivals behave like their nominal counterparts, they must also be arguments.

Constituents, when they undergo left-dislocation, occur to the left of the clause to which they belong. Their role as argument (or adjunct) within the clause is indicated by a pronominal element with which they co-refer (Lambrecht 2001). Consider first the case of nominals.

(22) Fronting of nominal arguments, i.e. oblique objects

- a. Awa bàn-na *wari ma*
Awa refuse-PFV money PostP
'Awa refused (the) money.'
- b. **wari ma* Awa bàn-na
money PostP Awa refuse-PFV
'The money, Awa refused.'
- c. *wari_i*, Awa bàn-na *(*a_i*) *ma*
money Awa refuse-PFV 3SG PostP
'The money_i, Awa refused it_i.'

Recall that postpositions introduce oblique object arguments in Jula, and oblique arguments always occur after the clause predicate (22a). Because of this positional constraint, fronting the entire postpositional phrase, as in (22b), is illicit. However, a left-dislocation configuration allows not only fronting the oblique argument, but also preserving its argument status within the clause. Thus, in (22c), the singular third-person pronoun *a* has to stand for the fronted oblique argument in the following clause, precisely inside the postpositional phrase⁶.

However, adjuncts occurring in the same form and position as object obliques can be fronted without requiring left-dislocation. Notably, the examples below show that the left-dislocation in (23c) is more marginal than the non-dislocation configurations in (23a) and (23b).

⁶Generally in left-dislocation constructions, instead of *a*, it is possible to use its emphatic form *ale* or the demonstrative pronoun *o*. However, each form is associated with different semantic-pragmatic constraints. While in contrast to *a*, both *ale* and *o* imply the presence of some alternatives, they differ from each other, in that *ale* is restricted to animate nominals, while *o* is not (cf. Masiuk 1994).

- (23) Fronting of adjunct nominals
- a. Awa bàn-na *wari kama*
Awa refuse-PFV money PostP
'Awa refused because of (the) money.'
 - b. *wari kama* Awa bàn-na
money PostP Awa refuse-PFV
'Because of the money, Awa refused.'
 - c. ? *wari_i*, Awa bàn-na **(a_i) kama*
money Awa refuse-PFV 3SG PostP
'The money_i, Awa refused because of it_i.'

From this brief discussion, it can be established that as a general rule, only argument fronting requires a left-dislocation configuration.

Turning to infinitivals, we observe that as for fronting, they behave exactly like nominal arguments. In essence, they cannot be fronted unless a pronominal form fills their position within the matrix clause. Consider the following examples in (24) and (25).

- (24) Dislocation of subject infinitivals
- a. a ka di Awa ye *kà bon lɔ*
3SG COP good Awa PostP INF house build
'It pleases Awa to build houses.'
 - b. [*kà bon lɔ*]_i **(o_i)* ka di Awa ye
INF house build DEM COP good Awa PostP
'It pleases Awa to build houses.'
- (25) Dislocation of oblique infinitivals
- a. Awa jine-na [*kà bon lɔ Adama ye*]
Awa forget-PFV INF house build Adama PostP
'Awa forgot to build a house for Adama.'
 - b. [*kà bon lɔ Adama ye*]_i Awa jine-na **(o_i) kɔ*
INF house build Adama PostP Awa forget-PFV DEM PostP
'[To build a house for Adama]_i, Awa forgot that_i.'

In the examples above, the fronted infinitivals are resumed by a pronominal form occupying an argument position within the following matrix clause: subject in (24b) and oblique in (25b). Unlike with nominals, however, the resumptive pronoun, in this case, has to be the distal demonstrative pronoun *o* 'that'. If, as presented earlier, left-dislocation is the only way to allow fronted arguments, the conclusion is that infinitivals are indeed arguments, as they must undergo left-dislocation to get fronted.

3.3.4 Interim summary

In sum, we have argued that infinitivals are arguments on a par with nominals based on three claims:

- (i) like nominal arguments, infinitival arguments contribute to the meaning of the predicate with which they occur,
- (ii) like with nominal arguments the distribution, say the syntactic realization of infinitival arguments depends on the predicate with which they occur,

- (iii) like with nominal arguments, left-dislocation is the only way to get infinitival arguments in a sentence-initial position.

I take these facts to indicate the existence of infinitival complementation in Jula, i.e., syntactic constructions, whereby an infinitival is an argument of a predicate (cf. Noonan 2007). The next section below discusses the internal make-up of infinitival complements.

3.4 Internal properties

From the discussion in the last sections, it results that infinitivals can be arguments of some predicates on a par with nominal arguments. In this section, we describe the properties internal to the infinitival complements. Here, and in the rest of the chapter, we assume, as it is standard practice in theoretical syntax, three clausal layers. The VP-domain, which represents argument and event structure, headed by a verbal predicate. The IP-domain, which contains functional categories such as time, aspect, and modal categories, is headed by inflectional elements. The CP-domain, which houses the mood of a clause and information on finiteness, is headed by complementizers. The next sections show that, at the surface, infinitivals in Jula contain a verb with internal arguments (3.4.1). However, inflectional elements, along with negation and the subject argument, cannot be realized (3.4.2).

3.4.1 Argument realization in the VP

There is no particular restriction on the type of verb that may occur in infinitivals. Consequently, the realization of internal arguments within infinitivals mirrors that of independent finite clauses. The examples in (26) show that, like finite clauses, infinitival complements may contain a transitive verb.

- (26) transitive verb
- a. main clause
- Awa ye [*bon* lo]
Awa PFV house build
'Awa built a house.'
- b. infinitival complement
- Awa bàn-na [kà *bon* lo]
Awa refuse-PFV INF house build
'Awa refused to build a house.'

Similarly, (27) show that they may contain an intransitive verb, while (28) makes the same point for ditransitive verbs.

- (27) intransitive verb
- a. main clause

Awa bena [taga]
 Awa FUT go
 ‘Awa will go away.’
 - b. infinitival complement

Awa bàn-na [kà taga]
 Awa refuse-PFV INF go
 ‘Awa refused to go away.’

- (28) ditransitive verb
- a. main clause

Awa ye [*wari* di *Adama ma*]
 A. PFV money give A. PostP
 ‘Awa gave Adama money.’
 - b. infinitival complement

Awa bàn-na [kà *wari* di *Adama ma*]
 A. refuse-PFV INF money give A. PostP
 ‘Awa refused to give Adama money.’

As for the internal arguments, the transitive verb *lɔ* ‘build’ takes a preverbal object argument within the main clause in (26a) and within the infinitival complement in (26b). An intransitive verb like *taga* ‘go’ does not have any internal argument in (27a) and (27b). Finally, the ditransitive verb *di* ‘give’ takes a preverbal object argument and a postverbal oblique argument in the main clause (28a) as well as in the infinitival complement (28b).

So, it appears then that infinitival complements contain the same type of VP domain as in main clauses. If, as claimed in section 3.2.2, Case marking is both positional and adpositional in Jula, the VP-domain of infinitival complements can also be said to realize a non-morphological Case marking. However, verbal inflection, negation and overt subjects are unrealized in infinitivals. This is shown in the next section.

3.4.2 Three things missing

To start with, as is common in many languages, infinitivals in Jula are subjectless; that is, they do not contain any pronounced element identifiable as a grammatical subject. Therefore, nominals such as the third-person pronoun *a* cannot occur before the infinitival marker (29a), nor could it immediately precede the verb phrase (29b).

- (29) a. Awa ye Adama dɛmɛ [(*a) **kà** bon lɔ]
 A. PFV A. help 3SG INF house build
 ‘Awa helped Adama build a house.’
- b. Awa ye Adama dɛmɛ [**kà** (*a) bon lɔ]
 A. PFV A. help INF 3SG house build
 ‘Awa helped Adama build a house.’

Concerning (29), one can note that the case of Jula is unlike that of English, where subjects may sometimes show up in infinitivals introduced by the complementizer *for*. Thus, in the example (30) below, the pronoun *him* is the notional subject of the infinitival clause, even though it does not feature nominative Case marking.

(30) Adama arranged [for *him* to marry Awa.]

Besides subjects, inflectional elements, i.e., tense-aspect-mood marking, cannot be realized in infinitival complements. For example, *ye*, the TAM-marker for perfective, could never cooccur with the infinitival marker *kà*, nor could it replace the latter. For this reason, all (31a), (31b) and (31c) are equally ungrammatical.

- (31) a. *Awa ye Adama dɛmɛ [*ye kà* bon lɔ]
 A. PFV A. help PFV INF house build
 ‘Awa helped Adama build a house.’
- b. *Awa ye Adama dɛmɛ [*kà ye* bon lɔ]
 A. PFV A. help INF PFV house build
 ‘Awa helped Adama build a house.’
- c. *Awa ye Adama dɛmɛ [*ye* bon lɔ]
 A. PFV A. help PFV house build
 ‘Awa helped Adama build a house.’

Finally, unlike in languages like German and French, the verb phrase of infinitivals in Jula cannot contain any negation, be it in combination with the infinitival marker or not. To see this, compare the ungrammatical Jula sentence in (32) with its grammatical equivalents in German and French in (33).

- (32) a. *Awa ye Adama dɛmɛ [*ma kà* aviyɔn jɛn]
 A. PFV A. help PFV.NEG INF plane miss
- b. *Awa ye Adama dɛmɛ [*kà ma* aviyɔn jɛn]
 A. PFV A. help INF PFV.NEG plane miss
- c. *Awa ye Adama dɛmɛ [*ma* aviyɔn jɛn]
 A. PFV A. help PFV.NEG plane miss
 Int. ‘Awa helped Adama not to miss his plane.’

- (33) a. French
 Awa a aidé Adama [*à ne pas* rater l’ avion]
 A. has helped A. INF NEG miss DET plane
 ‘Awa helped Adama not to miss his plane.’
- b. German
 Awa half Adama [sein Flugzeug *nicht zu* verpassen]
 A. helped A. POSS plane NEG INF miss
 ‘Awa helped Adama not to miss his plane.’

The French example (33a) contrasts with the Jula sentence (32a): in the former, the negation element (e.g. *ne pas*) occurs after the infinitival marker *à*, while in the latter the occurrence of negation (e.g. *ma*) before the infinitival marker *kà* yields an ungrammatical sentence. Similarly, unlike in Jula (32b), German allows the negation *nicht* to be followed by the infinitival marker *zu* (33b). The last sentence in (32c) indicates that negation elements and the infinitival marker are not in complementary distribution, contrary to what typically happens with TAM-markers in Jula.

On a final note, the non-realization of subject and negation in infinitivals is a logical consequence of the absence of inflection. As a matter of fact, in Jula inflectional elements

license subjects, and negation marking is part of the inflectional (TAM)-system.⁷ In chapter 4, I rely on this correlation to motivate a structure of infinitivals involving an IP-domain in which both the head and the subject position are empty. In clear terms, I consider that the non-realization of inflectional marking is not an indication for infinitivals lacking an IP-domain. For, as the next section will show, some IP-adverbs can have infinitival complements in their scope.

3.5 Scope of adverbs

It has become quite a tradition to use adverbs as a tool in the diagnostic of clause structures since works by Pollock (1989, 1997), Belletti (1990), Alexiadou (1997), Cinque (1999), and many others following them. The core insight is, adverbs may scope over roughly the three different clausal layers, and accordingly be classified into CP adverbs, IP adverbs, and VP adverbs, respectively (cf. Van Gelderen 2013). Under that rationale, adverbs will be used in this section to determine the nature of the syntactic projection involved in Jula's infinitival complement.

3.5.1 VP adverbs

The first type of adverb to be discussed are VP-adverbs. Their scopal behavior confirms the existence of an internal VP domain, as indicated earlier in 3.4.1. In Jula, VP adverbs include the manner adverb *ɲɛnama* 'well' and the celerative adverb *joona* 'quickly'. They are characterized by the fact that they do not impose restrictions on the occurrence of inflection markers. Thus, a clause containing a VP adverb may freely be inflected with a habitualis, future or a perfective marker, as shown in (34).

- (34) VP adverbs in main clauses
- a. *ɲɛnama* 'well'
- Awa *be* / *bena* / *ye* bon lo *ɲɛnama*
 Awa HAB / FUT / PFV house build well
 'Awa builds / will / has built houses well.'
- b. *joona* 'quickly'
- Awa *be* / *bena* / *ye* bon lo *joona*
 Awa HAB / FUT / PFV house build quickly
 'Awa builds / will build / has built houses quickly.'

Interestingly, inside infinitival complements VP adverbs scope over the VP of the infinitival and fail to reach the VP-domain of the matrix clause. We illustrate this with the following example in (35).

- (35) a. Awa banba-la kà bon lo *ɲɛnama* / *joona*
 Awa manage-PFV INF house build well / quickly
 'Awa managed (# well / quickly) to build houses well / quickly.'
- b. Awa ka kan kà bon lo *ɲɛnama* / *joona*
 Awa COP equal INF house build well / quickly
 'Awa should (# well / quickly) build houses well / quickly.'

⁷A similar connection between the licensing of negation and elements of the IP-domain has been claimed to exist in Romance languages (Zanuttini 1991, Kayne 1992).

The scopal behavior of the VPs adverbs in (35a) and (35b) indicates straightforwardly that the infinitival contains a VP distinct from that of the matrix clause. Further supportive evidence comes from the possibility of modifying the events of both the matrix clause and the infinitival with two different VP-adverbs, as illustrated by (36).

- (36) Awa banba-la *joona* kà bon lɔ *ɲenama*
 Awa manage-PFV quickly INF house build well
 ‘Awa managed quickly to build houses well.’

It is clear, based on these facts, that infinitival complementation in Jula involves at least two different VP domains. In other words, the VP of the infinitival is distinct from that of the matrix clause. Next, I propose that the infinitival also extends to the IP level.

3.5.2 IP-adverbs

IP-adverbs in Jula include the time adverb *kunu* ‘yesterday’ and the aspectual adverb *tuma bæɛ* ‘always’. Their position is a little less rigid than with VP-adverbs. They may occur either in sentence-initial or in sentence-final position. In whatever position, unlike VP-adverbs, IP adverbs impose restrictions on the occurrence of I-elements (here the TAM-markers). The examples in (37) illustrate this.

- (37) IP adverbs in main clauses
- (*kunu*) Awa (**bena*) / *ye* bon lɔ *kunu*
 yesterday Awa FUT / PFV house build yesterday
 ‘(Yesterday) Awa (*will build) built a house yesterday.’
 - (*tuma bæɛ*) Awa *bena* / (**ye*) bon lɔ *tuma bæɛ*
 time all Awa FUT / PFV house build time all
 ‘Awa will always build (*has always built) houses.’

Note, as for TAM-marking, Jula marks the distinction between perfective and imperfective aspect. In (37a), the temporal adverb *kunu* ‘yesterday’ is incompatible with an imperfective marker (e.g. *bena*), while reversely, in (37b), the aspectual adverb *tuma bæɛ* ‘always’ is incompatible with the perfective marker *ye*.

Now, things are slightly different with infinitival complements. While the scopal behavior of the temporal adverb remains the same as in main clauses, the aspectual adverb behaves differently. Thus, in (38), because *kunu* interacts with the IP domain of the matrix clause, its occurrence after the infinitival complement is blocked when the matrix clause contains an imperfective marker, i.e. the habitualis marker *be*.

- (38) a. Awa *be* banba kà bon lɔ (**kunu*)
 Awa HAB manage INF house build yesterday
 ‘Awa manages (*yesterday) to build houses.’
- b. Awa *be* bàn kà bon lɔ (**kunu*)
 Awa HAB refuse INF house build yesterday
 ‘Awa refuses (*yesterday) to build houses.’
- c. Awa *be* Adama karaba kà bon lɔ (**kunu*)
 Awa HAB Adama force INF house build yesterday
 ‘Awa forces Adama (*yesterday) to build houses.’

By contrast, the aspectual *tuma bæɛ* directly scopes over the infinitival complement. As a result, unlike for the main clauses examples in (38b), perfective marking within the matrix clause does not yield ungrammatical sentences. Consider the examples below in (39).

- (39) a. Awa banba-*la* kà bon lɔ *tuma bee*
 Awa manage-PFV INF house build time all
 ✗‘Awa always managed to build houses.’
 ✓‘Awa managed to always build houses.’
- b. Awa bàn-*na* kà bon lɔ *tuma bee*
 Awa refuse-PFV INF house build time all
 ✗‘Awa always refused to build houses.’
 ✓‘Awa refused to always build houses.’
- c. Awa *ye* Adama karaba kà bon lɔ *tuma bee*
 Awa PFV Adama force INF house build time all
 ✗‘Awa always forced Adama to build houses.’
 ✓‘Awa forced Adama to always build houses.’

The picture that arises from the examples in (38) and (39) is the following: temporal adverbs cannot modify the event of infinitival complements, while aspectual adverbs can. That indicates, for time specification, the infinitival complement takes the event time of the matrix clause as reference time. However, for aspect, the infinitival complement is independent of the event aspect of the matrix clause.

Wurmbrand (2001), building on Stowell 1982) and Pesetsky (1992), proposed for German a connection between temporal modification and the presence of a tense projection in infinitivals. She distinguished between tensed and tenseless infinitivals. Tensed infinitivals contain a tense projection because they can be modified by a temporal adverb that conveys temporal information distinct from the event time of the matrix clause. The reverse is true for tenseless infinitivals. Crucially, whether an infinitival is tensed or tenseless depends on the type of matrix predicate it occurs with, as appears in (40).

- (40) From Wurmbrand (2001, p. 73)
- a. Tensed infinitival with *decide*
- Hans hat beschlossen (morgen) zu verreisen.
 John has decided tomorrow to go-on-a-trip
 ‘John has decided to go on a trip (tomorrow).’
- b. Tenseless infinitival with *try*
- Hans hat versucht (*morgen) zu verreisen.
 John has tried tomorrow to go-on-a-trip
 ‘John has tried to go on a trip (*tomorrow).’

Returning to the Jula data from (38) and (39), it follows from Wurmbrand’s (2001) approach that infinitival complements in Jula are tenseless and thus lack a tense projection. When applying the same reasoning to aspectual modification, it results that infinitival complements in Jula are specified for aspect. Therefore, they contain an aspectual projection. Interestingly, this generalization applies to all infinitival complements in Jula irrespective of which predicate occurs in the matrix clause. That means, unlike in German, there is no need for distinguishing between tensed and tenseless infinitivals on the one hand, and between *aspect-specified* and *aspect-unspecified* infinitivals on the other hand. All infinitival complements in Jula are tenseless, and all infinitival complements in Jula are *aspect-specified*. As aspect and tense are part of the IP-domain, according to standard syntactic assumptions, the conclusion following the claim that infinitival complements in

Jula project for aspect, is that they involve an IP-projection, but one which does not extend to deictic tense.

In sum, infinitival complements in Jula contain an IP-projection that bears information on aspect, but not on tense.

3.5.3 CP adverbs

In Jula, CP adverbs include the speech act adverb *sebe la* ‘honestly’ and the epistemic adverb *nasɔɔ* ‘probably’. They precede the sentence or clause over which they scope, as illustrated in (41).

(41) CP adverbs in main clauses

- a. *sebe la* [Awa ye bon puma lo] (**sebe la*)
honestly Awa PFV house good build honestly
‘Honestly, Awa has built a house.’
- b. *nasɔɔ* [Awa ye bon puma lo] (**nasɔɔ*)
probably Awa PFV house good build probably
‘Probably, Awa has built a good house.’

CP-adverbs, however, cannot directly scope over an infinitival complement. When the adverb appears in front of the matrix clause, it modifies the entire complementation sentence, including both the matrix and the infinitival clause, but never the infinitival clause alone.

- (42) a. (i) *sebe la* Awa banba-*la* [kà bon lo]
honestly Awa manage-PFV INF house build
‘Honestly, Awa managed to build houses.’
- (ii) *sebe la* Awa bàn-*na* [kà bon lo]
honestly Awa refuse-PFV INF house build
‘Honestly, Awa refused to build houses.’
- (iii) *sebe la* Awa *ye* Adama karaba [kà bon lo]
honestly Awa PFV Adama force INF house build
‘Honestly, Awa forced Adama to build houses.’
- b. (i) *nasɔɔ* Awa banba-*la* [kà bon lo]
probably Awa manage-PFV INF house build
‘Probably, Awa managed to build houses.’
- (ii) *nasɔɔ* Awa bàn-*na* [kà bon lo]
probably Awa refuse-PFV INF house build
‘Probably, Awa refused to build houses.’
- (iii) *nasɔɔ* Awa *ye* Adama karaba [kà bon lo]
probably Awa PFV Adama force INF house build
‘Probably, Awa forced Adama to build houses.’

Also, CP adverbs cannot occur directly in front of an infinitival complement. For this reason, the examples in (43) are all ungrammatical.

- (43) a. (i) *Awa banba-*la* [sɛbɛ la kà bon lɔ]
 Awa manage-PFV honestly INF house build
 Int. 'Awa managed Adama to honestly build houses.'
- (ii) *Awa bàn-*na* [sɛbɛ la kà bon lɔ]
 Awa refuse-PFV honestly INF house build
 Int. 'Awa refused to honestly build houses.'
- (iii) *Awa *ye* Adama karaba [sɛbɛ la kà bon lɔ]
 Awa PFV Adama force honestly INF house build
 Int. 'Awa forced Adama to honestly build houses.'
- b. (i) *Awa banba-*la* [nasɔɔ kà bon lɔ]
 Awa manage-PFV probably INF house build
 Int. 'Awa managed to probably build houses.'
- (ii) *Awa bàn-*na* [nasɔɔ kà bon lɔ]
 Awa refuse-PFV probably INF house build
 Int. 'Awa refused to probably build houses.'
- (iii) Awa *ye* Adama karaba [nasɔɔ kà bon lɔ]
 Awa PFV Adama force probably INF house build
 Int. 'Awa forced Adama to probably build houses.'

One could conclude, given these facts, that infinitival complements in Jula are not CPs. Nevertheless, I will suggest in chapter 4, based on the discussion about the status of the infinitival marker, that infinitivals are CPs. They simply do not host the typical featural information that licenses CP adverbs, namely illocutionary force.

3.5.4 Interim summary

To sum up, we have used the scope of adverbs in this section to establish the clausal layers involved in Jula's infinitival complements. We have shown that unlike VP adverbs and aspectual IP adverbs, CP adverbs, and temporal IP adverbs cannot scope over infinitival complements. We take this as suggestive evidence that the internal structure of infinitival complements in Jula involves a VP layer and an IP layer. Arguments for a CP layer will be provided in chapter 4. Roughly, I will propose, based on Rizzi (1997), that the infinitival marker *kà* has the features of the lowest C-head, namely Fin. As such, it does not interact with elements like CP-adverbs, which target the highest position within the complementizer domain, namely, ForceP. For the time being, I turn to the issue of the subject position in infinitivals. I will propose that this position is not unavailable, but is merely covert.

3.6 A null subject in infinitival complements

A research tradition having its roots in Koster and May (1982) and Chomsky (1986) contends that some infinitivals contain a null or covert subject, labeled as PRO. Various phenomena that constitute evidence for the syntactic existence of such a null subject are discussed partially in Haegeman (1994) and extensively in Landau (2013). In Jula, the main argument for the existence of null subjects in infinitival complements comes from binding effects observed with reflexive and reciprocals. On this, there exists both indirect (cf. 3.6.2) and direct evidence (cf. 3.6.1).

3.6.1 Indirect evidence

Consider consecutive constructions, for example. Semantically, they denote successive but individual events that happen to share the same the subject. This is shown by the fact that each of the events can have a separate temporal specification. In this respect, consecutive constructions are like coordination constructions with the conjunction *ni*. The main difference is that the latter allows the two subjects of the conjuncts to be different. Consider the contrast between (44a) and (44b).

(44) a. consecutive

Awa ye baara kɛ *kunu* [kà mobili san *bi*.]
 Awa PFV working do yesterday INF car buy today
 ‘Awa worked yesterday and (then) bought a car today.’

b. coordination with *ni*

Awa ye baara kɛ *kunu* [ni Adama ye mobili san *bi*.]
 Awa PFV working do yesterday CONJ Adama PFV car buy today
 ‘Awa worked yesterday and Adama bought a car today.’

Now, as is common in many languages, reflexives in Jula must have an antecedent in their local domain, that is, in the clause in which they occur. Consequently, the reflexive form *a yere* ‘her/himself’ cannot refer to the subject of the first conjunct *Awa* in (45a).

(45) a. coordination with *ni*

Awa_i ye baara kɛ ni Adama_j ye mobili san [*a yere*]_{*i/j} ye.
 Awa PFV working do CONJ Adama PFV car buy 3SG SELF PostP
 ‘Awa_i worked and Adama_j bought a car for himself_{*i/j}.’

b. consecutive

Awa_i ye baara kɛ kà PRO_i mobili san [*a yere*]_i ye
 Awa PFV working do INF PRO car buy 3SG SELF PostP
 ‘Awa worked and (then) bought a car for herself.’

Given the binding facts in (45a), it appears natural to posit the silent subject PRO in the consecutive constructions in (45b). Thus, binding by the subject of the first conjunct *Awa* arises indirectly because consecutive constructions require the subjects of the two conjuncts to be the same. So PRO is the local antecedent of the reflexive, and it has the same reference as *Awa*.

A more compelling piece of evidence for the existence of PRO comes from the use of infinitivals as questions, a use that has the specific feature of being speaker-oriented. To explain the binding properties of reflexives and reciprocals in this construction, one must undeniably posit a null first-person singular subject, namely PRO [1. Pers, Sing]. Firstly, because only first-person singular reflexives can occur in this construction (46).

(46) a. kà PRO_i mobili san [*n* / **i yere*]_i ye wa ?
 INF PRO car buy 1SG 2SG SELF PostP PART
 ‘(Should) I buy a car for myself / *yourself?’

b. *kà PRO_i mobili san [*a yere*]_i ye wa ?
 INF PRO car buy 3SG SELF PostP PART
 ‘(Should) I buy a car for her/him?’

Secondly, plural anaphora are illicit too, as (47a) and (47b) show respectively for the first-person plural reflexive and the reciprocal.

- (47) a. *kà PRO_i mobili san [an yεɛ]_i ye wa ?
 INF PRO car buy 1PL SELF PostP PART
 ‘(Should) we_i buy a car for ourselves_i?’
 b. *kà PRO_i mobili san jɔgɔn_i ye wa ?
 INF PRO car buy RECP PostP PART
 ‘(Should) we_i buy a car for each other_i?’

Reflexives and reciprocals must have a local antecedent (cf. Chomsky 1981, Büring 2005), and binding requires features matching between both the antecedent and the referentially dependent form (cf. Heim and Kratzer 1998, Bianchi and Safir 2004, Heim 2008, i.a.). On this basis, the binding facts in the examples (46) and (47) above would be a mystery without the presence of a null subject antecedent with the relevant (non)matching features.

In sum, we have evidence from binding in consecutive constructions and infinitival questions for the existence of a null subject in infinitival constructions. What about infinitival complement clauses?

3.6.2 Direct evidence

We may address infinitival complements in the same way as consecutive constructions and infinitival questions. That is to say, the occurrence of reflexives and reciprocals suggests, the infinitival contains a null subject in (48a) and (48b), respectively.

- (48) a. Adama_i ma sɔn kà PRO_i mobili san [a yεɛ]_i ye
 Adama PFV.NEG accept INF PRO car buy 3SG SELF PostP
 ‘Adama_i did not accept to buy a car for himself_i.’
 b. Adama_i ni Awa_j ma sɔn kà PRO_{i+j} mobili san jɔgɔn_{i+j} ye
 Adama CONJ Awa PFV.NEG accept INF PRO car buy RECP PostP
 ‘Adama_i and Awa_j did not accept to buy a car for each other_{i+j}.’

By taking PRO to be the subject of the infinitival complement, we assume that reflexives and reciprocals do not extend their binding domain in Jula. Instead, in (48), PRO is the local antecedent of the reflexive and the reciprocal. In this way, the reflexive and the reciprocal get the index of the matrix subject indirectly via PRO. There exist two supportive arguments for this claim.

In Jula, reflexives typically do not take object arguments as antecedents, as the following contrast illustrates.

- (49) a. Adama_i ye den_j la a_{i/j} kɔnɔ kan
 Adama PFV child lay 3.POSS belly PostP
 ‘Adama_i laid [the child]_j on his_{i/j} belly.’
 b. Adama_i ye den_j la [a yεɛ]_{i/*j} kɔnɔ kan
 Adama PFV child lay 3.SG SELF belly PostP
 ‘Adama_i laid [the child]_j on his_{i/*j} belly.’

The referential properties of the possessive pronoun in (49a) contrast with that of the reflexive in (49b). The possessive pronoun may refer either to the subject *Adama* or to

the object of the sentence, *den* ‘child’. Accordingly, the sentence has two readings: in the first reading, the child lay on its belly; in the second reading, the child lay on Adama’s belly. The sentence containing the reflexive in (49b) does not have this sort of ambiguity, as the reflexive only refers to the subject of the sentence, yielding consequently only one reading: the child lay on Adama’s belly. Against this, the fact that below in (50) both the object of the matrix clause and the reflexive in the infinitival have the same index cannot be explained without assuming the presence of the null subject PRO⁸.

- (50) Adama_i ye den_j dɛmɛ [kà PRO_{*i/j} la [a yɛɛɛ]_{*i/j} kɔnɔ kan]
 Adama PFV child help INF PRO lay 3.SG SELF belly PostP
 ‘Adama_i helped the child_j PRO_{*i/j} lie on his_{*i/j} belly.’

Indeed, we must assume the presence of PRO in the sentence in (50). For not only do object arguments not directly bind reflexives (cf. 49b), but also reflexives do not extend their binding domain since coindexing with the matrix clause subject is not possible.

Last but not least, binding inside dislocated infinitivals constitutes additional support in favor of PRO.

- (51) a. [kà PRO_i mobili san [a yɛɛɛ]_i ye] Adama_i ma sɔn o ma
 INF PRO car buy 3SG SELF PostP Awa PFV.NEG accept DEM PostP
 ‘Adama_i did not accept to buy a car for himself_i.’
 b. [kà PRO_{i+j} mobili san ɲɔgɔn_{i+j} ye] Adama_i ni Awa_j ma sɔn
 INF PRO car buy RECP PostP Adama CONJ Awa PFV.NEG accept
 o ma
 DEM PostP
 ‘Adama_i and Awa_j did not accept to buy a car for each other_{i+j}.’

The examples (51a) and (51b) illustrate instances of the infinitival complements having been dislocated. Nevertheless, the reflexive and the reciprocal they contain are ungrammatical. One could wonder how this is possible if infinitivals do not have a silent subject. Also, it seems, the fact that the reflexive and the reciprocal bear the same index as the subject of the following matrix clause cannot be due to backward binding (see in Mittwoch 1983, Reuland and Avrutin 2005), for backward binding is not possible in Jula (52).

- (52) a. *[a yɛɛɛ]_i ye Adama_i ye mobili san
 3SG SELF PostP Adama PFV car buy
 Int. ‘For himself_i Adama_i did buy a car.’
 b. *ɲɔgɔn_{i+j} ye Adama_i ni Awa_j ye mobili san
 RECP PostP Adama CONJ Awa PFV car buy
 Int. ‘For each other_{i/j} Adama_i and Awa_j did buy a car.’

It also turns out that reconstruction (cf. Chomsky 1977, 1993, Van Riemsdijk and Williams 1986) cannot be invoked to explain these binding facts. The reason being that although negative polarity items (NPIs) like *si* ‘any’ are only licensed in the scope of sentential negation (e.g., *ma*) in (53a), they fail to be in (53b) despite the fact that the following matrix clause contains a sentential negation.

⁸See Wurmbbrand, 2001 for similar arguments for German reflexive *sich* and Landau, 2013 for Russian possessive *svjo*

- (53) a. Adama **ma** sɔn [kà mobili san mɔgɔ **si** ye]
 Adama PFV.NEG accept INF car buy somebody any PostP
 ‘Adama did not accept to buy a car for anyone.’
- b. *[kà mobili san mɔgɔ **si** ye] Adama **ma** sɔn o ma
 INF car buy somebody any PostP Adama PFV.NEG accept DEM PostP
 ‘Adama did not accept to buy a car for anyone.’

The ungrammaticality of (53b) suggests that the fronted infinitival is not in the scopal domain of the matrix clause since otherwise, the NPI would have been felicitous. Consequently, in (51) too, the reflexive/reciprocals and the subject of the matrix clause are not in the same clausal domain. If so, posing a null subject seems straightforward, for that will explain why the reflexive and the reciprocal still occur in the fronted infinitival.

Therefore, we must conclude that reflexives and reciprocals can only get bound in infinitival complements because infinitival complements contain a null subject, which we label as PRO. The next chapter deals with the status of the infinitival marker. As the reader may have noticed, in all the examples discussed in this section, PRO occurs after the infinitival marker *kà*. The reason behind this decision is that we consider the infinitival marker to be in a C position, and accordingly, PRO sits lower in the specifier position of the IP-domain. Evidence for this will be further discussed in chapter 4. Before this happens, let us conclude the present chapter.

3.7 Conclusion

In this chapter, I have aimed at two objectives. The first one was to provide supportive evidence that infinitivals can function as the argument of another predicate, and the second one was to investigate the internal structure of infinitival clauses. Concerning the first objective, we looked first at the distribution of infinitival complements by presenting the types of predicates they occur with, and later on, the syntactic functions that infinitival clauses may fulfill (cf. 3.2). As for their functions, we have shown that an infinitival complement is a subject or an oblique (object or predicative). Arguments for their argumenthood have been provided in the discussion in section 3.3. There, I have argued that infinitivals are arguments on a par with nominals because, like nominal arguments: (i) infinitival clauses contribute to the meaning of the predicate with which they occur, (ii) their distribution is dependent on the predicate with which they occur, (iii) fronting them requires a left-dislocation sentence configuration. As for the second objective, I have started by showing that Jula infinitivals contain a VP, but they can neither be inflected nor negated, and they also lack an overt subject (cf. 3.4). Further, I have used adverbs’ scopal behavior to argue that infinitival clauses in Jula contain not only a VP but also an IP projection (cf 3.5). Finally, based on the binding properties of reflexives and reciprocals, I have posited the presence of a null subject, i.e., PRO, in the specifier position of the IP projection contained in the infinitival clauses (cf. 3.6).

The next chapter concerns the status of the infinitival marker *kà*. Taking *kà* to be a complementizer occupying the Fin position of Rizzi (1997), the conclusion, in connection with the above, will be that infinitival clauses in Jula are CPs, precisely FinP projections.

Chapter 4

The complementizer *kà*

4.1 Introduction

The status of infinitival markers has been a longstanding issue, since it touches upon the question of which clausal layer an infinitival clause may constitute. The literature offers various ways of analyzing infinitival markers. Some authors treat them on a par with inflectional elements, that is, as the heads of an IP-domain (Koster and May 1982, Chomsky 1981, 1986, Beukema and den Dikken 2019, Rutten 1991, i.a.). For others, infinitival markers are complementizers, and thus occupy the C position (Falk 1984, 2000, Wilder 1988, Zwart 1993, Kayne 1999, u.a.). To a lesser extent, there also exist approaches that treat infinitival markers as elements of the VP domain (Pullum 1982, Pollard and Sag 1994, Travis 1994, 2000, Huddleston 2002).

This chapter discusses two possible ways of analyzing the Jula infinitival marker *kà*. The first one consists in treating it as an I-head on a par with TAM-markers (4.2). The second one involves treating it as a complementizer (4.3). Building on Braconnier (1992) and Rizzi (1997), I propose that *kà* is a complementizer, for only considering it the latter can account for the various properties observed with infinitival clauses (4.4). Finally, I discuss in 4.5 the function of *kà*, based on the semantic function of finiteness. I argue that *kà* is associated with the information that the content of the clause it introduces, i.e., the IP projection, is not related to an evaluation world. This explains why infinitival clauses lack both truth-values and illocutionary force, but it also accounts for their distribution and interpretation.

4.2 *kà* as an I-element

There exist two arguments in favor of treating *kà* as an I-element. First, the distribution of *kà* parallels that of TAM-markers. Like the latter, *kà* directly precedes an intransitive verb and the object of transitive verbs. For ease of comparison, below in (1) and (2), the matrix clauses have been omitted in the examples containing infinitival clauses.¹

¹In compliance with the argumentation logic, I have also renounced the mention of PRO in these examples.

- (1) intransitive verb
- a. Adama *be* nan
Adama HAB come
'Adama comes.'
- b. *kà* nan
INF come
'To come.'
- (2) transitive verb
- a. Adama *be* bon lo
Adama HAB house build
'Adama builds houses.'
- b. *kà* bon lo
INF house build
'To build a house.'

Second, *kà* cannot co-occur with another TAM-marker (3a). We may see this as a consequence of *kà* being a TAM-marker, for as the example in (3b) shows, two TAM-markers are excluded in a single clause.

- (3) a. infinitival clause
- Awa *bàn-na* [(**be*) *kà* (**be*) bon lo]
Awa refuse-PFV HAB INF HAB house build
'Awa refused to build a house.'
- b. main clause
- Adama (**be*) *ye* (**be*) bon lo
Adama HAB ye HAB house build
'Adama has built a house.'

However, if *kà* is an I-element, some problems arise. Note first that, unlike other TAM-markers, *kà* does not have a negative form. Thus, treating it on a par with TAM-markers would require considering the absence of a negative counterpart as an exceptional case. This option, however, would create an unnecessary gap in Jula's TAM-marking system.

A second problem arises with the absence of overt subjects. If infinitivals are TAM-marked, it is difficult to explain why their subjects cannot be realized overtly. Recall that in Jula, subjects obligatorily show up in any TAM-marked clauses. Conversely, the rare contexts where subjects remain covert are contexts without TAM-markers. The two examples below illustrate this.

- (4) a. imperative singular
- (**i*) taga lakoli la
2SG go school PostP
'Go to school.'
- b. indicative main clause
- *(Awa)* be taga lakoli la
Awa HAB go school PostP
'Awa goes to school.'

In second-person imperative clauses, the subject must be covert because there is no overt TAM-marker (4a). However, in an indicative-like clause, subjects cannot be covert because there must be an overt TAM-marker (4b). So the rule in Jula seems to be that subjects are overt if and only if I-elements are overt and vice versa.² It then appears that the idea of an overt I-element with a covert subject is challenging to maintain, and this is what analyzing *kà* as an I-element would force us to claim.

4.3 *kà* as a C-element

At first glance, the impossibility for CP adverbs to scope over infinitival clauses, as seen in 3.5.3, seems to cast doubt on the fact that infinitival clauses in Jula are CPs and, incidentally, to challenge the claim that *kà* is a complementizer. Nevertheless, based on insights from the works by Braconnier (1992) and Rizzi (1997) et seq., I will argue that *kà* is a complementizer that has a negative value for the finiteness feature, thus endowed with [-Fin]. Consequently, infinitival clauses are CPs, more specifically FinPs.

4.3.1 Braconnier (1992)

In his 1992 paper on the so-called Dioula d’Odienné (hence OD), a variant of Jula spoken in northwestern Côte d’Ivoire (Ivory Coast), Braconnier proposes to consider *kà* as a complementizer. His claim is based on the following observations.

As a first observation, in DO, I-elements can occur within an infinitival clause. As illustrated in (5), the TAM-marker *ye* occurs between the verb and the infinitival marker.³ This possibility rules out *kà* as a TAM-marker since, unlike TAM-markers, it does not immediately precede an intransitive verb like *come*.

- (5) TAM-marker in infinitival clause (Braconnier 1992, p. 72)

ai ma kɛ [kà ye na]
 3PL PFV.NEG be INF YE come
 ‘They were not coming.’

Furthermore, infinitival clauses in DO can contain an overt subject in addition to the TAM-marker. Thus, in (6) the subject, *Amara*, follows the infinitival marker. This is unexpected if *kà* is a TAM-marker, since subjects always precede TAM-markers.

- (6) Subject in infinitival clause (Braconnier 1992, p. 73)

Seku bɔ-nin [kà Amara ye do]
 Seku go.out-PTCP INF Amara YE enter
 ‘Seku went out, and Amara came in.’

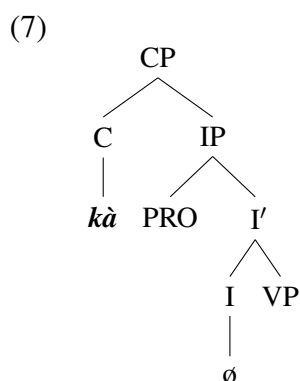
In substance, from the fact that *kà* in DO may precede both overt I-heads and overt subjects, Braconnier concludes that it occupies a position above and not within IP. He

²More on this rule in section 5.6.2. For further discussion, see also section 7.4.1.

³I can confirm this, since the form is attested in many Manding languages, including Jula. However, depending on the particular language, it may express different TAM-information. In this connection, it is not clear to me which TAM-information the form conveys in DO. Braconnier does not give a clue on this point, as the glossing shows.

thus proposes that *kà* is a complementizer, and accordingly, infinitival clauses in Manding have the structure of a CP.

Adopting this insight, I propose that the structure of infinitival clauses in Jula is like in (7).



The structure in (7) has two direct advantages for Jula. Firstly, by making the I-head empty, we make the IP domain within infinitival clauses look similar to that of second-person imperative clauses discussed in (4.2). Therefore, the absence of overt subjects in infinitival clauses aligns with the absence of subjects in second-person imperative clauses. The two structures lack overt subjects due to the lack of overt I-elements.⁴ Secondly, if *kà* is a complementizer, we do not expect it to have a negative counterpart, as a TAM-marker would do. In this respect, the absence of a negative counterpart form for *kà* is no longer surprising.

4.3.2 Rizzi (1997) et seq.

At the core of Rizzi (1997) is the observation that different types of complementizers may be distinguished based on their position relative to discourse information like topic and focus. For example, the Italian complementizer that introduces embedded finite clauses, i.e., *che*, always precedes topicalized constituents (8).

- (8) a. Credo *che*, [il tuo libro]_{Top}, loro lo apprezzerebbero molto
 I.believe COMP the your book them it would.appreciate much
 ‘I believe that they would appreciate your book very much.’
 b. *Credo, [il tuo libro]_{Top}, *che* loro lo apprezzerebbero molto
 I.believe the your book COMP them it would.appreciate much
 Int. ‘I believe that they would appreciate your book very much.’

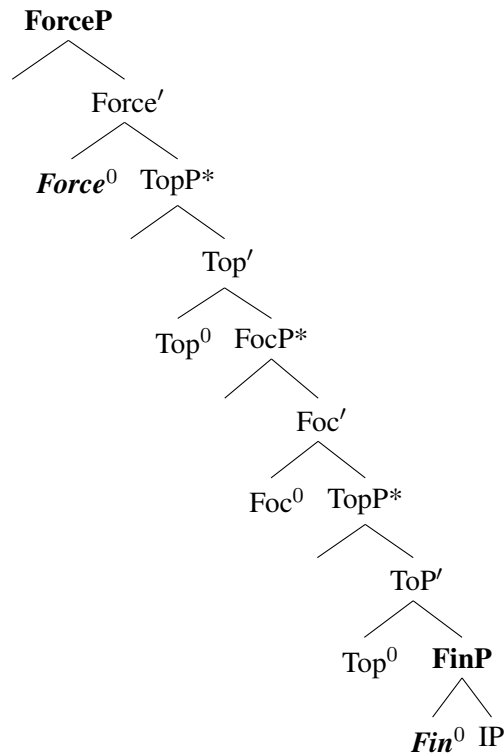
By contrast, the infinitival complementizer *di* always follows them (9).

- (9) a. *Credo *di*, [il tuo libro]_{Top}, apprezzar-lo molto
 I.believe COMP the your book appreciate-it much
 Int. ‘I believe of your book to be appreciated very much.’
 b. Credo, [il tuo libro]_{Top}, *di* apprezzar-lo molto
 I.believe the your book COMP appreciate-it much
 ‘I believe of your book to be appreciated very much.’

Rizzi accounts for this contrast, among others, by decomposing the CP domain in the way illustrated in (10).

⁴This connection is further explored in Chapter 5 and reframed as a rule, whereby the specifier position of a covert Case-assigning head must be covert.

(10) Based on Rizzi (1997, ex.41, p.297)



The highest projection ForceP is headed by Force, which expresses “the illocutionary force, or clause-type (declarative, question, exclamative,...), the kind of information which must be accessible to a higher selector in case of embedding (a main verb like *think* would select a declarative, *wonder* an interrogative, and so forth)” (Rizzi and Bocci 2017, pp. 3–4). The lowest one, FinP, is headed by Fin, which expresses finiteness, i.e., “the finite or non-finite character of the clause ” (ibid.). Topics and focus may intervene between the two projections. In this respect, since *che* precedes topic constituents, it occupies the Force position. Reversely, since *di* follows topic constituents, it sits in Fin. Similar contrast arguably holds between the complementizers *that* and *for* in English and between *que* and *de* in French (cf. Rizzi 1997, Rizzi and Bocci 2017 and reference therein.)

Adopting Rizzi’s line of thought, we can observe that *kà* behaves similarly to the Italian infinitival complementizer *di* in that a topic constituent cannot follow it.

- (11) *Awa bàn-na [kà [bi kɔni]_{Top} bon lɔ]
 Awa refuse-PFV INF today TOP house build
 Int. ‘As for today, Awa refused to build a house.’

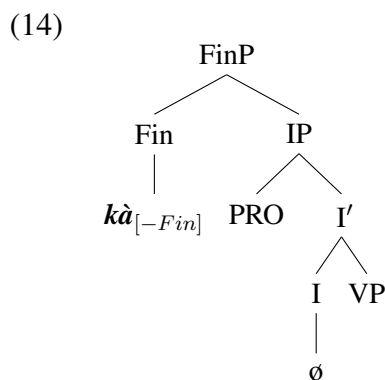
However, *kà* is unlike *di* in that a topic cannot precede it either, as the ungrammaticality of (12) shows.

- (12) *Awa bàn-na [[bi kɔni]_{Top} kà bon lɔ]
 Awa refuse-PFV today TOP INF house build
 Int. ‘As for today, Awa refused to build a house.’

To be sure, the behavior of *kà* relative to topic constituents is more reminiscent of that of the complementizer *for* in English, which also occupies the Fin position. As illustrated below in (13), like *kà*, *for* neither follows nor precedes topic constituents (cf. Van Gelderen 2001, Adger 2007).

- (13) Based on Adger (2007, ex.22. p.10)
- a. *I propose, [these books]_{Top}, **for** John to read.
 - b. *I propose **for**, [these books]_{Top}, John to read.

I take these facts to suggest that *kà* is indeed a complementizer occupying Fin. Nonetheless, I will keep the spirit, but not the form, of Rizzi's proposal. Especially because *kà* is entirely incompatible with topic constituents, I will not adopt a split CP approach for Jula infinitival clauses. Instead, I follow a suggestion made by Van Gelderen 2001 for English *for*-infinitival clauses and will assume that infinitival clauses in Jula have only one CP projection, i.e., FinP. The highest projection ForceP is, in this respect, entirely missing. Also, following Bianchi (2003) and Adger (2007), I will consider the non-finiteness of *kà*-clauses (no overt I-head, no overt subject, no negation, cf. 3.4.2) as being due to *kà* being negatively specified for finiteness, thus endowed with [-Fin]. Therefore, I will adjust the structure proposed in (7) as follows in (14).



In addition to the advantages mentioned above in 4.3.1, the structure in (14) readily accounts for why CP-adverbs cannot scope over the infinitival complements (cf. 3.5.3). If infinitival clauses in Jula only have the FinP projection, the scopal behavior of CP adverbs is no longer surprising, for the occurrence of these adverbs depends on the availability of ForceP (cf. Tenny 2000, Bayer 2015, Haegeman 2003, 2010).

4.3.3 In a nutshell

Based on the argumentation we have made, it results that *kà* is a complementizer that occupies the head of FinP, the CP-projection associated with finiteness. The complementizer *kà* marks the clause it introduces as non-finite. That this conclusion is on the right track will be further illustrated in the next section. Crucially, I shall show in the following that *kà*-clauses lack both illocutionary force and truth-values.

4.4 More on *kà* as a C-element

Since Searle (1969), it is somewhat generally accepted that sentences or clauses, hence CPs, (may) have an illocutionary force and truth-values (see, for instance, in Chomsky 1999, Radford 2004, Dixon 2010). Another consequence of *kà* sitting in Fin is, besides the unavailability of topics and CP-adverbs, the fact that *kà*-clauses lack illocutionary force and truth-values.

4.4.1 No illocutionary force

According to Haegeman (2009, 2003) and others (Cristofaro 2005, Boye and Harder 2009, Fagard et al. 2016), if a clause has illocutionary force, it should be able to have a question tag associated with it. This means, for example, that the main clause in (15) has illocutionary force because it can be in the scope of the question particle *kɛ*, which semantically corresponds to an English tag question.

- (15) Awa ye bon lo, *kɛ* ?
 Awa PFV house build PRT
 ‘Awa_i has built a house, hasn’t she_i?’

Unlike the main clause in (15), an infinitival complement in Jula cannot be in the scope of the tag question particle. With the verb *karaba* ‘force’, the object of the matrix clause and the infinitival null subject are interpreted as coreferential. It is interesting to see below in (16) that the scope of the tag question particle *kɛ* does not include the subject of the infinitival clause, but the subject of the matrix clause.

- (16) Awa ye Adama karaba kà bon lo, *kɛ* ?
 Awa PFV Adama force INF house build PRT
 ‘Awa_i forced Adama_j to build a house, didn’t she_i / *didn’t he_j?’

(16) suggests that the tag question does not access the infinitival clause. A further piece of evidence comes from an implicative verb like *banba* ‘manage’, which entails the truth of its infinitival complement (cf. Karttunen 1971). However, this entailment fails to be in the scope of the tag question particle. Compare (17a) and (17b).

- (17) a. Awa banba-la kà bon lo
 Awa manage-PFV INF house build
 ‘Awa managed to build a house.’
 ⇒ ‘Awa built a house.’
 b. Awa banba-la kà bon lo *kɛ* ?
 Awa manage-PFV INF house build PRT
 ‘Awa_i managed to build a house, didn’t she_i ?’
 ⇒ ✓ ‘Didn’t she manage to build a house?’
 ⇒ ✗ ‘Didn’t she build a house?’

To be sure, infinitival complements in Jula lack illocutionary force, i.e., they are not asserted (cf. Hooper and Thompson 1973). Not only that, but they also lack truth-values.

4.4.2 No truth-values

A standard way to show that a clause (or sentence) has or lacks truth-values is to apply to the clause a truth-falsity predication, as done in (18).

- (18) a. **Speaker:** Awa ye bon lo
 Awa PFV house build
 ‘Awa has built a house.’
 b. **Addressee:** *o ye / tɛ tɪɲɛ ye*
 this COP / COP.NEG truth PostP
 ‘That is (not) true.’
 ⇒ It is (not) true that Awa has built a house.

That, in (18b), the addressee can assent to or refute the clausal content expressed by the speaker in (18a) is evidence that that content has truth-values. However, when applied to Jula's infinitival complements, the truth-falsity test yields an unequivocally different result: all infinitival complements lack truth-values.

- (19) a. **Speaker:** Awa banba-la / ban-na / ye Adama karaba kà bon lo
 Awa manage-PFV / refuse-PFV / PFV Adama force INF house build
 'Awa managed / refused / forced Adama to build a house.'
- b. **Addressee:** o ye / tɛ tɪŋe ye
 this COP / COP.NEG truth PostP
 'That is (not) true.'
 ⇒ ✗ It is (not) true that Awa / Adama has built a house.
 ⇒ ✓ It is (not) true that Awa managed / refused / forced Adama to build a house.'

As the interpretation in (19b) shows, the content of the infinitival clause in (19a) is not affected by the truth-falsity predication. This suggests that infinitival complement clauses do not have truth-values, in addition to not having illocutionary force.

4.4.3 For all of them

The lack of illocutionary force and truth-values for complement clauses is often claimed to be a consequence of complementation. For example, Cristofaro (2005), building on Givón's (1980) notion of semantic integration, suggests that complementation (hence subordination) overrides the illocutionary force of complement clauses, making them then illocutionarily dependent on the matrix clause predicate. However, for Jula's infinitival clauses, it is not possible to deduce the absence of illocutionary force directly from complementation. As the tag-question test in (20) shows, consecutive constructions and purposive clauses also lack illocutionary force.

- (20) a. Consecutive
 Awa ye baara ke kà mobili san ke ?
 Awa PFV working do INF car buy PRT
 'Awa_i worked and (then) bought a car, didn't she_i ?'
 ⇒ ✓ 'Didn't she work and (then) bought a car ?'
 ⇒ ✗ 'Didn't she buy a car ?'
- b. Purposive
 Awa nan-na yan kà mobili san ke ?
 Awa come-PFV here INF car buy PRT
 'Awa_i came here to buy a car, didn't she_i ?'
 ⇒ ✓ 'Didn't she come here to buy a car ?'
 ⇒ ✗ 'Didn't she buy a car ?'

Furthermore, some authors proposed a distinction between propositional and non-propositional infinitival complements based on the semantic properties of the matrix predicates (cf. Pesetsky 1992, Wurmbrand 2001, Landau 2015, i.a.). The diagnostic for this distinction involves a truth-falsity test, as shown in (21).

- (21) a. Propositional infinitival complements
 John claimed / believed Mary to be a teacher, **which was true.**
 ⇒ it is true that Mary was a teacher.
- b. Non-propositional infinitival complements
 John asked/wanted Mary to be a teacher, **which was true.**
 ⇒ ✗ it is true that Mary was a teacher.
 ⇒ ✓ it is true that John asked/wanted Mary to be a teacher.

Thus, the infinitival clause *to be a teacher* is propositional under a verb like *believe* or *claim* (21a), but non-propositional under *want* and *ask* (21b).

As far as Jula is concerned, a distinction between propositional and non-proposition infinitival clauses cannot be made, since the failure or success of the truth-falsity test cannot be linked to the semantics of the matrix predicate per se. If it is true that predicates taking propositional clauses like *claim* or *believe* never occur with infinitivals in Jula, it is also true that the truth-falsity test produces the same result with other infinitival clauses, such as consecutive and purpose clauses: they also lack truth-values (22).

- (22) a. Consecutive
- Awa ye baara kɛ kà mobili san, o ye tɪɲɛ ye
 Awa PFV working do INF car buy this COP truth PostP
 ‘Awa worked and (then) bought a car, (and) that is true.’
 ⇒ ✗ ‘It is true that Awa bought a car.’
 ⇒ ✓ ‘It is true that Awa worked and (then) bought a car.’
- b. Purposive
- Awa nan-na yan kà mobili san, o ye tɪɲɛ ye
 Awa come-PFV here INF car buy this COP truth PostP
 ‘Awa came here to a car, (and) that is true.’
 ⇒ ✗ ‘It is true that Adama bought a car.’
 ⇒ ✓ ‘It is true that Awa came here to buy a car.’

Thus, in line with them not containing a ForceP projection, both complement and non-complement infinitival clauses in Jula lack illocutionary force and truth-values. On that premise, the absence of these two meaning components may be considered an inherent property of infinitival clauses in Jula. In the next section, I propose that this property is directly related to the semantic function associated with finiteness, or better, with the lack thereof, hence with the Fin head *kà*.

4.5 *kà* and the semantic function of finiteness

From the above discussion, we have concluded that Jula’s infinitival clauses are FinP projections headed by the complementizer *kà*, which is negatively specified for the finiteness feature. Relatedly, infinitival clauses bear neither illocutionary force nor truth-values. Since this is true for both complement and non-complement infinitival clauses, I assume that the absence of illocutionary force (here assertion) and truth-value is inherent to the infinitival clauses. This section proposes that this is a consequence of the semantic function associated with the Fin head *kà*. I will start with a review of the literature on the function of finiteness and then argue that the function of finiteness is to relate a clausal content to an evaluation world, which, following Fintel and Heim (2011), I take to be the state of the world relative to which the latter clausal content is interpreted or evaluated.

The evaluation world can be either the actual world or any other alternative state of the world, i.e., a possible world. On that basis, I will propose that *kà*, marking non-finiteness, is associated with the information that the content of the clause it introduces, i.e., the IP projection, is not related to an evaluation world. On the one hand, this explains the absence of illocutionary force and truth-values. On the other, it accounts for the distribution and interpretation of infinitival clauses.

4.5.1 Starting point

Because *kà* is associated with finiteness, it appears that asking about its semantic function amounts to asking about the semantic function of finiteness. On that, there exist different answers.

The traditional view is that finiteness is associated with temporal anchoring. In that sense, the function of finiteness consists in anchoring a clausal content (event/action) to the utterance time (cf. Enç 1987, Stowell 1993, Tsoulas 1995, Demirdache and Uribe-Etxebarria 1997, Bianchi 2000, 2003, i.a.). However, there exists evidence that the traditional view does not tell the whole story about the function of finiteness. Roussou (2001) observes that there is no one-to-one correspondence between finiteness and temporal anchoring. For example, modal expressions like *may* and *must* are associated with finiteness, though they do not necessarily express a relation to utterance time. Instead, these modal expressions express quantification over possible worlds (cf. Kratzer 1981, Kratzer 1991). Thus, the presence of *may* in (23a) indicates existential quantification over possible worlds consistent with permissions, while deontic *must* encodes universal quantification over possible worlds consistent with obligations (23b).

- (23) From Roussou (2001, p. 81)⁵
- a. John may move to France.
 - b. John must move to France.

Roussou takes this fact to indicate that the function of Fin, the CP-head responsible for finiteness, has to do with quantification over time intervals or possible worlds. In other words, finiteness is related to quantification over time intervals or possible worlds.

Besides, works by Ritter and Wiltschko (2009, 2014), and Wiltschko (2014) have shown that categories such as Person and Location encode finiteness in some tenseless languages. In Blackfoot, for instance, finiteness involves contrast in person-marking. In that respect, the two finite sentences in (24) contrast regarding whether an utterance participant is involved in the situation they describe.

- (24) Frantz (1991, pp. 51 & 56), based on Ritter and Wiltschko (2009, p. 17)
- a. **nit**-iik-wákomimm-a-wa n-itan-wa
1-very-love(TA)-DIR-3SG 1-daughter-3SG
'I love my daughter.'
 - b. **ot**-iik-wákomimm-ok-wa n-ohkó-wa w-itan-yi
3-very-love(TA)-INV-3SG 1-son-3SG 3-daughter-OBV
'Her daughter loves my son.'

⁵Fintel and Heim (2011, p. 30) propose the following crude lexical entries for the two modal expressions.

- (1) $\llbracket must \rrbracket^{w,g} = \lambda P_{\langle s,t \rangle} . \forall w' : P(w') = 1$
 $\llbracket may \rrbracket^{w,g} = \lambda P_{\langle s,t \rangle} . \exists w' : P(w') = 1$

In (24a), the first person prefix *nit-* indicates that a participant of the described situation coincides with an utterance participant, here, the speaker. By contrast, the third person prefix *ot-* in (24b) indicates that it does not. A similar contrast arguably exists in Halkomelem Salish along with Location. The proximal locative auxiliary *í* indicates that the location of the described situation coincides with the utterance location (25a), while the distal locative auxiliary *lí* expresses that it does not (25b).

(25) Ritter and Wiltschko (2009, p. 2)

- a. *í* *qw'eyílex tú-tl'ò*
 AUX dance he
 'He is/was dancing (here).'
- b. *lí* *qw'eyílex tú-tl'ò*
 AUX dance he
 'He is/was dancing (there).'

Based on these data, Ritter and Wiltschko associate finiteness with the notion of anchoring, which, they assume, is a universal category involved in relating an event to the utterance situation. What cross-linguistically differs is the grammatical category by which anchoring is instantiated: Tense for languages that possess such a category, Person for languages similar to Blackfoot⁶, or Location for Halkomelem Salish and equivalent languages.⁷

Furthermore, the idea that finiteness is somehow related to both illocutionary force and truth-value has emerged in several places (See in Nikolaeva 2007, Nikolaeva 2010, 2012 for an overview). Such an idea is embodied in the following quote from Holmberg and Platzack (1995, p. 23):

“...the finite form of a verb indicates the presence of predication at the time of the utterance [...] unless a predication is related to the time of the utterance via the concept of finiteness, we have no basis for expressing the relative position in time of the situation expressed by the predication vis-a-vis the utterance, and we cannot relate the attitude of the speaker to this situation.”

This quote suggests a connection between finiteness and the semantic interpretation of clauses (or sentences) in general. It also gives reason to believe that finiteness is responsible for the truth-values and the illocutionary force of sentences. Firstly, under the premise that only predications can be assigned truth-values, it follows from finiteness indicating the existence of predication that finiteness is a requirement for truth-values. Anderson (1997, 2001, 2007) assume this idea more concretely in considering finiteness the category with the capacity to license an independent predication, that is, a category with a “‘sentencehood-conferring’ property, which makes it possible to evaluate a sentence’s truth-value”, to use Nikolaeva (2012, p. 112)’s words. Secondly, suppose one conceives of the illocutionary force of an utterance as the meaning component associated with the speaker’s intention (cf. Bußmann 2006, p. 1106, Crystal 1980, Searle and Vanderveken 1985). In that case, the last part of the quotation seems to suggest that finiteness plays a significant role in encoding illocutionary force. This assumption is also

⁶On different grounds, Zhang (2016) proposes that finiteness in Chinese is encoded by contrast in Person. Specifically, finite clauses in Chinese can be identified by the properties of the subject.

⁷Note, however, that for Ritter and Wiltschko finiteness is not associated with the CP domain, unlike assumed in the split-CP approach of Rizzi (1997), but with the IP-domain.

adopted in Sells (2007), who shares with Klein (1998, 2006) the view that finiteness has, among others, a semantic function related to the expression of an assertion.

From the above overview, finiteness appears to be a multidimensional functional category, to which it seems impossible to ascribe a single universally valid semantic function. Nevertheless, I will claim that a unifying semantic function of finiteness is possible. Specifically, I argue in 4.5.2 that the ultimate and primary function of finiteness is to relate a clausal content to an evaluation world. In that view, finite clauses are related to the world, while infinitival clauses are not. Consequently, I propose in 4.5.3 that the infinitival complementizer *kà* in Jula bears the information that the content of its IP complement is not related to an evaluation world. This is implemented by associating the latter with an unvalued world variable *w*. As I will show, this solution accounts for the lack of truth-values and illocutionary force observed with Jula infinitival clauses. Beyond that, it also derives essential aspects concerning their distribution and interpretation, which are discussed in sections 4.5.4 and 4.5.5, respectively.

4.5.2 Finiteness and the world

Some first support

To make the argument that the function of finiteness is to relate a clausal content to the world, I will start with an independent insight provided by Wöllstein (2004).

The main question addressed by Wöllstein is why finite complement clauses in German are introduced by complementizers (26a), while their infinitival counterparts are not (26b).

- (26) Based on Wöllstein (2004, p. 489)
- a. ...,*(**dass/ob**) sie sich ergeben.
'...that/if they surrender.'
 - b. Sie werden aufgefordert, (***um**) sich zu ergeben
'They are asked to surrender.'

She accounts for this difference using a three-tiered approach that connects finiteness, referentiality and functional projection licensing, as summarized in (27).

- (27) finite ⇒ referential ⇒ functional projection ⇒ complementizer
non finite ⇒ non referential ⇒ no functional projection ⇒ no complementizer

The proposal's crux is the following: finite clauses are referential, while non-finite clauses are non-referential. On the assumption that only referential categories extend to functional projections (cf. Grimshaw 1991), finite complement clauses may have a left-periphery containing a complementizer. Reversely, since non-finite clauses are non-referential, they lack a left-periphery and cannot be introduced by a complementizer.

Whether this explanation correctly accounts for the distribution of complementizers with German complement clauses is not of interest to our discussion. What matters most is the connection between the referential status of clauses and finiteness. For under the working definition, also assumed by Wöllstein, that reference is the symbolic relationship between a linguistic expression and what it stands for in the world (cf. Hartmann and Stork 1973, Crystal 1985), saying that finite clauses are referential amounts to saying that the situation they depict is related to the world. By contrast, a non-finite clause, i.e., an infinitival clause, expresses a state of affairs that is not related to the world. From that

perspective, Wöllstein's proposal makes an interesting point. It suggests that finiteness marking serves to relate a clausal content to the world. If this suggestion seems to be my interpretation of Wöllstein's proposal, I contend that there are arguments that corroborate it.

Though agreeing in spirit with Wöllstein, I will not adopt the concept of reference in discussing the meaning of clauses. Instead, I will pursue the idea that the meaning of natural language expressions, especially clauses, is evaluated relative to the world, or better to states of the world, which can be the actual world or alternative ways the world might be, i.e., possible worlds (cf. Lewis 1986, Partee 1989, Chierchia and McConnell-Ginet 1990, Heim and Kratzer 1998, Gadenne 2009, Fintel and Heim 2011, Speaks 2019, i.a.). Thus, whenever I say that finiteness serves to relate a clause to the world or an evaluation world, I essentially mean to a state of the world. I elaborate on that in the following discussion.

Categories that mark finiteness

As additional support for the claim that finiteness encodes a relation to the world is the observation that the grammatical categories used cross-linguistically to encode finiteness express relation to the world.

As pointed out already above, modal expressions that mark finiteness express quantification over possible worlds. In that respect, a sentence containing a modal expression is evaluated relative to a state of the world consistent with a specific modality (e.g., permission, possibility, obligation, i.a.) but different from the actual world, i.e., the state of the world whenever the sentence is uttered. Thus, in that sense, modal expressions present a clear case in which the finiteness marking relates a clausal content to the world.

In addition, Holmberg and Platzack (1995) consider Tense to be one of the grammaticalized means that natural languages use to express a relation between a sentence and the world.⁸ In that respect, note that, though many researchers agree that Tense serves to anchor sentences to the utterance time, one may observe that any temporal-anchoring via Tense goes along with placing the sentence within a specific state of the world. Compare (28a) and (28b).

- (28) a. Obama **is** the President of the United States.
b. Obama **was** the President of the United States.

The sentence in (28a) involves Present Tense marking, while (28b) involves Past Tense marking. In this regard, they differ as to the state of the world their content is intended to describe. The sentence with Present Tense marking is meant to describe the actual world, that is, the state of the world that holds at whatever time the sentence is uttered. On the contrary, the past-tense marked sentence describes a non-actual world, specifically, a state of the world prior to the actual world. This has a consequence on the interpretation of the two sentences. Since (28a) is meant to describe the actual world, it would be judged false at present, but it would have been true if it was uttered at any time between

⁸A similar intuition is found in other works. For instance, Thomason (1970, 2002) draws a parallel between modal and tense logic in the sense that they both involve "assignments of truth-values to formulas in a variety of possible worlds or point of reference" (1970, p. 264). Also, works by Iatridou 2000, Arregui 2005 and von Prince 2019 contain observations on the correlation between Tense and Aspect and the accessibility of world-states in the context of counterfactual statements. Finally, evoking an idea by Portner (2011), Kratzer (2013b, p. 187) observes that "English progressive invokes 'inertia worlds', or events that get completed in merely possible worlds".

2010 and 2017.⁹ In the same vein, to evaluate (28b), one needs to consider a state of the world prior to the actual world. If the sentence was uttered at present, it would be judged true, considering the period between 2010 and 2017. However, if it was uttered before 2010, say in 2008, one would undeniably consider it false. In sum, Tense marking allows identifying the sentence's evaluation world: this is a clear indication suggesting that the ultimate function of finiteness marking via Tense is not to anchor a sentence in time but to relate it to an evaluation world. Temporal anchoring is, besides modal quantification, just one of several ways to do so.

Another way, as discussed above, involves categories such as Person and Location. Note that these categories denote individuals and places, respectively. However, as it is, there is nothing more random and evident than saying that individuals and places are objects of the world. To see this, consider the sentence in (29).

(29) **Harry Potter** visited **the White House**.

The sentence in (29) contains an individual and a place-denoting DPs that are each intrinsically associated with different worlds (real vs. fictional). To evaluate the sentence, thus, we must accommodate one of these DPs so that they both refer to objects of the same world. For instance, if the DP *White House* refers to the real and unique residence and workplace of the President of the United States, the DP *Harry Potter* will no longer refer to the fictional character, but it will be accommodated to refer to an individual living in the real world. In that respect, it could refer specifically to the actor portraying the character in the movie, or to any random individual named *Harry Potter* or circumstantially dressed up as the character *Harry Potter*. Reversely, if one understands the DP *Harry Potter* as the fictional character, one is forced to interpret the DP *White House* as the name of a place within Harry Potter's world. It could be any place related or unrelated to the real-world White House: a fictional counterpart of the real-world White House, the name of a bar or a coffee-shop, i.a. Without such an accommodation, the sentence cannot be interpreted.

I take this to show that the denotation of the categories Person and Location (individual and places) is related to a specific world. It is relative to that specific world that the sentence is evaluated. For this reason, accommodation is forced in (29) to avoid evaluating the sentences relative to two different worlds simultaneously. Therefore, on the assumption that finiteness's primary function is to relate a clausal content to an evaluation world, it is not surprising that languages use Person and Location to encode finiteness. Due to their denotation, these categories place the sentence they mark for finiteness into a specific state of the world relative to which the sentence's content is evaluated.

If the above reasoning is on the right track, we have, with the different grammatical categories used to encode finiteness, evidence that the function of finiteness is to relate a clausal content to an evaluation world. Thus, logically, the absence of finiteness signals that the relevant clausal content is not related to the world: I assume that this is the case for infinitival clauses in Jula. The discussion on the meaning components such as illocutionary force and truth-values further support this assumption.

Meaning components

Above, in section 4.5.1, we have presented the idea that finiteness is responsible for both the truth-values and the illocutionary force (here: assertion) of a clause. Specifically, finiteness marking of a sentence indicates not only that an assertion is made, but it also

⁹Knowing that Barack Obama was the President of the United States from 2009 to 2017.

makes it possible to assign the clausal content a truth-value. Under the assumption that finiteness relates a clausal content to the world, this connection between truth-value, illocutionary force, and finiteness is no coincidence.

Note that the truth-values of a clausal content are necessarily assigned relative to the world. Knowing whether a clausal content is true or not necessitates knowing the state of the world it is intended to describe. This has already been pointed out in the discussion on Tense above (see ex.28). Nevertheless, it is an intuition shared by many linguists, as attested by the following quote from Dowty et al. (1981, p. 4).

“To know the meaning of a [declarative] sentence is to know what the world would have to be like for the sentence to be true.” (taken from Kroeger 2019, p. 35).

This suggests that truth-value is a world-dependent meaning component. On that premise, it is possible to draw the following line of thoughts: if finiteness permits that a clausal content is assigned a truth-value, and if truth-values are assigned relative to the world, then finiteness is the feature that relates the clausal content to the world. Expressed differently, finiteness relates a clausal content to the world in a way that makes it possible to assign that content a truth-value.

In contrast to truth-values, illocutionary force is the meaning component that permits establishing a link between a clausal content and the world. Recanati (2007, p. 37) articulates this in these terms:

“a content is not enough; we need to connect that content with the actual world, via the assertive force of the utterance, in virtue of which the content is presented as characterizing that world.” (taken from Pagin 2016).

So, asserting a clausal content amounts to conveying that the latter is a description of a specific state of the world. However, how do we know formally whether a clausal content constitutes an assertion? The clear answer is that we know it based on how the relevant clause/sentence is marked for finiteness.¹⁰ Thus, if finiteness indicates assertion, and assertion is the meaning component that permits establishing a link between a clausal content and the world, it follows that finiteness is the feature that establishes a link between a clausal content and the world, in confirmation of my claim.

In sum, from the discussion on the meaning components associated with finiteness, i.e., truth-value and illocutionary force (assertion), I feel that the claim that the function of finiteness is to relate a clausal content to an evaluation world is reasonably motivated. If so, on the premise that infinitival clauses inherently lack such meaning components, it follows that their content is not related to an evaluation world. In what follows, I suggest that this information is encoded in the complementizer *kà*, which, as claimed above in 4.3, is associated with finiteness, or better, lack thereof.

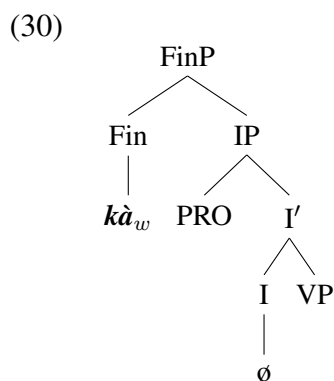
4.5.3 Consequence for *kà*

Above, I have used an argumentation based on the grammatical categories and meaning components associated with finiteness to suggest that its semantic function is to relate a clausal content to the world. In the case of infinitival clauses in Jula, the absence of finiteness indicates that the relevant clausal content is not related to the world. This

¹⁰However, it does not follow that all finite sentences are asserted. We mean here that asserted sentences are, per default, finite.

explains in substance why infinitival clauses in Jula inherently lack both truth-values and illocutionary force: these meaning components imply a relation to the world.

Since we have associated the lack of finiteness with the head of the infinitival clause, $k\hat{a}$, I suggest writing into the latter the information that the infinitival clause’s content is not related to the world. This is done by assuming that $k\hat{a}$ hosts a variable w , which takes a state of the world as its value, as represented in (30).

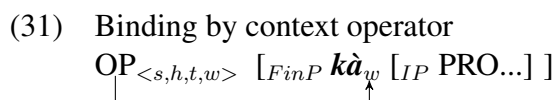


By doing so, I am following a by now longstanding view that advocates a unifying treatment of reference to individuals, time and possible worlds (cf. Partee 1973, Cresswell 1990 Stone 1997, Groenendijk and Stokhof 1984, Kratzer 1998, Kusumoto 2005, 2005, Percus 2000, Percus and Sauerland 2003, von Stechow 2003, Schueler 2011, Bochnak et al. 2019, Nederveen 2020, i.a.), best summarized in the following quote from Schlenker (1999, p. 8):

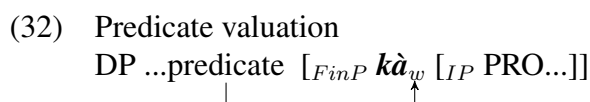
“take the system of features used, say, for reference to individuals; keep the same interpretive rules, but replace symbols ranging over individuals with symbols ranging over times and worlds - and you should have obtained the system used by Universal Grammar for reference to times and to worlds.”.

Accordingly, I consider the variable w hosted by $k\hat{a}$ the world cousin of a zero pronoun, following Kratzer (1998). I assume that w comes with no presuppositions about the specific state of the world it denotes, just as a zero pronoun is not specified for person features. I also assume that, like its pronominal cousin, w receives its value via binding.

Typically, w is assigned a value within two distinct syntactic environments. Within the scope of the question particle wa (see in 2.4.4 and 3.6.1), it is bound by a context operator, as sketched in (31).



However, in infinitival complementation constructions, w is bound by the matrix predicate. I call this *predicate valuation*, capitalizing on Ritter and Wiltschko (2014). Consider (32).



In section 4.5.5, I provide the relevant insights behind these two ways of valuing the world variable hosted by $k\hat{a}$, and I illustrate how the binding of the latter accounts for the interpretation of Jula infinitival clauses. Before that, section 4.5.4 briefly comments on how the proposal predicts the distribution of infinitival clauses in Jula.

4.5.4 Distribution

Under the premise that clausal contents are evaluated relative to the world, our claim that infinitival clauses in Jula are not related to the world predicts that the latter must always occur as dependent clauses. As shown in (33), an infinitival clause in Jula cannot be used independently to make an utterance.

- (33) a. Adama ye bon lo
Adama PFV house build
'Adama built a house.'
- b. **kà* PRO bon lo
INF PRO house build
*'PRO to build a house.'

Unlike the finite clause in (33a)), an infinitival clause is ungrammatical as an independent sentence (33b). Following our approach, this constraint arises because, in such an environment, the world variable hosted by *kà* is not assigned a value. Therefore, despite its denotation, it is not possible in (33b) to identify the relevant state of the world the content of the infinitival clause is intended to describe. It is consequently impossible to be evaluated or interpreted.

For an infinitival clause to be used grammatically, it must be associated with or be in the scope of another linguistic expression. Such an expression can be the question particle *wa*, previously presented in sections (2.4.4) and (3.6.1).

- (34) [*kà* PRO bon lo] wa ?
INF PRO house build PRT
'Should I build a house?'

In most cases, however, infinitival clauses in Jula are associated with a finite (embedding) clause, as in complementation constructions (35).¹¹

- (35) a. Awa banba-la [*kà* PRO bon lo]
Awa manage-PFV INF house build
'Awa managed to build a house.'
- b. Awa be a fe [*kà* PRO bon lo]
Awa COP 3SG PostP INF PRO house build
'Awa wants to build a house.'

In my approach's spirit, the sentences in (34) and (35) are all grammatical because the world variable hosted by *kà* is assigned a value, yielding a proper interpretation of the infinitival clause. How the value of *w* is assigned is what I now turn to illustrate.

4.5.5 How *w* gets a value and the infinitival clause an interpretation

Infinitival question

We may think of the question particle *wa* as a "deictic anchoring" expression, since it relates the clause in its scope to the immediate utterance context. Thus, I will assume that in the scope of such an expression, the world variable hosted by *kà* is bound by a context

¹¹Here, we may include consecutive and purpose clauses too. Though, to keep things simple, I do not integrate them into the discussion.

operator, which has individuals arguments, i.e. actual speaker (s) and addressee (h), in addition to a time (t) and a world (w) argument (cf. Kaplan 1989, Schlenker 1999, 2003, Anand and Nevins 2004 i.a.). This is shown in (36a).

(36) Binding by context operator

a. $\text{OP}_{\langle s,h,t,w \rangle} [\text{FinP } k\hat{a}_w [\text{IP PRO...}]]$
↑
variable binding

b. $k\hat{a}_{w^{actual}}$ PRO bon lɔ wa ?
 INF PRO house build PRT
 ‘Should I build a house?’

As shown in (36b), when w is bound by the context operator, it gets a deictic interpretation and receives the actual world as a value. The infinitival clause is consequently interpreted as a question by the actual speaker.¹²

Infinitival complementation

In complementation constructions, w obtains its value via binding instantiated by the matrix predicate, i.e. via predication valuation, in the spirit of Ritter and Wiltschko (2014).

(37) Predicate valuation

DP ...predicate $[\text{FinP } k\hat{a}_w [\text{IP PRO...}]]$
↑

Classically, predicate valuation via binding, as sketched in (37), is considered a semantic specificity of attitude predicates (cf. Schlenker 1999, von Stechow 2003, 2012 et seq.). However, I assume that any semantic type of predicate can instantiate it, for not only attitude predicates take an infinitival clause as their complement.¹³ In this respect, I contend that the meaning property of the valuing predicate determines the value of the world variable hosted by $k\hat{a}$, and, consequently, the evaluation world of the infinitival clause.

For instance, it is known that the semantics of an attitude predicate such as WANT involve so-called "modal displacement", that is, the description of situations or events that are not part of the actual world (cf. Fintel and Heim 2011). In that respect, WANT is typically treated as a type of quantifiers over possible worlds (cf. Kratzer 1981, 1991 et seq.). Within the scope of such a predicate, the variable hosted by $k\hat{a}$, w receives possible worlds as its value, more precisely, states of the world compliant with the desires of a given individual. Therefore, in the case of (38), the situation denoted by the infinitival clause is evaluated relative to states of the world consistent with what *Awa* wishes/desires.

¹²The reader may have observed that the translation of the infinitival question contains a modal expression. As for now, I do not have a clear answer to how this meaning arises. Nevertheless, I suspect it is a meaning effect associated with the question particle *wa*. Indeed, Bhatt (1999) establishes a parallel between *wh*-question words and the presence of a comparable *should* modal flavor in some English infinitival questions.

(1) Magnus knows which book to read for tomorrow's class. (cf. Bhatt 1999, p. 133)
 ⇒ Magnus knows which one/he should read for tomorrow's class

¹³This assumption is not far-fetched, as the following quote of Szabolcsi (2011, p. 7) on raising verbs seems to suggest: "those raising verbs are syntactically explicit quantifiers over time (or, possibly, world) arguments".

- (38) Awa bɛ a fɛ [kà_w PRO bon lɔ]
 Awa COP 3SG PostP INF PRO house build
 ‘Awa wants PRO to build a house.’

By contrast, the semantics of a predicate such as MANAGE does not involve modal displacement. Therefore, when it binds the world variable hosted by *kà*, as in (39), the infinitival clause’s content is interpreted relative to states of the world prior to the actual world, i.e., the world in which the sentence containing MANAGE and its infinitival clause (the complementation sentence) is uttered. In that sense, MANAGE values *w* with an evaluation world that it is inherited from the past/perfective marking it bears.¹⁴¹⁵

- (39) Awa banba-la [kà_w PRO bon lɔ]
 Awa manage-PFV INF house build
 ‘Awa managed PRO to build a house.’

To be sure, binding or valuing the world variable hosted by *kà* is what specifies the evaluation world that permits the interpretation of the infinitival clause. Building on this insight, I will show in chapter 6 (section 6.6) that the binding of *w* also plays a role in interpreting the null subject PRO. However, for the time being, a summary of the present chapter is in order.

4.6 Conclusion

I hope in this chapter to have provided convincing evidence for two claims. The first is that the infinitival marker *kà* in Jula is a complementizer with the properties of a Fin head and, accordingly, that infinitival clauses in Jula are FinP projections. The second is that the primary function of finiteness is to relate a clausal content to an evaluation world. The latter claim has been used to motivate a suggestion on the semantic function of *kà*: being associated with the absence of finiteness, *kà* bears the information that the clausal content it introduces, i.e., the IP projection, is not related to an evaluation world. An implementation of this idea has involved assuming that *kà* hosts a variable *w*, which takes a state of the world as its value. We have proposed that the binding of the variable *w* accounts for the distribution and interpretation of infinitival clauses in Jula. These two claims come with consequences that are exploited in Chapters 5, 6 and 9.

¹⁴I suspect that this may explain the existence of implicative inference associated with such as a predicate, generally known as "actuality entailment" (cf. Bhatt 1999).

¹⁵One may wonder why, in the case of predicates like WANT, is that it is impossible for the variable hosted by to get its world value indirectly from the TAM marking within the matrix clause, as with MANAGE. In other words, why does "the want-event" take place in the actual world, but the event of the infinitival clause in possible worlds? At this point, the only solution I can think of is to propose that predicates, in addition to a world variable, host a sort of lambda operator. While the world variable is valued within the domain of the matrix clause, the lambda operator binds the world variable hosted by *kà*. In that respect, the latter would offer for the interpretation of the infinitival clause a state of the world compatible with the meaning properties of the valuing matrix predicate, i.e., whether the predicate triggers "modal displacement" or not. One could thus reframe the sketch presented in (37) as follows.

- (1) Predicate valuation
 DP ...predicate_{w,λw} [_{FinP} *kà*_w [_{IP} PRO...]]
-

Chapter 5

Deriving infinitival complementation

5.1 Introduction

We have seen in section 3.2.2 that infinitival complement clauses fulfill three syntactic functions: subject, object oblique and predicative oblique. We have also observed that whatever the function, unlike nominal arguments, infinitival complement clauses cannot occupy an argument position within their hosting matrix clause. Instead, all of them, subject, object oblique and predicative oblique infinitival clauses, occur to the right of the matrix clause. In some cases, the argument status of the infinitival clause is indicated by the presence of a relating correlate (see section 3.3.1). In other cases, however, these correlates are absent, and the argument status of the infinitival complement is retrievable from its complementary distribution with nominal arguments (cf. section 3.3.2). This gives us the following picture illustrated with the examples in (1), (2) and (3).

- (1) a. subject infinitival with a correlate

a ka di Awa ye [kà bon lɔ]
3SG COP good Awa PostPINF house build

‘It pleases Awa to build houses.’

- b. oblique predicative infinitival with a correlate

Awa hakili bɛ **a** la [kà bon lɔ]
Awa.POSS mind COP 3SG PostP INF house build

‘Awa hopes to build a house.’

- (2) a. oblique object infinitival without a correlate

Awa sɔn-na [kà bon lɔ]
Awa accept-PFV INF house build

‘Awa accepted/agreed to build a house.’

- b. oblique object nominal

Awa sɔn-na wari **ma**
Awa accept-PFV money PostP

‘Awa accepted/agreed to the money.’

- (3) a. oblique predicative infinitival without a correlate

Awa ka kan [kà *bon* lɔ]
 Awa COP equal INF house build
 ‘Awa should / deserves to build a house.’

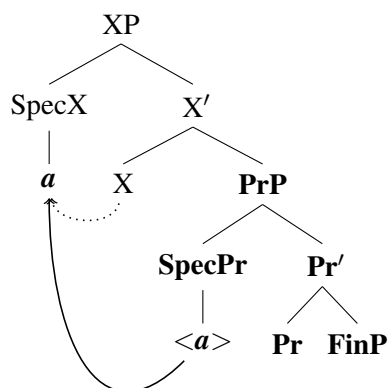
- b. oblique predicative nominal

Awa ka kan *ni* saya *ye*
 Awa COP equal with death PostP
 ‘Awa should / deserves to die.’

Subject infinitival clauses always co-occur with a correlate (1a). Object oblique infinitival clauses, however, do not co-occur with any correlate (2a), but they alternate with an object oblique nominal (2b). Oblique predicative infinitival clauses are arguments within a non-verbal predication. In (1b), the predication is headed by the existential copula *be*, in which case the infinitival clause co-occurs with a correlate. In (3a), the predication is headed by the adjectival copula *ka*, in which case the infinitival clause does not co-occur with a correlate. However, it alternates with a predicative oblique nominal (3b).

This chapter takes on the syntactic derivation of the relation between the infinitival complement clauses and the hosting matrix clause. Specifically, we propose a unifying syntactic derivation for the two types of infinitival complement clauses, i.e., infinitival clauses with and without correlates. We consider that the surface structure of infinitival complementation in Julia originates from the implementation of the abstract structure in (4).

- (4)



The central ingredients of the analysis are the following.

- (i) **The complement clause does not move:** The complement clause FinP merges to the right of the matrix clause as the complement of a predication phrase (PrP), headed by a null head, with the correlate in the specifier position.
- (ii) **Predication:** The relation between the correlate and the complement clause is thus established via predication, i.e., the content of the complement clause is predicated of the correlate. The surface position of the correlate within the matrix clause is due to movement.
- (iii) **Case assignment:** Movement of the correlate is motivated by Case assignment. Case is assigned in the specifier position of a head X within the matrix clause. Heads that assign Case are I for nominative Case, V for accusative Case, and P for oblique Case.

- (iv) **Condition on overt SpecX**: Only the specifier position of an overt Case assigning head can be realized overtly. Thus, a DP occupying the specifier position of a covert Case assigning head remains unrealized at the surface. The absence of co-occurring correlates with some complement clauses boils down to this condition.

Fundamentally, the proposed analysis relies on the approach taken in Hole and Kiemtoré (2018), which already incorporates the points (i) and (iii). However, I depart from the latter regarding (ii) and (iv). First, the relation between the correlate and the complement clause is no longer considered a head-complement relation, but a case of predication, since as the discussion in 5.2.1 will show, a head-complement relation appears inappropriate for Jula. Second, unlike in Hole and Kiemtoré (2018), I propose, utilizing (iv), an explanation for the absence or non-realization of correlates. With this as a background, I structure the rest of the chapter as follows.

In section 5.2, I set the stage by presenting and assessing two traditional approaches to the syntactic position of complement clauses, with a particular interest in their treatment of correlates. After an overview of the analysis in 5.3, the sections 5.4 and 5.5 lay out the ingredients and empirical support. The analysis is then implemented in section 5.6 and its consequences discussed in 5.7. Section 5.8 concludes.

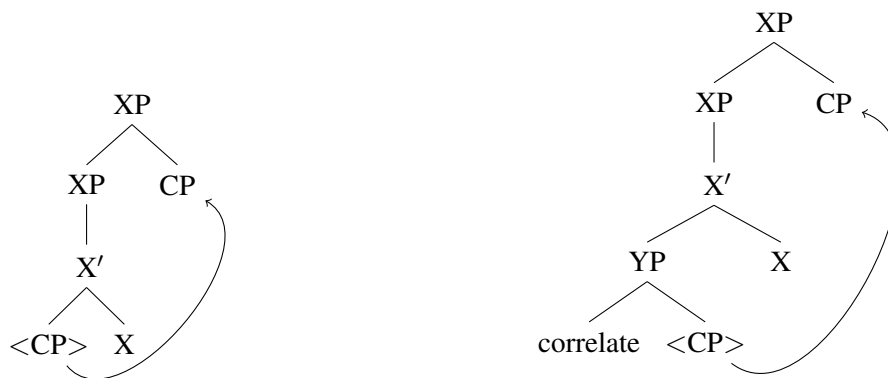
5.2 Movement vs. non-movement approaches

As mentioned more than once already, infinitival clauses in Jula, like many types of complement clauses across languages (cf. Dryer 1980, Noonan 2007, Schmidtke-Bode 2014), do not occur within the boundaries of their host clause but at the right edge of the latter. In Generative grammar, two main competing approaches exist to account for the position of complement clauses: the movement approach and the non-movement approach.

5.2.1 Movement approach

Under the movement approach, the position of the complement clause at the right edge of the matrix clause is considered the result of movement. Arguably, the complement clause is originally merged in an argument position of the matrix clause and then moved out, i.e., extraposed, to an adjunct position (see in Rosenbaum 1967, Zimmermann 1993, Müller 1995, Bayer 1997, Sudhoff 2003 & 2016, Frey et al. 2016, Auf'mkolk 2018, i.a.). To account for the Jula data in (1 - 3), the movement approach can be applied in the ways illustrated in (5).

- (5) a. complement clause without correlate b. complement clause with correlate



The position of the infinitival clauses that do not co-occur with a correlate would be derived as in (5a). For infinitival clauses that co-occur with a correlate, as shown in (5b), one would additionally assume that they merged within a complex constituent headed by the correlate (cf. Müller 1995, Sternefeld 2006, Sudhoff 2003, Auf'mkolk 2018). It follows that, here, unlike in (5a), it is the complex constituent that occupies an argument position within the matrix clause. Thus, it seems that the structures in (5) would correctly account for the surface difference between the two types of infinitival clauses, which boils down to the presence of the correlate.

Despite being intuitively very attractive, the movement approach's insights are empirically not applicable to the Jula data.¹ The first general issue concerns the landing position of complement clauses.

Recall that the works within the movement approach consider the complement clause's position to result from a rightward movement, which typically involves adjunction, either to VP or IP. If the complement clauses in Jula are in adjunct positions, we expect them to behave like adjuncts. On the contrary, we have shown in section 3.3.3 that as for fronting, infinitival complement clauses behave just like nominal arguments. In essence, unlike for adjuncts, and like nominal arguments, fronting infinitival complement clauses requires a left-dislocation configuration, whereby a pronominal form (i.e., *o*) resumes the complement clause within the matrix clause. Thus, if infinitival complement clauses in Jula do not behave like adjuncts, the position they occupy cannot reflect adjunction, and therefore they cannot be said to have moved to that position, granted that rightward movement is a case of adjunction. Indeed, more compelling evidence exists that no movement takes place.

Consider first the case of infinitival clauses that do not occur with a correlate. It turns out that a derivation along the lines of the structure in (5a) is problematic, as shown in (6).

¹I will disregard the possibility of deriving the structure of the two types of infinitival complements in a unifying way. Also, I do not discuss conceptual arguments that have been evoked against pursuing a movement approach (see, for example, in Culicover and Rochemont 1990, Bayer 1997, Haider 1997, i.a.)

- (6) a. *Awa bàn-na [kà *bon* lɔ] *ma*
 Awa refuse-PFV INF house build PostP
 Int. 'Awa refused to build a house.'
- b. *Awa bàn-na *ma* [kà *bon* lɔ]
 Awa refuse-PFV PostP INF house build
 Int. 'Awa refused to build a house.'
- c. Awa bàn-na [kà *bon* lɔ]
 Awa refuse-PFV INF house build
 'Awa refused to build a house.'

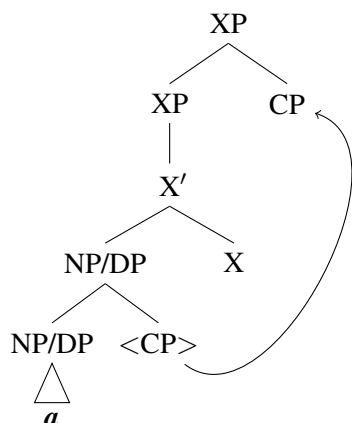
What is the problem in (6)? The verb *ban* 'refuse' takes oblique object arguments, which in Jula are introduced by postpositions. Thus, if, as suggested by the movement approach, the infinitival complement clause to *ban* 'refuse' merged within the matrix clause, its original position would be as in (6a), i.e., to the left of the postposition *ma*. The problem here is not that complement clauses in Jula never surface like in (6a) but rather the fact that the result of movement would be the sentence in (6b), where the infinitival clause occurs after the postposition *ma*. Contrary to facts, (6b), unlike (6c), is ungrammatical. Therefore, the movement approach does not successfully predict the position of infinitival clauses that do not occur with correlates. For this reason, the structure in (5a) has to be rejected.

We now turn to (5b), the structure that derives complement clauses with correlates. Here, it is essential to note that the problem mentioned above for (6a) does not arise. After all, one may postulate that the sentence below in (7a) represents the underlying structure of the sentence in (7b). In this respect, the infinitival clause could be said to have moved out of the matrix clause, leaving behind the correlate.

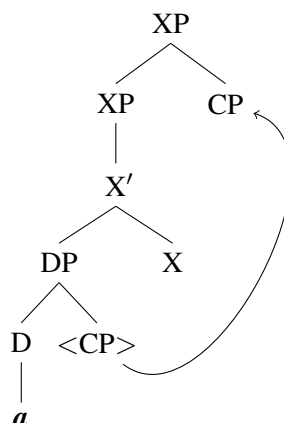
- (7) a. *Awa hakili bɛ [a [kà *bon* lɔ]] *la*
 Awa.POSS mind COP 3SG INF house build PostP
 Int. 'Awa hopes to build a house.'
- b. Awa hakili bɛ a *la* [kà *bon* lɔ]
 Awa.POSS mind COP 3SG PostP INF house build
 'Awa hopes to build a house.'

Again, as with (6a) above, the problem is not that the structure underlying the derivation of (7b) never surfaces in Jula. Instead, the issue is that (7a) does not do justice to the relationship between the correlate and the complement clause. Recall that works within the movement approach assume that the correlate and complement clause form a complex constituent headed by the correlate. This idea has been implemented in two various ways. On the one hand, Zimmermann (1993), Müller (1995), Sternefeld (2006) i.a., have proposed that the complement clause is an adjunct to a NP/DP headed by the correlate. On the other hand, in Sudhoff (2003), Hinterwimmer (2010) and Auf'mkolk (2018), the complement clause is a complement of the correlate. The two views are illustrated for Jula in (8a) and (8b), respectively.

(8) a.



b.



The tree in (8a) suggests that the correlate *a* is the argument of the matrix clause, and the relating complement clause modifies it. However, we have shown early in section 3.3.1 that the correlate cannot be considered a semantic argument of the matrix clause. On its own, it does not semantically contribute to the meaning of the matrix clause predicate. This function is carried out by the infinitival complement clause. In light of this, a solution along the lines of (8a) seems to be on the wrong track. As for (8b), it suggests that it is the constituent formed by the correlate and the complement clause that functions as an argument of the matrix clause and claims the correlate to be a D-head. This solution does not work either because the correlate *a* in Jula is not a determiner, as I show in the following discussion.

Note that the motivation for treating correlates as a D-head has its root in Abney (1987), who proposed to analyze pronouns on a par with determiners, i.e., articles and demonstratives. Abney's proposal is based on the observation that pronouns are in complementary distribution with articles and demonstratives in English, as the examples below seemingly suggest.

- (9) a. **The** linguists are not stupid.
b. **These** linguists are not stupid.
c. **We** linguists are not stupid.

Assume Abney (1987) is correct about the English data and that pronouns in this language are indeed D-elements.² However, as far as Jula is concerned, there is no motivation for treating the correlate *a* as a D-head. There exist at least five salient differences between determiners and the pronominal form *a*, from which the correlate *a* is derived.

²Although there is evidence in the literature that Abney's proposal is based on a misinterpretation of the data. In essence, it has been argued that in the example (9c), the pronoun *we* does not specify the reference of the following noun *linguist*, as determiners typically do. Instead, the noun is a modifier, an appositive, to the pronoun (see in Diessel 1999, p. 67, Quinn 2005, p. 301, Cowper and Hall 2009, pp. 47–49)

First, determiners in Jula typically follow the noun they specify (10).

- (10) a. Cε **dɔ** na-na yan.
 man some come-PFV hier
 'A/some man came hier.'
- b. Cε **nin** na-na yan.
 man this come-PFV hier
 'This/the man came hier.'
- c. Cε **juman** na-na yan?
 man which come-PFV hier
 'Which man came hier?'

Conversely, unlike determiners, and like other pronouns, whenever *a* co-occurs with a noun, it precedes the latter (11).

- (11) **n / i / a** cε na-na yan.
 1SG / 2SG / 3SG man come-PFV here
 'My / your / her husband came here.'

Second, within DPs in Jula, plurality is generally morphologically marked on the D-head, not on the complement noun.

- (12) a. Cε **dɔ-w** na-na yan.
 man some-PL come-PFV hier
 'some men came hier.'
- b. Cε **nin-w** na-na yan.
 man this-PL come-PFV hier
 'These/the men came hier.'
- c. Cε **juman-w** na-na yan?
 man which-PL come-PFV hier
 'Which men came hier?'

As (13) shows, however, whenever *a* co-occurs with a noun, it is the latter that bears the plural marker.

- (13) **n / i / a** cε-w na-na yan.
 1SG / 2SG / 3SG man-PL come-PFV hier
 'My / your / her husbands came hier.'

Third, two determiners cannot co-occur. For this reason, the following sentences in (14) are all ungrammatical.

- (14) a. *Cε **dɔ nin** na-na yan.
 man some this come-PFV hier
- b. *Cε **nin juman** na-na yan.
 man this which come-PFV hier
- c. *Cε **juman dɔ** na-na yan?
 man which some come-PFV hier

However, as the following sentences in (15) show, unlike first and second-person pronouns, the pronoun *a* can occur with a determiner. That would have been impossible if *a* was a determiner.

- (15) a. (***n**) / (***i**) / **a dɔ** bɛ an fɛ.
 1SG / 2SG / 3SG some COP 1PL at
 ‘We have some (of it).’
- b. I bɛ (***n**) / (***i**) / **a juman** fɛ?
 2SG COP 1SG / 2SG / 3SG which at
 ‘Which one do you want?’

Fourth, like nouns, the pronoun *a* can combine with a participle. To see this, consider the following examples in (16).

- (16) participles possible with (pro)nominals
- a. Present participle
- An ye Adama / **a tama-tɔ** kunbɛ
 1PL PFV Adama / 3SG walk-PTCP meet
 ‘We met Adama / him (her) walking.’
- b. Past participle
- Adama / **a dimi-nin** na-na yan
 Adama / 3SG get.angry-PTCP come-PFV here
 ‘Adama / he (she) came here angry.’

Determiners, on the other hand, cannot combine with participles, as indicated by the examples in (17).

- (17) Participles impossible with determiners
- a. Present participle
- *An ye **tama-tɔ dɔ** / **nin / juman** kunbɛ
 1PL PFV walk-PTCP some / this / which meet
 Int. *‘We met some / this one walking’
 Int.*‘Which walking one did we meet?’
- b. Past participle
- ***dimi-nin dɔ** / **nin / juman** na-na yan
 get.angry-PTCP some / this / which come-PFV here
 Int. *‘Some / this angry one came here.’
 Int.*‘Which angry came here?’

Fifth, the relation between *a* and the noun (DP) with which it occurs is not a case of determination but possession. The attentive reader may have noticed that in (11) and (13), the pronoun *a* has been translated as a possessive pronoun. That is because the pronoun is involved in a possessive relationship with the DP following it. Recall from 2.5.3 (cf. Chapter 2) that in Jula, possessive relations are expressed in two ways: Inalienable possession is encoded by juxtaposing two nominal elements. In contrast, alienable possession requires the use of the possessive marker *ka* between the related nominal elements. The examples in (11) and (13), are instances of inalienable possession, and accordingly, *a* cannot be considered a determiner but a nominal element. As can be seen below in (18), the pronoun’s behavior in these environments parallels that of nominals.

(18) a. Inalienable possession

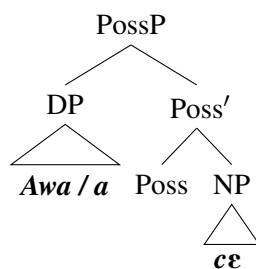
Awa / **a** cε
 Awa / 3SG man
 ‘Awa’s husband / her husband.’

b. Alienable possession

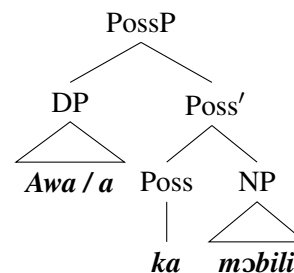
Awa / **a ka** mɔbili
 Awa / 3SG POSS car
 ‘Awa’s car / her car.’

The two possessive relations in (18) are plausibly best represented syntactically as a possessive phrase (PossP), where the possessed noun is the complement, the possessor the specifier. The head is null in case of inalienable possession but realized as *ka* in case of alienable possession. This is illustrated in (19a) and (19b), respectively.

(19) a. Inalienable possession



b. Alienable possession



If the reasoning so far is on the right track, we have with the structure in (19) a clear indication that when associated with a nominal, unlike determiners, *a* is not the head of the phrase that it builds with that DP. In section 5.4, I suggest that the relation between the correlate and the relating complement clause should be treated in the spirit of the structure in (19). Specifically, I propose that a null predicative head mediates this relation, whereby the complement clause’s content is predicated of the correlate in the specifier position.

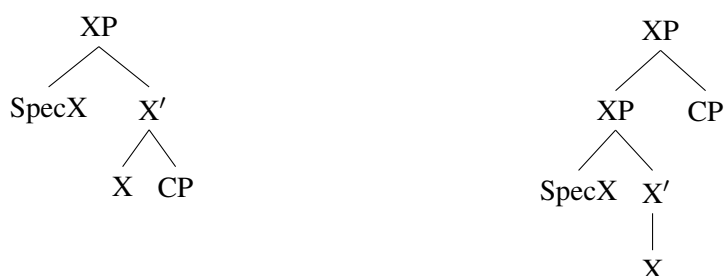
Turning back to the current discussion, with the points made in (9 - 19), I have shown that there exists clear evidence for not treating the correlate *a* as a determiner. This implies that analyses along the line of the structure in (8b), where the complement clause and the correlate merge in a DP headed by the correlate, cannot be correct. That, added to the discussion on the structure in (8a), suggests that, as far as Jula is concerned, works within the movement approach cannot satisfactorily account for the relation between correlates and their relating complement clauses. Earlier, we have also demonstrated that the application of the movement analysis to the infinitival clauses without correlates is problematic, as it results in ungrammatical sentences (cf. ex. 6). More generally, unlike what a movement analysis would suggest, infinitival complement clauses in Jula do not occupy an adjunct position because they do not behave like adjuncts (cf. left-dislocation in 3.3.3). Together, these facts, I think, suggest that a derivation in which the position of the complement clause is treated as a result of rightward movement is empirically incorrect for Jula.

In what follows, we discuss alternatives to the movement approach, which I subsume under the non-movement approach.

5.2.2 Non-movement approach

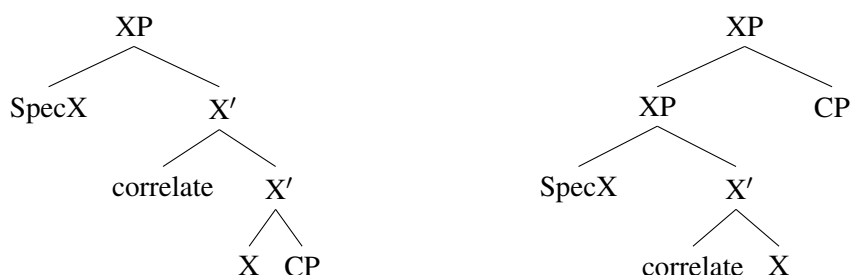
Works within the non-movement approach consider the complement clause to be merged in its surface position, i.e., to the right of the matrix clause. Thus, its position is not the result of movement out of the matrix clause. Analyses within this approach differ mainly in the way they describe the status of the complement clause. On that, there exist two lines of thought. One line is that the complement clause is an argument of the matrix, and accordingly, clausal arguments and nominal arguments do not need to originate in the same position (Postal and Pullum 1988, Haider 1995, Berman 2003, Inaba 2007, Frey 2016). The other line is that the complement clause is actually an adjunct, i.e., its position reflects a case of direct adjunction (Koster 1978, Bennis 1986, 2005, Cardinaletti 1990, Vikner 1995, Schwabe 2013). Again, these two views are illustrated with the following abstract structures.

- (20) a. complement clause as argument b. complement clause as adjunct



On either view, when the complement clause co-occurs with a correlate, the latter is considered an argument of the matrix clause. Consequently, works that assume the complement clause to be an argument (20a) are additionally forced to assume that the correlate and complement clause are two independent arguments. For works adopting the structure in (20b), the sole argument is the correlate, the complement clause being considered an adjunct. For the sake of completeness, I illustrate this with two abstract structures in (21).

- (21) a. complement clause and correlate are two independent arguments b. correlate is argument, complement clause is adjunct



It goes without saying that by treating the correlate as argument and the complement clause as an adjunct, the analysis illustrated in (21b) faces similar problems already mentioned for the movement approach above in the discussion of (8). The complement clause does not behave like an adjunct (cf. left-dislocation), and the correlate alone does not semantically contribute to the meaning of the matrix clause predicate.

Treating both the correlate and the complement clause as independent arguments, as in (21a), is not without problems, either. For instance, we have shown earlier that in the presence of the complement clause, the correlate cannot be substituted by a noun, which indicates that the latter does not act as an independent argument (see section 3.3.1, chapter 3). In truth, the correlate and the complement clause seem to represent the discontinuous representation of a single argument (cf. Pütz 1975, 1986). The correlate fulfills a syntactic requirement, while the complement clause bears the semantic content. This has already been pointed out in session 3.3.1. To convince ourselves again, out of the blue, a sentence with the sole correlate *a* may be grammatical, but it would not constitute an informative sentence since it would be semantically odd and hardly interpretable (22a).

- (22) a. ?Awa hakili be a la
 Awa.POSS mind COP 3SG PostP
 ✓ ‘Awa remembers it/him/her.’
 ✗ ‘Awa hopes it’
- b. Awa hakili be *(a) la [kà bon lɔ]
 Awa.POSS mind COP 3SG PostP INF house build
 ‘Awa hopes to build a house.’
- c. Awa bàn-na [kà bon lɔ]
 Awa refuse-PFV INF house build
 ‘Awa refused to build a house.’

Nevertheless, as (22c) shows, the presence of the complement clause alone may suffice to convey a semantically complete piece of information, unless the syntactic make-up of the matrix clause requires the presence of a correlate (22b). So it appears that considering the correlate and the complement clause as two independent arguments is not entirely correct. Instead, I think the question is how two inter-dependent elements that represent a single argument appear discontinuously, i.e., in two different positions. In the next section, I will offer an analysis that aims at answering this question.

5.3 The analysis in a nutshell

From the discussion in the previous section, we have seen that the complement clause’s position in Julia is not the result of rightward movement. Nevertheless, if the complement clause originates to the right of the matrix clause, we need to explain how the relationship between the complement clauses and the correlate comes about, given that they do not surface as adjacent constituents.

I account for the two points by assuming that the complement clause merges to the right of the matrix clause as a complement of a predication phrase, headed by a null head, with the correlate in the specifier. The relationship between the correlate and the complement clause arises from predication, whereby the complement clause’s content is predicated of the correlate. The non-adjacency of correlate and complement clause results from a Spec-to-Spec-movement. Crucially, the correlate in the specifier position of the predication phrase moves to either SpecI, SpecV or SpecP, depending on the function of the complement clause. That movement is motivated by Case assignment. With this as an overview, I now turn to discuss the details of this analysis.

5.4 Element analysis 1: Predication

5.4.1 The starting point

As shown above, any constituent formed from pairing *a* with another noun or nominal, as in *a bamuso* ‘his/her/its mother’, expresses alienable possession. Cross-linguistically, there is evidence that possession relations are indicated in various ways, including via predication (Seiler 1983). Of particular interest are instances of what Stassen (2013, online version) calls *Adjectivalization*, i.e., “constructions in which the possessed NP is construed as the predicate (or part of the predicate) and treated in the same way as predicative adjectives are treated.” Although Stassen uses this term to describe a special case of predicative possession occurring in languages like Tiwi (Bathurst Island/northern Australia) and Kanuri (Western Saharan, northern Nigeria), I argue that a similar mechanism underlies the expression of possession in Jula and beyond, the relation between the correlate *a* and the relating complement clause.³

5.4.2 *a* really enjoys Predication

Recall that morpho-syntactically alienable possession differs from inalienable possession in that the former is mediated by the morpheme *ka*, while the latter involves juxtaposition. Now, a second significant difference concerns the nature of the possessed NP. As a rule of thumb, in the case of alienable possession, the possessed NP must be a sortal noun (23a). Consequently, relational nouns (e.g., ‘mother’, ‘name’ and ‘strength’) are ungrammatical, as the contrast between (23b) and (23c) illustrates.⁴

- (23) Alienable possession
- a. DP + *ka* + NP, where NP is a sortal noun
 - b. a *ka* **mabili / wulu / baara** (*sortal nouns*)
 3SG POSS car / dog / work
 ‘his/her car / dog / work’
 - c. *a *ka* **bamuso / tɔgɔ / fanga** (*relational nouns*)
 3SG POSS mother / name / strength
 Int. ‘his/her mother / name / strength’

Reversely, inalienable possession constructions require the possessed NP to be a relational noun (24a). Therefore, sortal nouns are excluded from these environments, as shown by

³Here are some examples cited by Stassen (2013):

- (1) a. Tiwi (Osborne 1974: 60)
- awa mantani teraka
our friend wallaby
- ‘Our friend has a wallaby.’
- b. Kanuri (Cyffer 1974: 122)
- kam kura-te kugena-nze-wa (genyi)
man big-the money-his-adj/with (neg.cop)
- ‘The big man has (no) money.’

⁴See Löbner (2013, p. 69) for the terms sortal vs. relational noun.

(24b) and (24c).

(24) Inalienable possession

- a. DP + NP, where NP is a relational noun
- b. Sortal nouns

*a **mɔbili / wulu / baara** (*sortal nouns*)

3SG car / dog / work

Int. 'his/her car / dog / work'

- c. Relational nouns

a **bamuso / tɔgɔ / fanga**

3SG mother / name / strength (*relational nouns*)

'his/her mother / name / strength'

Keeping (23) and (24) in mind, a parallel can be established between possession constructions and the predication of descriptive contents, i.e., with adjectives and descriptive nominals. Consider the following examples below.

(25) Predication mediated by *ka*

- a. a **ka bon / jan / dɔgɔ** (*adjectives*)

3SG COP big / tall / small

'He/she/it is big / tall / small.'

- b. *a **ka belebeba / janmanjan / fitini** (*descriptive nominals*)

3SG COP big / tall / small

Int. 'He/she/it is big / tall / small.'

(26) Predication via juxtaposition

- a. *a **bon / jan / dɔgɔ** (*adjectives*)

3SG big / tall / small

Int. 'A big / tall / small one.'

Lit. 'It's big / tall / small.'

- b. a **belebeba / janmanjan / fitini** (*descriptive nominals*)

3SG big / tall / small

'A big / tall / small one.'

Lit. 'It being big / tall / small.'

Just like with possession constructions, the predication of descriptive content may either be mediated by *ka* (cf. alienable possession) as in (25), or it comes about via juxtaposition (cf. inalienable possession) as in (26). Also, like in the possession constructions, there is a restriction on the nature of the predicate. However, the restriction seems to rest more on the grammatical category of the predicate than on its semantics (cf. sortal vs. relational noun). Thus, only adjectival descriptive contents may occur in a predication mediated by *ka*, while nominal descriptive contents are predicated via juxtaposition.⁵

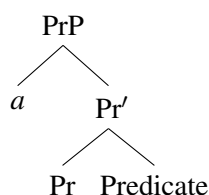
⁵I leave for future work a more in-depth examination of the specific restriction. In any case, the descriptive nominals and the adjectives differ in that the former may occur with a determiner, while the latter may not.

- (1) a. nominals

[belebeba / janmanjan / fitini nin] di n ma.
big / tall / small DEM give 1SG PostP

In sum, the predicate's nature determines the nature (its form and interpretation) of the predication in which the pronominal form *a* is involved. If the predicate is a sortal noun (e.g., 'car', 'dog', and 'work') or an adjective, the predication relation is mediated by *ka*, and it is interpreted as alienable possession or as adjectival predication, respectively. On the contrary, if the predicate is a relational noun (e.g., 'mother', 'name', and 'strength') or a descriptive nominal, the predication relation is indicated via juxtaposition and interpreted as inalienable possession or as nominal predication, respectively. Thus, compared to the predication with *ka*, the juxtaposition strategy can be viewed as a case of predication with a null head. Following some standard way of representing predication in generative syntax (cf. Bowers 1993, Den Dikken 2006, Citko 2011), the structure common to the two types of predication involving the pronoun *a* would be (27).

(27)



To be sure, we are proposing that any case of juxtaposition involving the pronoun *a* should be analyzed as a case of predication with a null head, i.e., null Pr. That this is a promising analysis is further suggested by cases where *a* combines with participles, as mentioned previously in 5.2.1. Consider again the examples from (16) repeated below in (28).

(28) a. Present participle

An ye a *tama-to* kunbe
 1PL PFV 3SG walk-PTCP meet
 'We met him/her walking.'

b. Past participle

a *dimi-nin* na-na yan
 3SG get.angry-PTCP come-PFV here
 'S/he came here angry.'

Semantically, the relation between *a* and the following participle recalls depictive predication in English, as in *John went way drunk/angry*. To be more specific, the participial forms attribute to the referent of the pronoun *a* a property which holds during the event described by the main verb (cf. Rothstein 2006). Thus, (28a) could be paraphrased as follows: the referent of *a* was walking when we met her/him. The paraphrase for (28b) is accordingly: the referent of *a* was angry at the moment s/he came here. Given this suggestive similarity with depictive predication, I suggest that participial modification, which takes the form of juxtaposition, should also be analyzed with the structure in (27). Now, how does the relationship between the correlate *a* and complement clauses enter that picture?

'Give me the big / tall / small one.'

b. adjectives

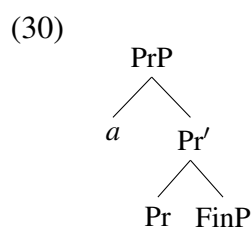
*[bon / jan / dɔgɔ nin] di n ma.
 big / tall / small DEM give 1SG PostP
 Int. 'Give me the big / tall / small one.'

5.4.3 *a* + complement clause is also Predication

We have seen that other than with a D element, any sequence involving *a* and other grammatical categories involves some predication, be it overtly marked (i.e., by *ka*) or not. For instance, this is true whenever the pronoun combines with a nominal, an adjectival, and a participle. Hence, we can make the following generalizations.

- (29) a. In any sequence *a* + *ka* + *X*, *X* is not a D-element, and the relation between *a* and *X* is an instance of predication, whereby the content of *X* is predicated of *a*.
- b. In any sequence *a* + *X*, if *X* is not identifiable as a D-element, then the relation between *a* and *X* is an instance of predication, whereby the content of *X* is predicated of *a*.

Following up on the generalizations in (29), especially according to (29b), the relationship between the correlate *a* and the complement clause must be an instance of predication. Indeed, this is the only way to go, having shown that neither a head-complement nor a phrase/head-modifier relationship will work (see the discussion in 5.2.1 and 5.2.2). Adopting the structure in (27), the relationship between the correlate *a* and the related complement clause will look like in (30).



The nature of the predication

Concerning the nature of the predication, we may think of the relation between the correlate *a* and the complement clause as similar to the type of predication involved in English specification copular sentences (31).

- (31) The winner is Fred Smith. (cf. Declerck 1986, ex.4a, p.27)

As it is commonly assumed in the literature (see Declerck 1986, Mikkelsen 2005, Den Dikken 2017), the predication within a specification copular sentence typically involves two NPs: a subject representing a variable for which the second NP, the predicate specifies the value. Thus, in (31), predicating ‘Fred Smith’ of ‘The winner’ serves to assign the value of the former to the latter, i.e., to identify ‘The winner’ as being ‘Fred Smith’.

In the same logic, the variable in the structure in (30) is the correlate *a*; an idea we have already pointed out in earlier discussion in Chapter 3 (section 3.3.1). Thus, the complement clause in the predicate position (here, the infinitival clause), serves to specify the value of the correlate. As a result, the latter is identified with the content of the complement clause. This explains a property of *a* also discussed previously in Chapter 3 (section 3.3.1), namely the fact that it cannot have anaphoric reference when associated with the complement clause.

- (32) a. Awa hakili be *a* la
 Awa.POSS mind COP 3SG PostP
 ‘Awa remembers it/him/her.’
- b. Awa hakili be *a* la [kà bon lɔ]
 Awa.POSS mind COP 3SG PostP INF house build
 ‘Awa hopes (*it/him/her) to build a house.’

The fact that unlike in (32a), *a* in (32b) must be interpreted along with the infinitival clause and not anaphorically (referring back to an individual, for example) results from it having been valued or identified with the content of the infinitival clause via predication.

That being said, we now turn to show that implementing the predication relation alone does not suffice to account for the syntax of infinitival complementation in Jula.

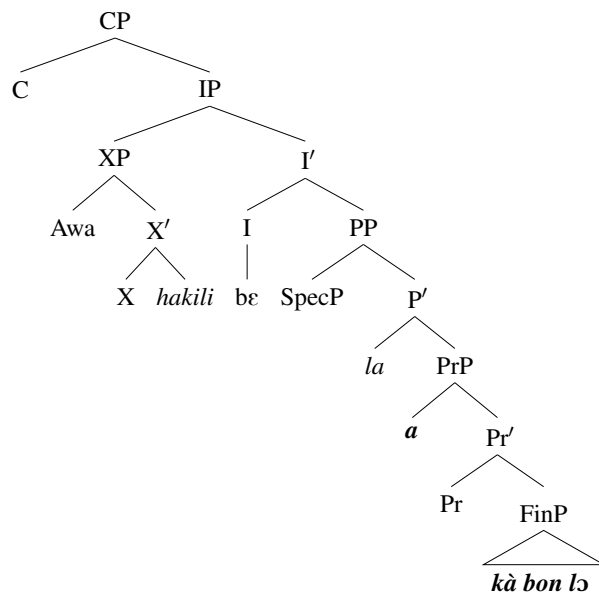
Predication is insufficient

In practice, as it is, the structure in (30) predicts that the structure of our initial sentence (cf. 1b) in (33a) corresponds to the syntactic tree in (33b), where the predication phrase containing both the correlate and the infinitival clause appears to the right of the adpositional head *la*.

- (33) a. oblique predicative infinitival

Awa hakili be *a* la [kà bon lɔ]
 Awa.POSS mind COP 3SG PostP INF house build
 ‘Awa hopes to build a house.’
 Lit. ‘It is in Awa’s mind to build a house.’

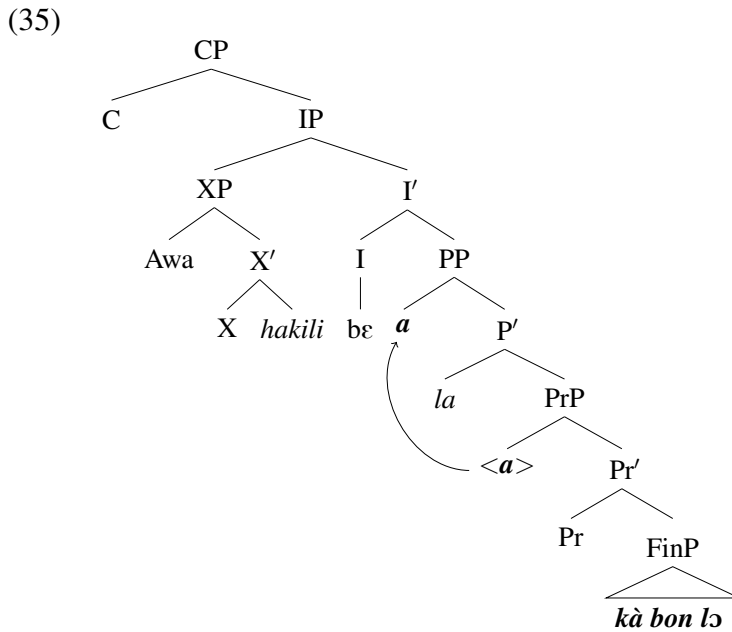
b.



(33b) incorporates two points discussed concerning complement clauses in Jula. First, the position of the complement clause to the right is underived, i.e., it is not the result of rightward movement. Second, the correlate and the complement clause form a constituent, as they represent two discontinuous realizations of a single argument. However, the tree in (33b) is not an adequate representation of the sentence in (33a), but it represents the structure of the following ungrammatical sentence (34).

- (34) *Awa hakili be la a [kà bon lɔ]
 Awa.POSS mind COP PostP 3SG INF house build
 Int. 'Awa hopes to build a house.'

Thus, instead of (33b), we need for (33a) a tree that accounts for the position of the correlate *a* within the matrix clause, i.e., left to the adpositional head *la*, yielding thereby a postpositional configuration. In this respect, the correct structure for (33a) should be (35).



The question is then: how can our approach derive the position of the correlate within the matrix clause, as we assume that it merges to the right of the matrix clause within a predication phrase containing the complement clause? My answer is that Case assignment is responsible for the position of the correlate. In the case of (35), for example, the correlate *a* has moved from SpecPr to SpecP to obtain oblique Case from the adpositional head *la*. Below, I lay out how Case assignment applies in Jula.

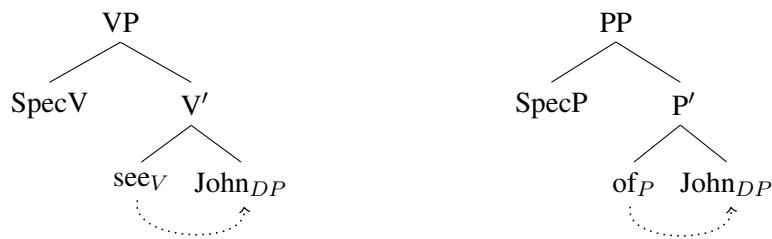
5.5 Element of analysis 2: Case assignment

5.5.1 By way of background

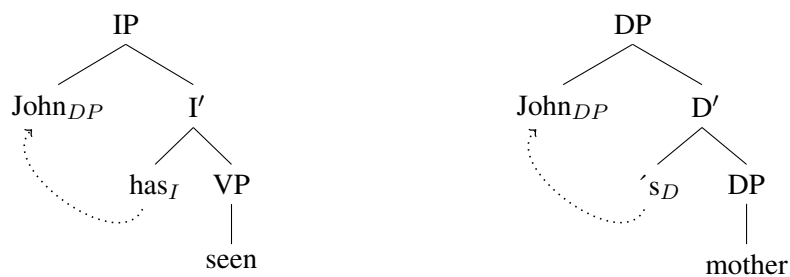
According to a by-now standard view in generative syntax, Case features regulate the syntactic distribution of arguments within a sentence (cf. Radford 1997, 2004, Adger 2003, Hornstein et al. 2005, Moulton 2015, i.a.). Within UG, Case was said to be assigned by dedicated heads, both lexical and functional (cf. Chomsky 1981, et seq.). For example, in English lexical heads like V and P assign accusative and oblique Case, respectively, in a head-complement configuration (36a). By contrast, functional heads like I and D, assign nominative and genitive Case, respectively, in a specifier-head configuration (36b).

(36) Based on Hornstein et al. (2005, p. 119)

a. Lexical heads

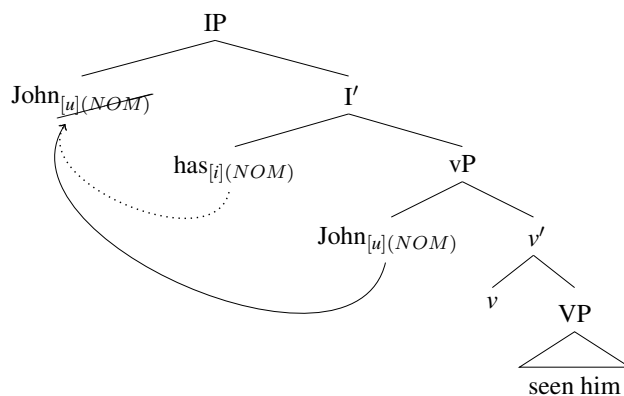


b. functional heads



In Minimalist syntax, Case is no longer said to be assigned, but it is valued. Under the standard view, Case valuation is achieved by the operation of Agree (cf. Chomsky 2000, 2008). Typically, Agree operates between two elements bearing two distinct values of a specific feature: a Probe with an uninterpretable value and a Goal with an interpretable value. Consequently, DP arguments that need Case behave like Probes in that they look upward to find a suitable Goal, i.e., a lexical or functional head with the relevant interpretable feature values. That can be exemplified below with the Case valuation of the subject argument (37).

(37)



In (37), the DP *John* starts within *vP* with an unvalued uninterpretable nominative Case feature $[u](Nom)$. Via movement, its nominative case feature gets valued by the I-head in *SpecI* and consequently deleted. Thus, Case valuation via Agree consists of deleting the uninterpretable case feature of a DP argument.

There are, however, two crucial problems with the Agree-based approach of Case valuation. The first one is a conceptual inconsistency: typically, Case is considered per default an uninterpretable feature, a type of feature that does not affect the semantic

interpretation (Adger 2003, p.19 and 36). That being so, it is unsubstantial to have an interpretable value of the Case feature on a valuing head. The second problem is an empirical inadequacy: Agree generally implies that both the valuing head and the valued argument inherently bear the same type of feature, including Case and phi-features. Now, recall that Jula lacks agreement entirely (cf. 2.3.2). Consequently, there is no morphological manifestation of Case. Nominals in general, and pronouns in particular, have the same form, irrespective of their position within a sentence.

- (38) a. *Awa / a* be Adama kɔniya (subject position)
 Awa 3SG HAB Adama hate
 ‘Awa / She hates Adama.’
- b. Adama be *Awa / a* kɔniya (object position)
 Adama HAB Awa 3SG hate
 ‘Adama hates Awa / her.’
- c. Adama be siran *Awa / a* ꞑɛ. (adpositional position)
 Adama HAB be.afraid Awa 3SG PostP
 ‘Adama is afraid of Awa / her.’

I will not adopt an Agree-based approach to Case for Jula for these two reasons. In a similar vein, other approaches based on notions like Case sharing (cf. Pesetsky and Torrego 2007) and Case checking (cf. Hornstein et al. 2005) will not be considered.⁶ Instead, I follow another view of Case, whereby a DP is assigned Case within a specific syntactic position.⁷ Especially with Koopman (1992), I propose that in Jula Case assignment involves a Spec to Spec movement, i.e., a movement from a [-Case] to a [+Case] position.

5.5.2 Koopman on Bambara

Koopman (1992) proposed for the Manding language Bambara a principle of Case assignment that incorporates the following insights.

- (i) Movement feeds Case: A DP that needs Case must move from a [-Case] to a [+Case] position.
- (ii) Functional and lexical heads assign Case leftward, i.e., in their specifier position [SpecX].
- (iii) Case assigners are I-elements for nominative Case, (transitive) verbs for accusative Case, and adpositional heads (P-heads) for oblique Case.

The derivation in (39b) illustrates the implementation of Koopman’s proposal for the sentence in (39a).

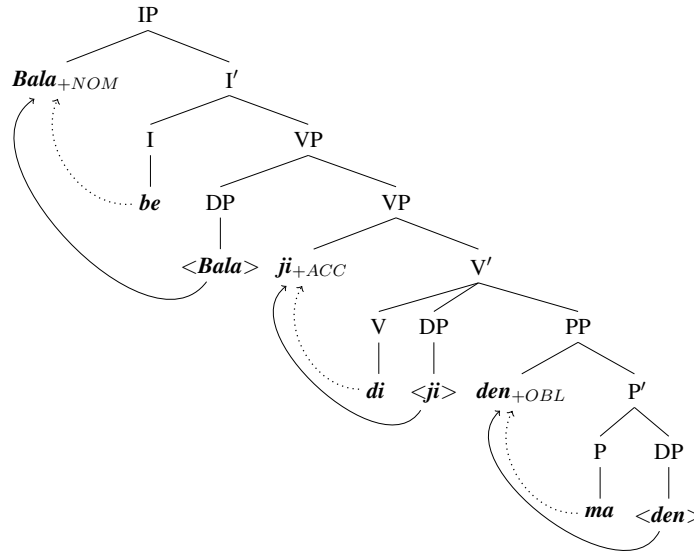
⁶Like the Case valuation approach, these two approaches consider the DP argument to bear inherent Case specifications.

⁷See Zushi (2016) and Kasai (2018) for a similar approach on Japanese.

(39) Based on Koopman (1992, ex.2, p.558)

- a. Bala be ji di den ma
 Bala HAB water give child PostP
 ‘Bala gives water to the child.’

b.



Starting from the bottom up: within the PP, the DP moves from the complement position to SpecP to obtain oblique Case. Similarly, the object complement of the verb *di* ‘give’, i.e., *ji* ‘water’, moves to SpecV to obtain accusative Case. Finally, assuming a VP-internal subject Hypothesis, the DP moves from its position within the VP to SpecI such that nominative Case can be assigned to it.

In its spirit, Koopmann’s proposal has definite merit concerning two aspects. First, it presents a unified and straightforward principle of Case assignment that involves only one mechanism: Case is uniformly assigned in SpecX via movement. The second advantage of Koopman’s proposal is that it allows explaining naturally the word-order asymmetry known of Manding languages. For example, Jula (also Bambara and other Manding languages) exhibits both head-initial and head-final word-order patterns (see Creissels 2005, Creissels 2007, Schreiber 2011, Vydrin 2018, i.a.). Functional heads like complementizers and I-elements precede their complement, while lexical heads like verbs and adpositional heads follow their complement. That is sketched below in (40a) and (40b), respectively.

(40) a. Head initial

- (i) CP → C – IP
- (ii) IP → I – VP

b. Head final

- (i) VP → DP – V
- (ii) PP → DP – P

If one follows Koopman (1992), a clear picture arises from (40): only heads that assign Case to their complements follow the latter. (40a)-(i) obtains because complementizers do not assign Case, nor does their IP complement need Case. In the same spirit, VPs are

not assigned Case by I; the consequence is the I - VP sequence in (40a)-(ii). Reversely, since V assigns accusative Case to its object complement, the latter has to move to the left (SpecV) and thus yields the DP - V (hence OV) sequence (40b)-(i). Finally, a postpositional DP obtains oblique Case from the adpositional head following it, and in this way, the sequence DP - P in (40b)-(ii) is a consequence of DP movement to SpecP.

To be sure, Koopman's (1992) Case assignment principle correctly predicts the word-order pattern not only for Bambara but for Manding languages in general. Therefore, I adopt the same principle to account for the position of correlate regarding their relating complement clauses in Jula.

5.6 Application of the analysis

Having laid out the main ingredients of the analysis in (5.4) and (5.5), we are now able to derive the structure of infinitival complementation in Jula. We start with infinitival clauses that occur with correlates.

5.6.1 Infinitival clauses with correlates

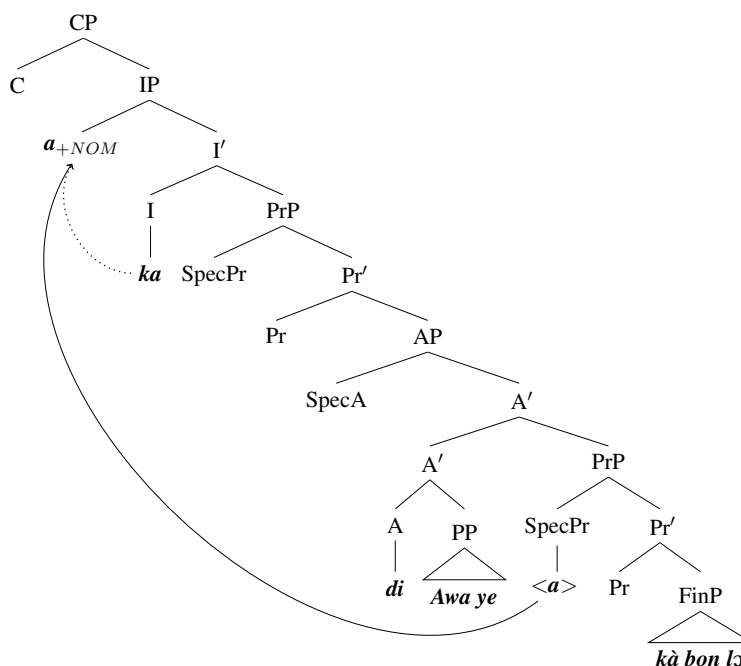
For the subject infinitival clause in (41a), the derivation will be as in (41b).

(41) subject infinitival clause

a. Sentence

a ka di Awa ye [*kà bon lɔ*]
 3SG COP good Awa Post PINF house build
 'It pleases Awa to build houses.'

b. Derivation



As shown by the tree in (41b), the sentence in (41a) does not contain a lexical verb. Thus, a predication projection is added between IP and AP, in line with Bowers (1993). The

predication phrase containing the infinitival clause is merged as a second complement within AP. There, the infinitival clause's content is predicated of the correlate *a*, which then moves from SpecPr to SpecI to obtain nominative Case.⁸ The result is the sentence in (41a), in which the correlate and the infinitival surface in two different positions, even though they are related to each other.

The syntactic derivation with an oblique infinitival clause happens similarly, as illustrated in (42).

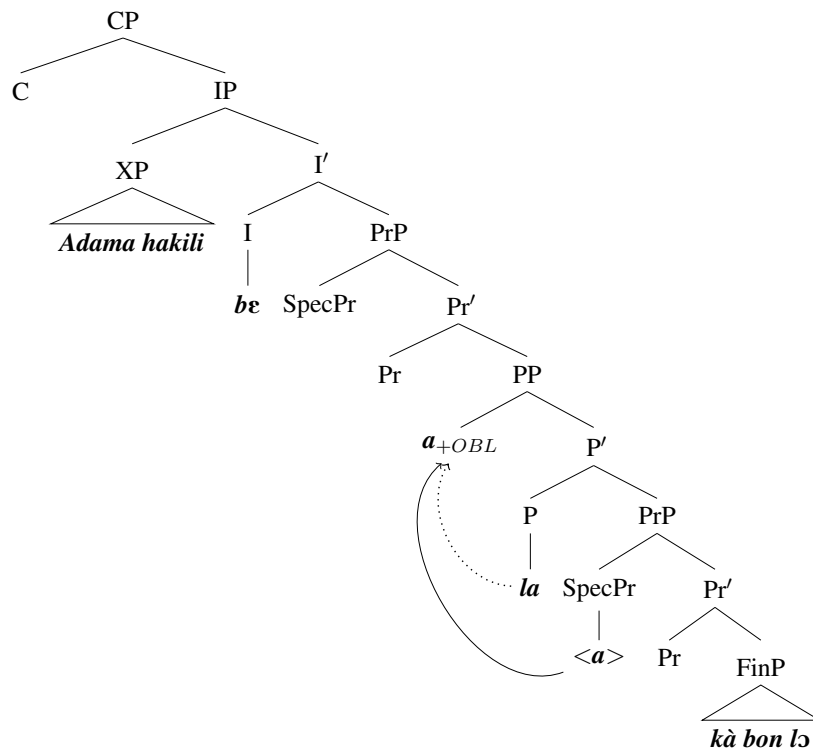
(42) oblique infinitival clause

a. Sentence

Awa hakili be a la [kà bon lɔ]
 Awa.POSS mind COP 3SG PostP INF house build

'Awa hopes to build a house.'

b. Derivation



Here, in (42b), the (lowest) predication projection containing the infinitival clause and the correlate is merged as the complement of the adpositional head P. After the content of the infinitival clause is ascribed to the correlate, the latter moves to SpecP to obtain oblique Case. The result is again a sentence like the one in (42a), where the correlate and the infinitival surface in two different positions, despite their mutual relationship.

Overall, the movement of the correlate permits integrating, i.e., embedding, the (content of) the infinitival clause within the predication of the matrix clause. The result of that integration is complementation, i.e., "the situation that arises when a notional sentence or predication is an argument of a predicate" (Noonan 2007, p. 52). In our

⁸In this case, appealing to the EPP principle (cf. Chomsky 1982) will be redundant. Also, if one assumes that movement abides by Cyclicity (cf. Chomsky 1993), SpecA and the highest SpecPr could be intermediate landing positions for the correlate. Nevertheless, in these positions, Case is not assigned so that the correlate will obligatorily end up in SpecI.

analysis, the correlate and the infinitival clause constitute two discontinuous parts of the predication argument. We also correctly predict the referential property of the correlate: since via predication, the correlate *a* is valued, thus identified, with the content of the infinitival clause, it follows that it cannot have any anaphoric reference (see discussion in 3.3.1, 5.2.2 and 5.4.2).

Next, I argue that infinitival clauses that do not co-occur with correlates should be analyzed similarly to those that do.

5.6.2 Infinitival clauses without correlates

Under the approach we are adopting, the crucial question is why correlates are not realized within the following two sentences.

- (43) a. oblique object infinitival

Awa sɔn-na [kà *bon* lɔ]
 Awa accept-PFV INF house build

‘Awa accepted/agreed to build a house.’

- b. oblique predicative infinitival

Awa ka kan [kà *bon* lɔ]
 Awa COP equal INF house build

‘Awa should / deserves to build a house.’

I propose that the absence of the correlate is due to the following principle.

- (44) **Condition on overt SpecX**

Only the specifier position of an overt Case assigning head can be realized overtly. Thus, a DP occupying the specifier position of a covert Case assigning head remains unrealized at the surface.

Evidence that the condition in (44) is active in Jula syntax comes first from the realization of subject arguments. Any sentence in Jula must contain an overt subject unless it does not contain an overt I-head. As we have seen above, the I-head of infinitival clauses cannot be overtly realized. Thus, the subject cannot be realized either (cf. 3.4.2). We observe similar facts in imperative clauses (45).⁹

- (45) a. imperative singular (2.Person)

(*i) (*ká) taga lakɔli la !
 2SG IMP go school Postp

‘Go to school!’

- b. imperative plural (2.Person)

*(á) *(ká) taga lakɔli la !
 2PL IMP go school Postp

‘Go to school!’

⁹Consider also the example (4a) in 4.2.

With second-person singular, the subject cannot be realized because overt TAM-marking, i.e., an I-head, is impossible (45a). By contrast, with second-person plural, the subject position cannot remain covert because the TAM-marking cannot be covert (45b). In a similar vein, note that the subject correlates relating to a finite complement *ko*-clauses can undergo optional deletion; but only if the I-head, the copula *bε* is deleted too. Consider (46a) and (46b).

- (46) a. *(a) *bε* Adama hakili la [ko Awa ye mɔbili san]
 3SG COP Adama mind PostP COMP Awa PFV car buy
 ‘Adama thinks/believes that Awa bought a car.’
 b. (a *bε*) Adama hakili la [ko Awa ye mɔbili san]
 3SG COP Adama mind PostP COMP Awa PFV car buy
 ‘Adama thinks/believes that Awa bought a car.’

Verbs provide the second piece of evidence for the condition in (44). The object position of Case assigning verbs, SpecV, can never be dropped. The main reason is that verbs typically cannot be dropped. The sentences in (47) illustrate that for object correlates relating finite *ko*-clauses.

- (47) a. Adama be *(a) (*lɔn*) [ko Awa ye mɔbili san]
 Adama HAB 3SG know COMP Awa PFV car buy
 Int. ‘Adama knows that Awa bought a car.’
 b. Adama be *a* *(*lɔn*) [ko Awa ye mɔbili san]
 Adama HAB 3SG know COMP Awa PFV car buy
 Int. ‘Adama knows that Awa bought a car.’

Finally, as for oblique arguments, they are licensed only if the adpositional head is overt. This explains the obligatory presence of the correlate with the infinitival clause in (48).

- (48) Awa hakili be *(a) *(la) [*kà bon lɔ*]
 Awa.POSS mind COP 3SG PostP INF house build
 ‘Awa hopes to build a house.’

Relatedly, since the oblique infinitival clause in (49a), hence (43a), is in complementary distribution with an oblique nominal argument (49b), the absence of the correlate is necessarily due to the non-realization of the adpositional head *ma*.

- (49) a. oblique object infinitival
 Awa sɔn-na [*kà bon lɔ*]
 Awa accept-PFV INF house build
 ‘Awa accepted/agreed to build a house.’
 b. oblique object nominal
 Awa sɔn-na wari *ma*
 Awa accept-PFV money PostP
 ‘Awa accepted the money.’

The same reasoning applies in the case of (50), which involves the bi-partite adpositional head, *ni...ye*.

- (50) a. oblique predicative infinitival

Awa ka kan [kà *bon* lɔ]
 Awa COP equal INF house build

‘Awa should / deserves to build a house.’

- b. oblique predicative nominal

Awa ka kan *ni* saya *ye*
 Awa COP equal with death PostP

‘Awa should / deserves to die.’

In sum, in (49a), hence (43a) and (50b), hence (43b), the correlates would have been realized if the respective adpositional heads were realized. Since they are not, the correlate must remain covert. Interestingly, the following examples from Bambara show that, in these environments, the correlates naturally occur whenever these adpositional heads are realized.

- (51) Examples from the "Corpus de Reference du Bambara (CRB)"¹⁰

- a. bæ sɔn-na *a ma* [ka i yɛɛ bila yɛɛtanga bolo kan]
 everyone accept-PFV 3SG PostP INF 2SG SELF let self-protection hand PostP
 ‘Everyone decided to protect themselves.’
- b. gantinɛmɛ dɔ-w tun ka kan *ni a ye* [ka kɔn aw jɛ]
 fetich some-PL PAST COP equal with 3SG PostP INF precede 2PL PostP
 ‘Some fetiches should have preceded us.’

As the examples above show, the Bambara equivalent of (49a) and (50a), the P-elements *ma* (51a) and *ni...ye* (51b) are realized within the matrix clause. Consequently, the matrix clauses contain the correlate *a*, which relates to the infinitival clause to the right. Thus, these examples further validate the generalization in (44), namely, that the realization of the correlate depends on the realization of the Case assigning head.¹¹

Against the above, the derivation of the infinitival clauses without correlates would proceed as in (52) and (53), starting with the oblique object infinitival clause.

¹⁰Glossing and translations are mine. The example in (51a) is available under: <https://bit.ly/33GPLcx> (line 6), and (51b) under: <https://bit.ly/3ikVtVo>

¹¹The realization of the head itself depends on various factors, however. The head category seems to play a role: Case assigning V cannot be omitted, while the omission of I or P is construction-dependent. It also seems that head omission is subject to dialectal variations among Manding languages. I take it also as plausible that even in Jula, idiolectal variations may exist. Nevertheless, my consultants nor I do have the Bambara examples in (51) in our grammar.

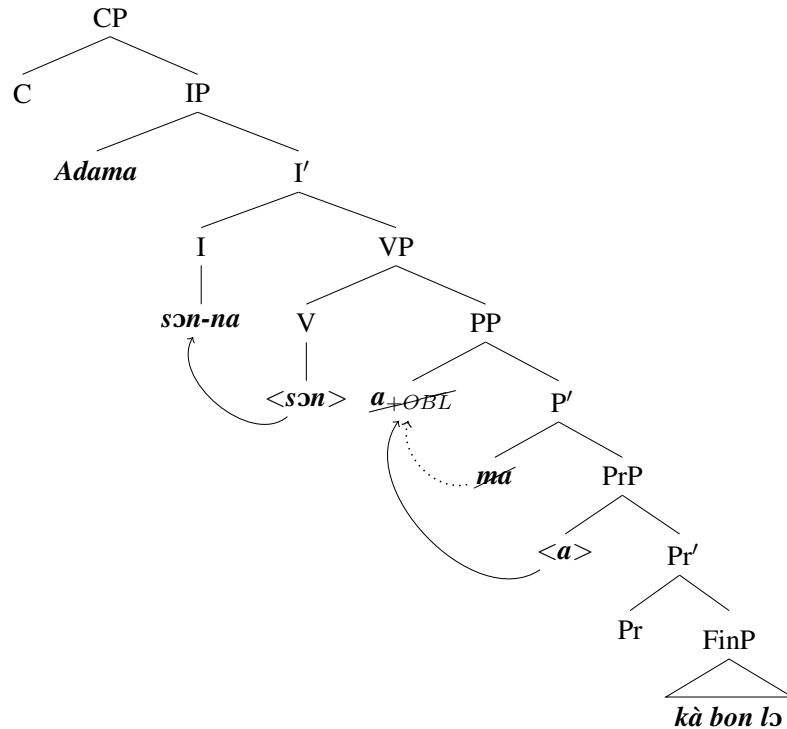
(52) oblique object infinitival

a. Sentence

Awa sɔn-na [kà bon lɔ]
 Awa accept-PFV INF house build

‘Awa accepted/agreed to build a house.’

b. Derivation



In (52b), the matrix clause contains the intransitive verb *sɔn* ‘accept’, which is associated with the perfective marker *-na* at I, following Koopman (1992). Below, like for (42b) before, the predication phrase containing the infinitival clause and the correlate merged in the complement position of the P head *ma*. Then, the correlate *a*, as usual, moves to SpecP where it obtains oblique Case. In this way, the infinitival clause is integrated within the matrix clause. A later deletion of the P head *ma* causes the deletion of the correlate in SpecP, in line with (44). The result is the sentence in (52a), where the infinitival clause surfaces without the relating correlate.¹²

The derivation of the oblique predicative infinitival clause takes the same route. The difference to (52b) above is structural: first, (53b) contains a predication phrase between IP and AP (like in 41b above). Second, the PP is complex. Here, building on Broekhuis and den Dikken’s (2018, p. 3) analysis of complex PPs in Dutch, I consider the P element *ni* to be a modifier of the PP headed by *ye*.¹³

¹²As pointed out to me by Hole (pc) one could, instead of a latter deletion of the head together with the specifier position, assume that they just never get spelled out phonologically.

¹³Typically, the distribution of modifiers dependent on the presence of a licensing head. As the minimal pair below shows, the presence of *ni* depends on *ye* (1a), which can be used independently of *ni* (1b). The point is, unlike *ye*, *ni* never heads a PP alone.

- (1) a. Awa be baara kɛ *ni* Adama *(*ye*)
 Awa HAB work do with Adama PostP
 Int. ‘Awa works with Adama.’

(53) oblique predicative infinitival

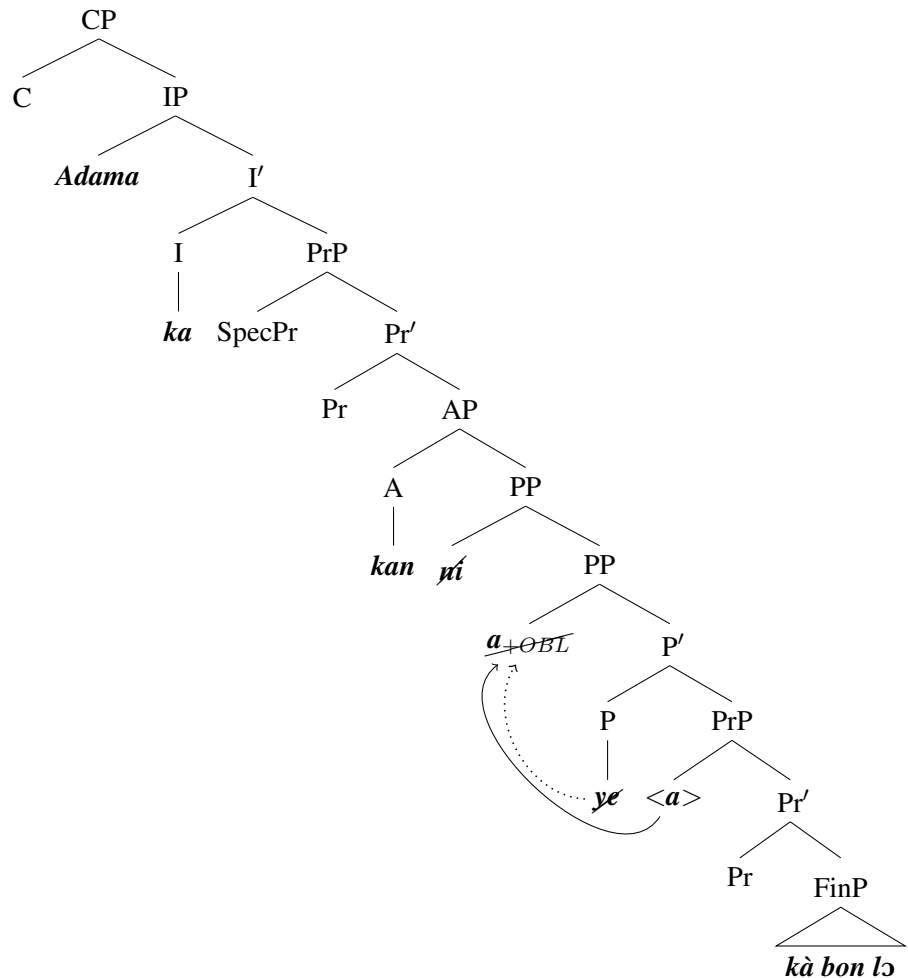
a. Sentence

Awa ka kan [kà bon lɔ]

Awa COP equal INF house build

‘Awa should / deserves to build a house.’

b. Derivation



In (53b), the predication phrase containing the infinitival clause and the correlate merge in the complement position of the P head *ye*. Then the correlate *a* moves to SpecP where it obtains oblique Case. In this way, the infinitival clause is integrated within the matrix clause. A latter deletion of the P head *ye*, together with the modifying P *ni*, induces the deletion of the correlate in SpecP, in line with (44). The result is the sentence in (53a), where the infinitival clause surfaces without the relating correlate.

b. Awa be baara ke (**ni*) Adama *(*ye*)
 Awa HAB work do with Adama PostP
 Int. ‘Awa works for Adama.’

5.7 Some consequences

Overall, the proposed analysis, in addition to being economical, fits readily within Jula's grammatical system. As far as I can see, it also comes with at least two theoretical implications. First, it supports the observation that complement clauses can be base-generated in a non-argument position (Postal and Pullum 1988, Haider 1995, Moulton 2009, Frey 2016, i.a.), and accordingly, that their position does not result from movement out of the matrix clause, aka extraposition (Culicover and Rochemont 1990, Schwabe 2013, i.a.). Second, by treating the relation between the correlate and complement clause as a case of predication, the analysis, in some way, contrasts with approaches that view complement clauses as complements to nominal heads or treat them on a par with relative clauses (cf. Aboh 2005, Arsenijević 2009, Kayne 2014, i.a.). I will discuss and challenge the insight of such approaches in the chapter on *ko*-clause complementation (cf. Chapter 7, section 7.4). For the time being, we can see below that our analysis correctly predicts that complement clauses in Jula are not involved in any noun-complement/modifier relations.

(54) No infinitival relative in Jula

- a. The book [**to be read**] is on the table. (based on Bhatt 1999, ex.3b, p.9)
- b. *livuru [**kà kalan**] be tabali kan
book INF read COP table PostP
Int. 'The book to be read is on the table'
- c. livuru [**min ka kan kà kalan**] be tabali kan
book REL COP equal INF read COP table PostP
'The book to be read is on the table'
Lit. 'The book which is to be read is on the table'
- d. livuru [**kalan-ta**] be tabali kan
book read-PCTP COP table PostP
'The book to be read is on the table.'

The examples above show that an equivalent of the English infinitival relative in (54a) cannot be rendered in Jula with an infinitival clause construction (54b). Instead, either a genuine relative clause construction will be used as in (54c), or a construction involving the potential/future participle suffix *-ta* (see section 2.7, fn.6). Interestingly, a similar observation can be made for complement *ko*-clauses, which I will discuss starting from Chapter 7. Thus, unlike an English *that*-clause (see the translations below), a *ko*-clause is never associated with nominals (55).

- (55) a. *Awa be **kó** lɔn [ko Adama ye bon lɔ]
Awa HAB fact know COMP Adama PFV house build
Int. 'Awa knows the fact that Adama has built a house.'
- b. ***junujunukan** [ko Adama ye bon lɔ]
rumor COMP Adama PFV house build
Int. 'The rumor that Adama has built a house.'

Thus, as can be seen, in terms of empirical coverage, the analysis elaborated for infinitival complement clauses makes correct predictions about complement *ko*-clauses too. For this reason, I adopt the same analysis for the derivation of *ko*-clause complementation in chapter 9, section 9.6.5. Before that, let us summarize the main points of the chapter.

5.8 Conclusion

This chapter has attempted a unified syntactic derivation for two types of infinitival complement clauses: (i) the complement clauses associated with a correlate, (ii) the complement clauses without a correlate. Using two mechanisms: predication (cf. Bowers 1993, Den Dikken 2006, Citko 2011) and Case assignment à la Koopman (1992), I have proposed that despite their difference at the surface, the two constructions are derived from the same underlying structure. In practice, considering the general syntagmatic properties of the pronominal form *a*, I have suggested treating the relation between the correlate and the infinitival complement clause (FinP) as an instance of predication. In that sense, they are both base-generated within a predication phrase to the right of the matrix clause. The occurrence of the correlate within the matrix clause results from a Spec to Spec movement triggered by Case assignment, in accord with the SOV word order of the language. The correlate moves from the specifier position of its hosting predication phrase to either the SpecP, SpecV or SpecI within the matrix clause, where it obtains oblique, object and nominative Case, respectively. The absence of correlate with some infinitival complement clauses is due to a principle active in Jula grammar, according to which the specifier position of a covert Case assigning head must remain covert.

As we know already from the sections 3.4.2 and 3.6, another element that must remain covert in Jula infinitival clauses is the null subject PRO. In what follows, we consider the issue concerning its interpretation, known under the phenomenon of control.

Chapter 6

The interpretation of the infinitival subject

6.1 Introduction

In section 3.6 of chapter 3, we have argued for a null subject within Jula infinitival clauses, which, following standard practice, we labeled PRO. In this chapter, we are concerned with the latter's interpretation, known under the phenomenon of control.

In general, control can be defined as a referential dependency relation between “two arguments, one of which is obligatorily unpronounced. The overt argument, known as the controller, determines, or “controls,” the [referential] interpretation of the unpronounced one, the controllee” (Potsdam and Haddad 2017, p. 1).¹ Thus, within infinitival complementation sentences, PRO is controlled by an argument of the matrix clause, as illustrated with the English sentences in (1).

- (1) a. John_i wants [PRO_i to quit his_i job] subject control
b. John_i asked Mary_j [PRO_{*i/j} to quit her_j job] object control

The control relation instantiated in (1a) is referred to as subject control since here PRO obtains its reference from the matrix clause subject argument *John*. Correspondingly, (1b) involves object control, whereby the matrix clause object argument, *Mary*, determines the reference of PRO.

Jula also exhibits similar patterns of control. Like in the English examples, in (2a) PRO is controlled by the subject argument *Awa*, and in (2b) by the object argument *Adama*.

¹A similar definition is found in Bresnan (1982, p. 372): “The term control is used to refer to a relation of referential dependency between an unexpressed subject (the controlled element) and an expressed or unexpressed constituent (the controller). The referential properties of the controlled element...are determined by those of the controller.”

(2) a. Subject control

Awa_i bɛ a fɛ [kà PRO_i bon lɔ]
Awa COP 3SG at INF PRO house build

‘Awa_i wants PRO_i to build a house.’

b. Object control

Awa_i ye **Adama_j** karaba [kà PRO_{*i/j} bon lɔ]
Awa PFV Adama force INF PRO house build

‘Awa_i forced Adama_j PRO_{*i/j} to build a house.’

The present chapter’s goal is to characterize the control relation between PRO and its controller in Jula infinitival complementation. In the spirit of the literature on control (cf. Farkas 1988, Park 2011, Landau 2000, 2013, Kiss 2015, Potsdam and Haddad 2017), I will aim at answering the following questions:

(3) The controllee PRO

- a. Distribution: why is PRO obligatorily a null subject?
- b. What is the grammatical/categorial status of PRO?
- c. How is PRO interpreted?

(4) The controller

- a. What are the characteristics of the controller?
- b. How is the controller determined/chosen?

(5) The control relation

- a. What is the nature of the control relation: obligatory control (OC) or non-obligatory control (NOC)?
- b. How does the control relation come about, i.e., which mechanism(s) of the language is/are responsible for the referential dependency between PRO and its controller?

As the chapter proceeds, these questions will be addressed in the following order: I begin in section 6.2 by answering the first two questions, i.e., (3a) and (3b). Then comes the section 6.3, which deals with descriptive aspects of control in Jula concerning the controller and the readings of PRO (cf. questions 4a and 3c). Section 6.4 deals with the nature of the control relation, i.e., the question (5a). Using standard diagnostics found in the literature, I show that control in Jula infinitival clauses constructions typically instantiates obligatory control (OC). By answering the question (5b), I propose in section 6.5 that in Jula, control is achieved via binding. Finally, I close the chapter by addressing in section 6.6 the challenging issues raised by the question (4b), followed by a summary of the chapter in 6.7.

6.2 PRO in Jula: its distribution and categorial status

This section addresses the first question: (3a) Why is PRO obligatorily a null subject? (3b) What is its grammatical/categorial status?

6.2.1 The distribution of PRO

From the first description of the control phenomenon until recent days, the obligatory nullness and subjecthood of PRO have been central issues for control theories. My purpose here is not to review the large body of literature on these issues.² Instead, I illustrate how the nullness and subjecthood of PRO are explained, given what we have claimed so far about the grammar system of Jula.

Starting with the nullness property, note that, as discussed earlier in section 5.6.2, PRO is not the only element in Jula that lacks a phonological realization. We have seen that the subject in second-person imperative clauses and some correlates are also null. We have proposed that this is imputable to the principle repeated in (6) and exemplified in (7).

(6) **Condition on overt SpecX**

Only the specifier position of an overt Case assigning head can be realized overtly. Thus, a DP occupying the specifier position of a covert Case assigning head remains unrealized at the surface.

- (7) a. (*i) (*ká) taga lakɔli la !
2SG IMP go school Postp
'Go to school!'
- b. (a bɛ) Adama hakili la [ko Awa ye mɔbili san]
3SG COP Adama mind PostP COMP Awa PFV car buy
'Adama thinks/believes that Awa bought a car.'

Thus, according to (6), in (7a), the subject position must remain null because the I-head must remain null. In the same vein, in (7b) without the I-head, i.e., the copula *bɛ*, the subject correlate cannot be realized overtly, too. Following the same principle, the nullness of PRO follows: it results from the impossibility of having an overt I-head in Jula infinitival clauses, i.e., from the lack of finiteness marking. In other words, PRO is null because of the nullness of the head that assigns Case to it. In this respect, I follow Landau (2004, 2006, 2008), against a null Case theory defended in Chomsky and Lasnik (1993) or Martin (2001), by claiming that PRO receives a nominative Case like any subject DP in Jula. This claim is not too far-fetched, as we assume a positional-based approach of Case assignment for Jula (cf. Koopman 1992, Kibort 2008), unlike a morphological-based one. Also, cross-linguistically evidence from languages such as Icelandic, Hindi, and Latin, indicates that PRO is sensitive to Case morphology (cf. Grano 2015, p. 37).

Similar to the nullness property, the obligatory subjecthood of PRO has a straightforward explanation in Jula. Since the nullness of a Case-assigning head leads to the nullness of the related specifier position, PRO is predicted to be found only in the subject position because, in Jula infinitival clauses, the only Case-assigning head that remains null is the I-head. Indeed, PRO could never have been an object DP since the V head in Jula is never null (8a), and consequently, object DPs in SpecV position can never be null (8b).

²For an overview and critical review, I refer the reader to Landau (2013, chapter 4), Grano (2015, Section 2.7.5.)

- (8) a. Adama ye bon *(lɔ)
 Adamaa PFV house build
 ‘Adama built a house.’
 b. Adama ye *(bon) lɔ
 Adamaa PFV house build
 ‘Adama built a house.’

To the extent that our reflection is correct, the obligatory nullness and subjecthood of PRO in Jula thus abide by the language’s general principle that regulates the distribution of null elements. PRO is a null subject because the subject licensing I-head within infinitival clauses must remain null. This may be taken as an answer to the question in (3a).

6.2.2 The categorial status of PRO

In its referential behavior, PRO in Jula is more like a pronominal anaphor than a reflexive anaphor. Reflexives in Jula require local, i.e., clause-internal antecedents. Pronouns, however, do not. Consider the contrast in (9).

- (9) a. Reflexive
 Adama_i be a lɔn [_{CP} ko Awa_j ye [a yɛrɛ]_{*/i/j} yee].
 Adama HAB 3SG know COMP Awa PFV 3SG SELF see
 ‘Adama knows that Awa has seen *him_i/herself_j.’
 b. Pronoun
 Adama_i be a lɔn [_{CP} ko Awa_j ye a_{i/*j} yee].
 Adama HAB 3SG know COMP Awa PFV 3SG see
 ‘Adama knows that Awa has seen him_i/*herself_j.’

The sentences in (9) are instances of *ko*-clause complementation, which is the topic of Part III. The crucial point lies in the contrast between the third-person pronoun *a* and the reflexive *a yɛrɛ* in their ability to take an antecedent outside their hosting clause (e.g., CP). Specifically, a clause-external antecedent is only available for the pronoun (9b) and not for the reflexive (9a).

Now, on the basis that infinitival complementation in Jula involves a bi-clausal structure (cf. Chapter 5), the referential dependency relation between PRO and its controller in (2), repeated below as (10), is reminiscent of what happens in (9b) with the pronoun *a*: the antecedent of PRO is outside its (PRO’s) hosting clause.

- (10) a. Subject control
 Awa_i bɛ a fɛ [kà PRO_i bon lɔ]
 Awa COP 3SG at INF PRO house build
 ‘Awa_i wants PRO_i to build a house.’
 b. Object control
 Awa_i ye Adama_j karaba [kà PRO_{*/i/j} bon lɔ]
 Awa PFV Adama force INF PRO house build
 ‘Awa_i forced Adama_j PRO_{*/i/j} to build a house.’

Besides, the example in (10b), contains another essential aspect suggesting that PRO is more akin to pronouns than reflexives: here, the antecedent of PRO is an object argument. Interestingly, as can be seen below, only pronouns may take object arguments as their antecedent (11a). Reflexives never do so (11b).³

(11) a. Pronoun

Adama_i ye den_j la **a**_{i/j} kɔnɔ kan
 Adama PFV child lay 3.POSS belly PostP

‘Adama_i laid [the child]_j on his_{i/j} belly.’

b. Reflexive

Adama_i ye den_j la [**a yɛrɛ**]_{i/*j} kɔnɔ kan
 Adama PFV child lay 3.SG SELF belly PostP

‘Adama_i laid [the child]_j on his_{i/*j} belly.’

I conclude from this that PRO is a pronoun and not a reflexive. There exists, however, a crucial difference between a typical pronoun and PRO. Unlike the latter, PRO lacks person and number features. Therefore, its interpretation is much less constrained.

It is an old observation that, universally, pronouns bear person and number features that restrict the range of their possible antecedents. Thus, a pronoun like *a*, being specified as [3.SG], can only refer to singular third-person referents. For this reason, first and second-person singular and third-person plural antecedents are impossible, as shown in (12).

(12) a. First-person singular antecedent

n_i nana yan. Awa_j ye **a**_{*i/*j/k} yee.
 1SG come-PFV here Awa PFV 3SG see

‘I came here. Awa has seen *me/*herself_j/him_k.’

b. second-person singular antecedent

i_i na-na yan. Awa_j ye **a**_{*i/*j/k} yee.
 2SG come-PFV here Awa PFV 3SG see

‘You came here. Awa has seen *you/*herself_j/him_k.’

c. Third-person plural antecedent

Den-w_i na-na yan. Awa_j ye **a**_{*i/*j/k} yee.
 child-PL come-PFV here Awa PFV 3.SG see

‘Children came here. Awa has seen *them_i/*herself_j/him_k.’

By contrast, we can observe from (13) that PRO may refer to any antecedent, irrespective of its person and number features.

³A similar argument has already been made earlier in Chapter 3, section 3.6.2.

- (13) a. First-person singular antecedent
- n_i** bε a fε [kà PRO_i bon lɔ]
 1SG COP 3SG at INF PRO house build
 ‘I_i want PRO_i to build a house.’
- b. Second-person singular antecedent
- i_i** bε a fε [kà PRO_i bon lɔ]
 2SG COP 3SG at INF PRO house build
 ‘You_i want PRO_i to build a house.’
- c. Third-person plural antecedent
- Den-w_i** bε a fε [kà PRO_i bon lɔ]
 child-PL COP 3SG at INF PRO house build
 ‘The children_i want PRO_i to build a house.’

Also, as shown below, even non-referential antecedents, such as quantifier DPs, are possible.

- (14) a. Subject control
- Bεε_i** bε a fε [kà PRO_i bon lɔ]
 every COP 3SG at INF PRO house build
 ‘Everyone_i wants PRO_i to build a house.’
- b. Object control
- Awa_i ye [**den bεε**]_j karaba [kà PRO_{*i/j} bon lɔ]
 Awa PFV every child force INF PRO house build
 ‘Awa_i forced [every child]_j PRO_{*i/j} to build a house.’

I take these facts to suggest that PRO in Jula is an untypical type of pronoun. Specifically, I contend with Landau (2015) and Kratzer (2009) (also earlier Kratzer 1998) to assume that it is a minimal pronoun, i.e., a pronoun with no feature specification. Thus, I propose that PRO in Jula has the lexical entry in (15).

- (15) Lexical entry for PRO in Jula (cf. Landau 2015, ex. 28, p. 24)
 PRO = [DP, $u\phi$]⁴

This answers the question formulated in (3b) about the categorial status of PRO in Jula. I now turn to answer two other questions concerning aspects of the controller and the readings of PRO.

6.3 Control in Jula: first core aspects

This section is concerned with the questions in (4a) and (3c). We describe the first aspects of control in Jula by dealing in the first place with the properties of the controller and then with the interpretation of PRO.

⁴Like in Landau (2015), [$u\phi$] stands for unvalued ϕ -features. However, unlike Landau (2015), I consider PRO to be a DP and not a D-head, for I have shown good reasons not to treat pronouns in Jula on a par with D-elements (see 5.2.1, chapter 5).

6.3.1 The controller

Typically, control relations are defined by the controller's properties: grammatical function and distribution.

Considering the grammatical functions of the controller, we may distinguish three patterns of control in Jula: (i) subject control, (ii) object control and (ii) possessor control. In subject control constructions, the subject of the matrix clause is identified with the null subject PRO of the infinitival clause. Most of the control constructions in Jula involve subject control. Examples are given in (16).

- (16) Subject control
- a. **Awa_i** bε a fε [kà PRO_i bon lɔ]
 Awa COP 3SG at INF PRO house build
 'Awa_i wants PRO_i to build a house.'
 - b. **Awa_i** jinε-na [kà PRO_i bonda tugu]
 Awa forget-PFV INF PRO door close
 'Awa_i forgot PRO_i to close the door.'

In the case of object control, the controller can be a direct object or an oblique object. Direct object controllers are found only with mandative/manipulative predicates, as illustrated in (17a) and (17b). The only attested example that involves an oblique object controller is given in (17c).

- (17) a. Object control with direct object controller
- Awa_i ye **Adama_j** karaba [kà PRO_{*i/j} bon lɔ]
 Awa PFV Adama force INF PRO house build
 'Awa_i forced Adama_j PRO_{*i/j} to build a house.'
- b. Object control with direct object controller
- Fantaya_i ye **Adama_j** bali [kà PRO_{*i/j} bon lɔ]
 poverty PFV Adama prevent INF PRO house build
 'Poverty_i prevented Adama_j PRO_{*i/j} from building a house.'
- c. Object control with oblique object controller
- a ka di **Awa_i ye** [kà PRO_i bon lɔ]
 3SG COP good Awa PostP INF PRO house build
 'It pleases Awa_i PRO_i to build houses/a house.'

Finally, I call "possessor control" the control relation whereby the controller appears within a possessive phrase expressing an inalienable relationship, as the literal translations of (18a) and (18b) show.

- (18) a. a bε **Awa_i** kɔnɔ [kà PRO_i bon lɔ]
 3SG COP Awa.POSS belly INF PRO house build
 'Awa_i intends PRO_i to build a house.'
 lit. 'It is in Awa's belly to build a house.'
- b. **Awa_i** **hakili** bε a la [kà PRO_i bon lɔ]
 Awa.POSS mind COP 3SG PostP INF PRO house build
 'Awa_i hopes PRO_i to build a house.'
 lit. 'Awa's mind is on it to build a house.'

Concerning the distribution of the controller, other patterns of control, which have been discussed in the literature are (i) implicit control, (ii) control shift and (iii) variable control (cf. Stiebels 2007, Lyngfelt 2009, Landau 2013, Potsdam and Haddad 2017 and many others before). These patterns are not attested in Jula, as the following lines will show.

Implicit control refers to cases where the controller is syntactically not expressed. Examples of control with implicit arguments are given in (19).

- (19) a. Awa_i said [PRO_{*i/j} to postpone the party.]
 b. It was necessary [PRO_j to postpone the party.]

In (19a), the unexpressed addressee argument of the verb *say* (e.g., *to X*) is understood as the controller of PRO. In (19b), which illustrates an impersonal subject construction, the controller is an unexpressed benefactive argument, e.g., *for X*. Such implicit control patterns are not possible in Jula, neither with an impersonal subject construction (20) nor with any other control constructions (21).⁵

- (20) impersonal subject constructions

- a. Possessor control

a bε *(Awa_i kɔnɔ) [kà PRO_i bon lɔ]
 3SG COP Awa.POSS belly INF PRO house build
 ‘Awa_i intends PRO_i to build a house.’

- b. (oblique) object control

a ka di *(Awa_i ye) [kà PRO_i bon lɔ]
 3SG COP good Awa PostP INF PRO house build
 ‘It pleases Awa_i PRO_i to build houses/a house.’

- (21) Constructions with personal subjects

- a. subject control

*(Awa_i) bε a fε [kà PRO_i bon lɔ]
 Awa COP 3SG at INF PRO house build
 ‘Awa_i wants PRO_i to build a house.’

- b. (direct) object control

Awa_i ye *(Adama_j) karaba [kà PRO_{*i/j} bon lɔ]
 Awa PFV Adama force INF PRO house build
 ‘Awa_i forced Adama_j PRO_{*i/j} to build a house.’

⁵Note, impersonal subject constructions equivalent to English sentences in (19) are rendered in Jula by subject nominalization, as illustrated in (1).

- (1) a. foro baara ka gbɛɛ
 field working COP hard
 ‘It is difficult to work in a field / Field-working is hard.’

- b. (oblique) object control

den wolo ma nɔgɔ
 child birth COP.NEG easy
 ‘It is not easy to give birth to a child / Childbirth is not easy.’

The pairs of examples in (20) and (21) show that the omission of the controller in Jula is ungrammatical. In the face of this, the logical generalization is that controllers in Jula cannot remain implicit.

Both control shift and variable control occur with triadic predicates, i.e., predicates that have, in addition to the infinitival complement clause, a subject and an object argument. Control shift refers to the syntactic situation whereby the controller's identity shifts from the default to an unexpected argument of the matrix clause. For instance in English, a default subject control predicate like *promise* (22a) permits an object control reading in (22b), while a typical object control predicate like *ask* (23a), appears to express subject control in (23b).

- (22) a. Awa_i promised $Adama_j$ [PRO_i to invite him to the party.] (subject control)
 b. Awa_i promised $Adama_j$ [PRO_j to be invited to the party.] (object control)
- (23) a. Awa_i asked $Adama_j$ [PRO_j to leave the party.] (object control)
 b. Awa_i asked $Adama_j$ [PRO_i to be allowed to leave the party.] (subject control)

Control shift is generally triggered by a syntactic change within the "default structure" of the infinitival clause. Thus, with the predicate *promise*, the default controller is the subject *Awa* as in (22a). Due to passivization within the infinitival clause, as in (22b), the controller shifts to the object argument *Adama*. Similarly, with *ask*, in the default syntactic configuration, the object argument is the controller as in (23a). However, with the presence of the modal predicate *be allowed* in (23b), the subject becomes the controller.

Nevertheless, cases of control shift as exemplified in (22) and (23) are not attested in Jula. One probable reason is that in the language, predicates like *promise* and *ask* do not occur with an infinitival complement clause (24).

- (24) a. * Awa_i ye layidu ta $Adama_j$ ye [kà PRO_i bon lo]
 Awa PFV promise take $Adama$ to INF PRO house build
 Int. 'Awa_i promised Adama_j [PRO_i to build a house.]'
- b. * Awa_i ye a jini $Adama_j$ fe [kà PRO_j bon lo]
 Awa PFV 3SG look.for $Adama$ at INF PRO house build
 Int. 'Awa_i asked Adama_j [PRO_j to build a house.]'

We may add that even with triadic predicates passivization and the insertion of modals equivalent to English *be allowed* within the infinitival clause is impossible. Such sentence constructions are simply not available in Jula.⁶

Variable control is when a triadic predicate allows either a subject or an object control reading depending on the context, i.e., there is no preference for subject or object control. Accordingly, in the following English sentences in (25a) and (25b), either the subject *Awa* or the object *Adama* can be read as the controller of PRO.

- (25) a. Awa_i suggested to $Adama_j$ [$PRO_{i/j}$ to cancel the party.]
 b. Awa_i begged $Adama_j$ [$PRO_{i/j}$ to be invited to the party.]

Variable control is, however, impossible in Jula. Typically, triadic predicates in the language necessarily express object control, a subject control being entirely excluded.

⁶The absence of control shift in Jula is in no way surprising, for there exists evidence that control shift is subject to wide variation within and across languages (cf. Ržička 1983, Comrie 1985, Stiebels 2007, Landau 2013, Potsdam and Haddad 2017).

As a matter of fact, in none of the examples presented above in (17) is a control reading allowed, whereby PRO is controlled by the subject instead of the object argument. I conclude, therefore, that Jula does not exhibit variable control.

Having established the relevant characteristics of the controller in Jula, we turn to discuss the interpretation of PRO.

6.3.2 The interpretation of PRO in Jula

As a rule of thumb, a typical control relation in Jula involves strict identity between PRO and the controller, thus, exhaustive control. That means that the referential denotation of PRO fully matches that of the controller.

A consequence of this generalization is the absence of split control, i.e., a control reading where PRO is jointly controlled by two arguments of the matrix clause (cf. Landau 2000, 2001, 2013), as illustrated with examples from English, German, French, and Chinese 26).

- (26) a. English (cf. Landau 2013, p. 172)
 John_i proposed Mary_j [PRO_{i+j} to meet each other at 6].
- b. German (cf. Stiebels 2007, p. 5)
 Peter_i vereinbarte mit Maria_j [PRO_{i+j} am Abend (gemeinsam) ins Kino
 Peter agreed with Mary PRO at.the evening together in.the cinema
 zu gehen].
 to go.INF
 ‘Peter_i and Mary_j agreed on going [PRO_{i+j} to the cinema together].’
- c. French (cf. Landau 2013, p. 172)
 Pierre_i a promis à Jean_j [de PRO_{i+j} pouvoir partir].
 Pierre has promised to John of PRO to.be.able to.leave
 ‘Pierre_i promised John_j [PRO_{i+j} to be able to leave].’
- d. Chinese (cf. Stiebels 2007, p. 6)
 Dahua_i yue Xiaomei_j [PRO_{i+j} zai tushuguan kan shu].
 Dahua asked Xiaomei PRO at library see book
 ‘Dahua_i asked Xiaomei_j [PRO_{i+j} to study together with him at the library].’

In all the examples above, the matrix clause’s subject and object arguments jointly control PRO.

Now, of all control predicates in Jula, only *deme* ‘help’ seems at first glance to allow a reading similar to split control. For instance, the interpretation of the sentence in (27) may entail that the subject argument (i.e., the helper Awa), as well as the object argument, (i.e., the helpee Adama), is involved in the event/action of "house building".⁷

⁷This impression arises only when the infinitival clause contains predicates whose meaning implies complex situations that may involve more than one agentive participant, e.g., build. However, such an impression does not arise with other types of predicates, as shown in (1).

- (1) Awa_i ye Adama_j deme [kà PRO_{*i/j} taga faransi]
 Awa PFV Adama help INF PRO go France
 ‘Awa_i helped Adama_j [PRO_{*i/j} to go to France.]’

Pinson (2015) reports similar contrast with English *help*.

- (27) Awa_i ye Adama_j dɛmɛ [kà PRO_{i+j} bon lɔ]
 Awa PFV Adama help INF PRO house build
 ‘Awa_i helped Adama_j [PRO_{i+j} to build a house.]’

Nevertheless, what looks like split control appears to be a "pragmatic illusion". Semantically, in (27), PRO is not jointly controlled by the subject and the object argument, and accordingly, it does not have a plural interpretation. This is the reason why the infinitival clause cannot contain an expression like *ɲɔŋɔŋ fɛ* ‘together’ or a plural reflexive (28).

- (28) a. Awa ye Adama dɛmɛ [kà PRO bon lɔ *(ɲɔŋɔŋ fɛ)]
 Awa PFV Adama help INF PRO house build together
 Int. *‘Awa helped Adama [PRO to build a house together].’
 b. Awa ye Adama dɛmɛ [kà PRO bon lɔ *(o yɛrɛ) ye]
 Awa PFV Adama help INF PRO house build 3PL SELF Postp
 Int. *‘Awa helped Adama [PRO to build a house for themselves].’

If the two arguments of *dɛmɛ* ‘help’ were jointly controlling PRO, the latter should have a plural interpretation such that the expression *ɲɔŋɔŋ fɛ* ‘together’ (28a) and the plural reflexive (28b) get licensed. Since this is not the case, I conclude that split control is not available in Jula. As will be discussed next, another control reading absent in the language is partial control.

Partial control is a case of control relation that typically involves a non-exhaustive reading of PRO. Here, there exists no strict identity between the controller and PRO. Instead, the referent of the controller is properly included in the set of PRO’s referents. The following examples illustrate that.

- (29) Landau (2013, p. 157)
 a. The chair_i preferred [PRO_{i+} to gather at 6].
 b. It was humiliating to the chair_i [PRO_{i+} to disperse so abruptly].

In (29), PRO refers to singular DP, even though it is interpreted as semantically plural (cf. Landau 2013:161). Such a reading is favored by the presence of collective predicates within the infinitival clause, e.g., *meet* in (29a) and *disperse* in (29b). Nevertheless, according to Landau (2000, 2013), whether a partial control reading is possible or not depends on the semantics of the matrix predicate. Crucially, only factive (e.g., *be humiliating, hate, regret*), desiderative (e.g., *prefer, want, hope*), interrogative (e.g., *wonder, ask*), and propositional predicates (e.g., *believe, think, claim*) allow partial control readings. Reversely, implicative (e.g., *dare, manage, remember*), aspectual (e.g., *begin, start, continue*), modal (e.g., *have, need, should*), and evaluative predicates (e.g., *be rude, be silly, be kind*) do not allow partial control. (30a) illustrates this with the implicative predicate *manage*, and (30b) with the evaluative predicate *be rude*.

- (30) Landau (2013, p. 157)
 a. *John_i managed [PRO_{i+} to gather at 6].
 b. *It was rude of the chair_i [PRO_{i+} to disperse so abruptly].

Turning to Jula, we find that partial control is not available with any predicate that associates with infinitival clauses. That is true not only for the predicates that Landau describes not to allow partial control, but also for those he thinks do so. Representative examples are given below, with ‘want’ (desiderative) and ‘manage’ (implicative).

(31) *bε ... fε* ‘want’

- a. [Awa_i *(ni Adama)]_i bε a fε [kà PRO_i ɲɔŋɔn kunbɛn]
 Awa and Adama COP 3SG at INF PRO RECP meet
 ✗ ‘Awa_i wants PRO_i to meet.’
 ✓ ‘[Awa and Adama]_i want PRO_i to meet.’
- b. *jama_i / mɔgɔ-w_i bε a fε [kà PRO_i ɲɔŋɔn kunbɛn]
 people-PL COP 3SG at INF PRO RECP meet
 Int. ‘The People_i want PRO_i to meet.’

(32) *banba* ‘manage’

- a. [Awa_i *(ni Adama)]_i banba-la [kà PRO_i ɲɔŋɔn kunbɛn]
 Awa and Adam manage-PFV INF PRO RECP meet
 ✗ ‘Awa_i managed PRO_i to meet.’
 ✓ ‘[Awa and Adama]_i managed PRO_i to meet.’
- b. *jama_i / mɔgɔ-w_i banba-la [kà PRO_i ɲɔŋɔn kunbɛn]
 people / people-PL manage-PFV INF PRO RECP meet
 Int. ‘People_i managed PRO_i to meet.’

The collective predicate within the infinitival clause, *kunbɛn* ‘meet’, takes a comitative argument, the reciprocal DP *ɲɔŋɔn*, which cannot be omitted. For this reason, the controller of PRO must be a plural DP: either a DP coordination, e.g., *Awa* and *Adama* or a nominal with plural marking, e.g. *mɔgɔ-w* ‘people’. On the contrary, singular DPs, e.g. *Awa* or *jama*, which are allowed in case of partial control, are ungrammatical. There is, in this regard, no difference between the desiderative predicate *want* in (31) and the implicative *manage* in (32). Therefore, I conclude that partial control readings do not arise in Jula, independently of the semantic class of matrix predicate.

This confirms the generalization that only an exhaustive reading of PRO is available in Jula: the answer to the question (3c).

6.3.3 Interim summary

The results of the above discussion are summarized in the following table (33).

(33) Overview of the aspects of control in Jula

	Attested patterns	Non-attested patterns
Properties of the controller	<ul style="list-style-type: none"> ✓ Subject control ✓ Possessor control ✓ Object / oblique control 	<ul style="list-style-type: none"> ✗ implicit control ✗ control shift ✗ variable control
Interpretation of PRO	<ul style="list-style-type: none"> ✓ exhaustive control 	<ul style="list-style-type: none"> ✗ split control ✗ partial control ✗ arbitrary control

So in answering the question in (4a), we have seen that from the grammatical functions of the controller, we may distinguish three types of control relations in Jula: subject control, when the controller is a subject DP, object control in case it is either a direct or oblique object, and possessor control when the controller is a possessor DP. Concerning the controller’s distribution, we have shown that in Jula, the controller’s identity may

neither be left implicit nor does it shift or vary. Accordingly, we concluded that Julia does not exhibit implicit control, control shift, and variable control. We have answered the question formulated in (3c) by showing that PRO can only have an exhaustive reading, excluding patterns like split control, where PRO is controlled by two arguments of the matrix clause, and partial control, whereby PRO does not exhibit strict referential identity with its controller. Another pattern listed in the table that has not yet been discussed is arbitrary control. As I will show next, this pattern is not attested, since the control relation in Julia is a typical case of obligatory control.

6.4 Control in Julia is obligatory

What is the nature of the control relation in Julia? This question formulated in (5a) can be answered in two different ways, following standard practice in the literature on control: either it is a case of obligatory control (OC), or it has the properties of non-obligatory control (NOC). These are the two established types of control relations since Williams (1980). Arguably, OC and NOC can be teased apart according to the following set of criteria (34).

- (34) OC vs. NOC
- a. Arbitrary control is impossible in OC, but possible in NOC
 - b. Long-distant controllers are impossible in OC, but possible in NOC
 - c. Unlike in NOC, PRO in OC is interpreted as a bound variable
 - d. Non-c-commanding controllers are impossible in OC, but possible in NOC.
 - e. Only a *de se* reading of PRO is possible with OC, but not with NOC.

Nevertheless, I will adopt only the three first criteria (34a - 34c) to positively show that control in Julia exhibits obligatory control (OC): (i) arbitrary control is impossible, (ii) long-distant controllers are impossible, and (iii) PRO has a bound variable reading. This is true for both infinitival complement clause constructions (6.4.1) and for constructions involving non-complement clauses, such as purpose and consecutive clauses (6.4.2). By contrast, the two remaining criteria (34d and 34e) turn out to be less conclusive since, as discussed in 6.4.3, they bear on empirically incorrect predictions. In that respect, I take them to constitute negative evidence for the generalization that control in Julia exhibits OC.

6.4.1 Diagnosing OC in complement clauses

In what follows, I show that control constructions with infinitival complement clauses manifest properties characteristic of OC. The discussion is based on Landau (2013), Lyngfelt (2009), Potsdam and Haddad (2017), and references cited therein.

Arbitrary control is impossible

Arbitrary control is characterized by the fact that PRO lacks a specific controller and therefore takes on a generic or arbitrary interpretation. As evidence, in this case, PRO may be co-indexed with a generic reflexive like *oneself*. On this basis, the examples in (35) show that, while arbitrary control is impossible with OC, it is possible with NOC.

- (35) a. *Mary hates PRO_{arb} to perjure oneself_{arb}. (OC)
 b. It is allowed PRO_{arb} to perjure oneself_{arb}. (NOC)

With the OC construction in (35a), co-indexing PRO with the generic reflexive *oneself* is ungrammatical. The opposite holds for the NOC construction in (35b).

Just as in the English example (35a), arbitrary control is not possible with Jula infinitival complement clauses. The following examples in (36) are all ungrammatical, since PRO cannot be construed as co-referential with the generic reflexive *i yεε* ‘oneself’.

- (36) a. Subject control

*Awa_i bε a fε [kà PRO_{arb} [i yεε]_{arb} tando]
 Awa COP 3SG at INF PRO 2SG SELF praise

Int. ‘Awa_i wants PRO_{arb} to praise oneself.’

- b. Possessor control

*Awa_i **hakili** bε a la [kà PRO_{arb} [i yεε]_{arb} tando]
 Awa.POSS mind COP 3SG PostP INF PRO 2SG SELF praise

Int. ‘Awa_i hopes PRO_{arb} to praise oneself.’

- c. oblique control

*a ka di Awa_i ye [kà PRO_{arb} [i yεε]_{arb} tando]
 3SG COP good Awa PostP INF PRO 2SG SELF praise

Int. ‘It pleases Awa_i PRO_{arb} to praise oneself.’

- d. object control

*Awa_i ye **Adama_j** karaba [kà PRO_{arb} [i yεε]_{arb} tando]
 Awa PFV Adama force INF PRO 2SG SELF praise

Int. ‘Awa_i forced Adama_j PRO_{arb} to praise oneself.’

Long-distant controllers are impossible

In the case of OC, the controller must be in the clause immediately dominating the infinitival clause (cf. Manzini 1983, Bouchard 1982, Koster 1984, Lebeaux 1984, Hornstein 1999, 2000). Such a local restriction, however, does not hold for NOC. Thus, unlike in (37b), in (37a), the subject of the matrix clause, *Mary*, cannot be the controller of PRO.

- (37) a. *Mary_i believes that John hates PRO_i to perjure herself_i. (OC)
 b. Mary_i believes that it damaged John PRO_i to perjure herself_i. (NOC)

In Jula, control with complement clauses patterns with the English OC constructions in (37a). In none of the sentences below can the argument of the matrix clause, *Adama*, be the controller of PRO. Instead, PRO obligatorily refers to an argument of the clause immediately dominating the infinitival clause, i.e., *Awa*: encoded as subject in (38a), as possessor in (38b), as oblique object in (38c) and as direct object in (38d).

(38) a. Subject control

Adama_i jε na ko **Awa_j** bε a fε [kà PRO_{*i/j} bon lɔn]
Adama eye PostP COMP Awa COP 3SG at INF PRO house build

‘Adama_i believes that Awa_j wants PRO_{*i/j} to build a house.’

b. Possessor control

Adama_i jε na ko **Awa_j** hakili bε a la [kà PRO_{*i/j} bon
Adama eye PostP COMP Awa.POSS mind COP 3SG PostP INF PRO house
lɔ]
build

‘Adama_i believes that Awa_j hopes PRO_{*i/j} to build houses.’

c. oblique control

Adama_i jε na ko a ka di **Awa_j** ye [kà PRO_{*i/j} bon lɔ]
Adama eye PostP COMP 3SG COP good Awa PostP INF PRO house build

‘Adama_i believes that it pleases Awa_j PRO_{*i/j} to build houses.’

d. object control

Madu_i jε na ko Madu ye **Awa_j** karaba [kà PRO_{*i/j} bon lɔ]
Adama eye PostP COMP Madu PFV Awa force INF PRO house build

‘Adama_i believes that Madu forced Awa_j PRO_{*i/j} to build a house.’

This is evidence that long-distant controllers are impossible in Jula.

PRO has a bound variable reading

It has long been observed that referential dependencies may be interpreted either as a case of coreference or as variable binding (Sag 1976, Reinhart 1983a, Heim and Kratzer 1998, et seq.). One way of teasing apart these readings is to use the so-called *only-DP* test, i.e., by modifying the antecedent of the referentially dependent expression with the focus sensitive particle *only*. This results in the contrast in (39).

(39) Only John_i loves his_i wife.

a. **Strict**: No one but John loves John’s wife. (coreference)

b. **Sloppy**: No one but John loves their (no one’s) wife. (variable binding)

(39) has two readings: on the strict reading (39a), which is allowed under coreference, Peter is the only person who loves Peter’s wife, and other people do not love Peter’s wife. On the sloppy reading (39b), which indicates variable binding, Peter is the only person who loves his wife, and other people do not love their wives.

Now, the minimal pair in (40) shows that when PRO is associated with an *only-DP* controller within OC constructions, it exclusively has the sloppy/variable binding reading and not the strict/coreference one (40a). In NOC, the interpretation of PRO is ambiguous between strict/coreference and sloppy/variable binding (40b).

- (40) a. Only Peter_i expected PRO_i to win the race. (OC)
 ✗ **Strict**: No one but Peter expected that Peter wins the race. (coreference)
 ✓ **Sloppy**: No one but Peter expected that they (no one) win the race. (variable binding)
- b. Only Peter_i expected that PRO_i winning the race would please Mary. (NOC)
 ✓ **Strict**: No one but Peter expected that Peter's winning of the race would please Mary. (coreference)
 ✓ **Sloppy**: No one but Peter expected that their (no one's) winning of the race would please Mary. (variable binding)

Thus, the generalization is: unlike in NOC, PRO in OC has an exclusively sloppy reading, i.e., it is unambiguously interpreted as a bound variable when associated with an *only*-DP controller (cf. Bouchard 1985, Higginbotham 1992, Hornstein 1999, 2000, Landau 2000, 2013, Potsdam and Haddad 2017, i.a.).

With this in place, an equivalent of the English *only*-DP test shows that in Jula infinitival complement clauses, PRO is necessarily read as a sloppy/bound variable, strict/coreference readings being impossible. The examples in (41) show this for subject and possessor control.

- (41) a. Subject control
- Awa_i dɔrɔn bɛ a fɛ [kà PRO_i bon lɔn]
 Awa only COP 3SG at INF PRO house build
 ✗ **Strict**: 'No one but Awa wants that Awa builds a house.'
 ✓ **Sloppy**: 'No one but Awa wants for themselves to build a house.'
- b. Possessor control
- Awa_i dɔrɔn hakili bɛ a la [kà PRO_i bon lɔ]
 Awa.POSS only mind COP 3SG PostP INF PRO house build
 ✗ **Strict**: 'No one but Awa hopes that Awa builds a house.'
 ✓ **Sloppy**: 'No one but Awa hopes that they (no one) build a house.'

(42) illustrates the same point for oblique and object control.

- (42) a. oblique control
- a ka di Awa_i dɔrɔn ye [kà PRO_i bon lɔ]
 3SG COP good Awa only PostP INF PRO house build
 ✗ **Strict**: 'It pleases no one but Awa that Awa builds houses.'
 ✓ **Sloppy**: 'It pleases no one but Awa that they (no one) build houses.'
- b. object control
- Awa ye Adama_i dɔrɔn karaba [kà PRO_i bon lɔ]
 Awa PFV Adama only force INF PRO house build
 ✗ **Strict**: 'No one was forced (by Awa) so that Adama builds a house, except Adama.'
 ✓ **Sloppy**: 'No one was forced (by Awa) to build a house, except Adama.'

On the premise that only in the case of OC PRO is a strict reading/coreference impossible with *only*-DP controllers, the data in (41) fittingly confirms the conclusion from the previous data discussed in (35 - 38); namely, that infinitival complementation in Jula instantiates OC. In a nutshell, this looks as follows (43).

- (43) Control in Jula infinitival complementation is OC
- a. Arbitrary control is impossible
 - b. Long-distant controllers are impossible
 - c. PRO is interpreted as a bound variable, i.e., with *only*-DP controllers a strict/coreference reading is impossible⁸

In what follows, I complete the picture by looking at adjunct infinitival clauses, i.e., consecutive and purposive clauses. I show that these constructions pass all the criteria of OC too.

6.4.2 OC beyond complement clauses

Besides infinitival complement clauses, in Jula, adjuncts like consecutive and purposive clauses display OC. The following data illustrate this.

First, just as in the case of OC, arbitrary control is impossible. As shown in (44a) and (44b), a configuration in which PRO has a sentence-internal controller and a generic reading is ungrammatical.

- (44) a. Consecutive
 *Awa_i ye baara kɛ [kà PRO_{arb} i yɛɛ sama]
 Awa PFV working do INF PRO 2SG SELF stretch
 Int. 'Awa_i worked and (then) one stretches oneself.'
- b. Purposive
 *Awa_i nan-na yan [kà PRO_{arb} i yɛɛ tando]
 Awa come-PFV here INF PRO 2SG SELF praise
 Int. *'Awa_i came here PRO_{arb} to praise oneself.'

Second, just as in the case of OC, long-distant controllers are impossible. For this reason, in (45a) and (45b), the subject of the matrix clause, i.e., *Madu* cannot control PRO.

- (45) a. Consecutive
Madu_i pɛ na ko Awa_j ye baara kɛ [kà PRO_{*i/j} sunɔŋɔ]
 Madu eye PostP COMP Awa PFV working do INF PRO sleep
 'Madu believes that Awa_i worked and (then) *he_i/she_j slept.'
- b. Purposive
Madu_i pɛ na ko Awa_j nan-na yan [kà PRO_{*i/j} mɔbili san]
 Madu eye PostP COMP Awa come-PFV here INF PRO car buy
 'Madu_i believes that Awa_j came here PRO_{*i/j} to buy a car.'

⁸Another diagnostic commonly used to test the bound variable reading of PRO is the ellipsis test (Morgan 1970, Sag 1976, Bouchard 1985 et seq.). For the sake of parsimony, I did not discuss this test here. Nevertheless, the data below shows that PRO in Jula also has a bound variable reading within ellipsis contexts: PRO refers to the subject of the elided sentence-part, i.e., *Adama* (cf. sloppy/binding reading), and not to the subject of the antecedent sentence, i.e., *Awa* (strict/coreference).

- (1) **Awa**_i bɛ a fɛ [kà PRO_i bon lɔn], Adama fana
 Awa COP 3SG at INF PRO house build Adama too
 ✗ **Strict:** 'Awa wants **Awa** to build a house, (and) *Adama* wants **Awa** to build a house.'
 ✓ **Sloppy:** 'Awa wants **Awa** to build a house, (and) *Adama* wants *Adama* to build a house.'

Third and finally, when the controller is an *only*-DP, only a sloppy/variable binding interpretation obtains. Strict/coreference readings are impossible. Consider (46a) and (46b).

- (46) a. Consecutive
 Awa_i dərɔn ye baara kɛ [kà PRO_i sunɔgɔ]
 Awa only PFV working do INF PRO sleep
 ✗ **Strict:** ‘No one but Awa worked and Awa slept.’
 ✓ **Sloppy:** ‘No one but Awa worked and slept.’
- b. Purposive
 Awa_i dərɔn nan-na yan [kà PRO_i məbili san]
 Awa only come-PFV here INF PRO car buy
 ✗ **Strict:** ‘No one but Awa came here for Awa to buy a car.’
 ✓ **Sloppy:** ‘No one but Awa came here for them (no one) to buy a car.’

In conclusion, like infinitival complement clauses, consecutive and purposive clauses in Jula instantiate OC. That added to the case of infinitival complement clauses suggests that the OC properties of control in Jula are inherent to the infinitival clause. These properties hold independently of the syntactic environment in which the infinitival clauses occur and the nature of the grammatical relation involved therein.

6.4.3 Criteria that fail to apply

Thus far, I have used three criteria to show that Jula infinitival constructions exhibit OC: (i) the (im)possibility of arbitrary control, (ii) the (im)possibility of the long-distant controller, (iii) the (im)possibility of strict/coreference reading. As mentioned above, two other aspects have been claimed to be characteristic of OC constructions.

- (47) Apparent properties of OC
- a. Impossible non-c-commanding controllers
 - b. Obligatory *de se* reading of PRO.

However, I show in the following lines that, in reality, these two aspects are not defining characteristics of OC constructions. Therefore, I take the fact that they do not hold throughout Jula control constructions as evidence that still makes it possible to say that control in Jula exhibits OC.

C-command is not required

It has been argued that in OC, the controller must c-command PRO (cf. Williams 1980, Bouchard 1982, Hornstein 1999). Accordingly, the controller cannot be a DP embedded in a bigger DP, like the possessor DP *Mary* in (48a), since non-c-commanding controllers are only allowed in NOC (48b).

- (48) a. *Mary’s_i brothers hate PRO_i to perjure herself_i. (OC)
 b. Mary’s_i brothers assume that PRO_i perjuring herself_i was good. (NOC)

However, with the example in (49), Landau (2000, p. 31) shows that, even in English, c-command is not a necessary condition for OC.

- (49) Yesterday, it spoiled Mary’s_i mood [PRO_i to listen to the news].

The sentence in (49) involves OC. That notwithstanding, unlike in (48a), here, PRO is controlled by the non-c-commanding possessor DP *Mary*. Lee (2009, p. 230) has reported a similar fact for finite control in Korean. In the OC construction in (50), the null subject of the embedded clause represented by *pro* is obligatorily co-indexed with the non-c-commanding object of the matrix clause, i.e., *Pata*.

- (50) *Mina*_i-ka [*pro*_j *hakkyo-ey ka*]-tolok *Pata*_j-eykey *seltukha-yess-ta*.
 M.-NOM school-LOC go-C P.-DAT persuade-PST-DC
 ‘Mina persuaded Pata to go to school.’

In Jula, the c-command constraint only holds within subject, object, and oblique control constructions. Thus, like in the English example above in (48a), below in (51), the possessor DP *Awa* cannot serve as a controller for PRO.

- (51) a. Subject control
 **Awa*_i *den-w be a fe* [kà PRO_i *bon lon*]
 Awa child-PL COP 3SG at INF PRO house build
 Int. ‘Awa’s_i children want PRO_i to build a house.’
- b. oblique control
 *a *ka di Awa*_i *den-w ye* [kà PRO_i *bon lon*]
 3SG COP good Awa child-PL PostP INF PRO house build
 Int. ‘It pleases Awa’s_i children PRO_i to build houses.’
- c. object control
 **Adama ye Awa*_i *den-w karaba* [kà PRO_i *bon lon*]
 Adama PFV Awa child-PL force INF PRO house build
 Int. ‘Awa forced Adama’s_i children PRO_i to build a house.’

By contrast, in the case of possessor control, non-c-command is the rule. As illustrated in (52), here, per default, the non-c-commanding possessor DP, *Awa*, is the controller of PRO.

- (52) Possessor control
*Awa*_i *hakili be a la* [kà PRO_i *bon lon*]
 Awa.POSS mind COP 3SG PostP INF PRO house build
 ‘Awa_i hopes PRO_i to build houses.’

Under the assumption that control in Jula is a case of OC, the contrast between the examples in (51) and the one in (52) is only puzzling if one assumes that c-command is a requirement for OC (cf. Williams 1980, Hornstein 1999 Bouchard 1982, 1985). Nonetheless, it ceases to be a problem if c-command is not a necessary condition for OC. I will argue for the latter view and therefore consider that these Jula data confirm the conclusion made by Landau (2000) and Lee (2009): in OC constructions, the controller does not need to always c-command PRO. On that basis, we can still maintain that control in Jula instantiates OC.

PRO is not necessarily read *de se*

As reported by Landau (2013, pp. 32–34), another misconception is that in OC constructions PRO must be read *de se*: the controller must bear self-awareness towards the content of the infinitival clause, or s/he (consciously) identifies her/himself with the

referent of PRO; a claim found in many works (cf. Chierchia 1989, Higginbotham 1992, Hornstein 1999, Landau 2000, Anand 2006, Pearson 2015), which, however, has its roots in Morgan (1970). A classical way of illustrating this is to evaluate the relevant control construction against a context that involves misidentification (53).

- (53) a. Context:
 After reading an old paper of himself, amnesic Peter comes to say: “This guy is clever.”
 b. ✗ Peter_i claimed [PRO_i to be clever].

In the situation depicted in (53a), the use of the expression *this guy* indicates that Peter does not identify himself with the person about whom he is talking. Saying that PRO must be read *de se* means that the control construction in (53b) cannot be used to report such a situation. In other words, the sentence cannot be the report of a claim that Peter unconsciously made about himself (cf. Pearson 2015). However, had Peter consciously made a claim about himself, as depicted in the context below (54a), the infinitival control construction would have been felicitous (54b).

- (54) a. Context:
 Proud of his academic achievement, Peter comes to say: “I am clever.”
 b. ✓ Peter_i claimed [PRO_i to be clever].

The same observation holds even for control constructions that do not necessarily imply any speech act. Thus, as has been reported in the literature, in all the sentences below, PRO is read *de se*.

- (55) a. Peter believes [PRO to have a gay voice] (cf. Maier 2009, p. 439)
 b. Peter wants [PRO to win the lottery] (cf. Landau 2018, p. 08)
 c. Peter intended [PRO to find the solution] (cf. Landau 2015, p. 32)

Note that one does not access mental states the same way as one gets access to speech acts. Unlike speech acts, mental states do not have to be expressed or externalized. Therefore, from the idea that PRO has a *de se* reading, it does not follow in (55), unlike in (54), the requirement that the controller, Peter, expresses himself in a first-person way. Instead, these sentences imply that Peter’s mental state is such that he would be disposed to use the first-person pronoun *I* to express what he believes (55a), wants (55b), or intended to (55c) (cf. Chierchia 1989, Pearson 2015, Pearson 2016).

Furthermore, as can be observed, all the data considered so far involve predicates that express attitudes or mental states. Nevertheless, OC constructions do not only involve attitude predicates. Consider these examples taken from Landau (2013, p. 34).

- (56) a. John_i managed [PRO_{i/*j} to avoid the draft] (because he spent that decade in a coma).
 b. The transmission_i problem forced the car_j [PRO_{*i/j} to stop].

For the sentences in (56) to be felicitous, the controller of PRO does not need to consciously identify himself with a participant within the event expressed by the infinitival clause. That this is true of (56a) is shown by the possibility of the continuation in the parentheses. In (56b), the controller is an inanimate entity, i.e., *car*, and thus incapable of bearing self-awareness, and PRO accordingly cannot have a *de se* reading. Thus, PRO is read *de se* only when an OC construction contains an attitude verb (including speech verbs, cf. Anand and Hacquard 2014).

Also, there is evidence that PRO does not receive a *de se* reading even with some attitude predicates. For instance, a control construction with an attitude predicate like *tell*, (and its semantic cousins *ask*, *urge*, *recommend* etc...) is not associated with an obligatory *de se* reading because here, PRO is not controlled by the attitude holder. In (57), the attitude holder is *John*, but *Bill* is the controller of PRO.

- (57) Based on Anand (2006, f.n. 8, p.16)
 John_i told Bill_j [PRO_{*i/j} to leave] (but Bill couldn't hear him).

The possibility of making the parenthesized continuation shows that the above sentence in (57) does not report Bill's mental state. As a consequence, it does not involve any *de se* reading of PRO.

Nevertheless, the sentence is associated with another requirement, the so-called *de te* reading: for it to be felicitous, the attitude holder, *John*, must be in position to identify the object controller, *Bill*, for whom he truly is (cf. Schlenker 1999, Anand 2006, Landau 2015, 2018, Sportiche 2019). To see this, consider the following judgments taken from Anand (2006, p. 16).

- (58) a. Context: John is hosting a party. He hears that a certain waiter named Bill is being a nuisance.

S1: John tells the nearest waiter, "Bill has to go." Unbeknownst to him, he's talking to Bill.

S2: John tells Bill, "You have to go."

- b. John_i told Bill_j [PRO_{*i/j} to leave] [✗ S1, ✓ S2]

The context in (58a) comprises two alternative situations: S1, where John fails to identify the person he is talking to as Bill, and S2, where John correctly identifies the person he is talking to as Bill.⁹ As shown in (58b), the control construction with *tell* can be used to report only the situation depicted in S2. Accordingly, in such cases, PRO is said to have a *de te* reading: the attitude holder can identify the controller of PRO for whom s/he truly is. Thus, compared to the *de se* reading (cf. 54 and 55), which reflects the attitude holder's self-awareness, the *de te* reading, in some ways, reflects the attitude holder's awareness of others; so, a sort of *else's awareness*.

From this overview, we can see that in English, the obligatory *de se* reading of PRO is not a requirement applicable to all OC constructions. Therefore, it is not entirely correct to consider the *de se* reading a defining characteristic of OC constructions. Instead, the correct generalization should be: in OC constructions PRO does not need to be read *de se*. This is confirmed in Jula.

From the perspective of the English data discussed so far, the surprising fact in Jula is less the presence or absence of the *de se* reading. Instead, it is more the observation that OC constructions with "apparently non-attitudes predicates" are associated with an obligatory *de se* reading of PRO. This is the case with *banba* 'manage' and *karaba* 'force', as shown first by the impossibility of making the parenthesized continuation in (59a) and (59b), based on Maier (2009, p. 439).

⁹However, note that it is not universally true that addressing people with *you* means that one correctly identifies them for whom they are. It is easy to imagine a situation in which John mistakenly uses *you* to address a waiter he takes to be Bill.

- (59) a. Adama_i banba-la [kà PRO_i jara faga] (# nga a_i ma bɔ
 Awa manage-PFV INF PRO lion kill but 3SG PFV.NEG distinguish
 o kala ma)
 DEM.POSS sens PostP
 ‘Adama managed to kill the lion (# but he_i did not realize that).’
- b. Adama_i ye Madu_j karaba [kà PRO_j taga lakoli la] (# nga a_j ma
 Adama PFV Madu force INF PRO go school PostP but 3SG PFV.NEG
 bɔ o kala ma)
 distinguish DEM.POSS sens PostP
 ‘Adama_i forced Madu_j to go to school (# but he_j did not realize that).’

The data in (59) indicate that the subject controller with *banba* ‘manage’ (i.e. *Adama*) and the object controller with *karaba* ‘force’ (i.e., *Madu*) must bear self-awareness toward the infinitival complement clause’s content. As further evidence, these sentences cannot be used to report a situation where the controller does not consciously identify her/himself with the referent of PRO. Consider (60).

- (60) a. A lion escaped from an animal park, and everyone was trying to kill it. One night, while he was hunting in the bush, Adama shot at an animal he believed to be a buffalo. Unfortunately, despite being wounded and Adama’s efforts to kill it, the animal managed to escape. The next day, Adama heard on the radio that the lion being sought had been found dead. Happy, Adama said: "Finally, someone killed that beast." However, Adama did not know that it was that lion he had shot the night before, but not a buffalo, as he thought. In reality, without knowing it, he is the person who killed the lion.
- b. Adama_i **banba**-la [kà PRO_i jara faga] [✗ (60a)]
 Awa manage-PFV INF PRO lion kill
 ‘Awa managed to kill the lion.’
- c. Adama_i **se**-la [kà PRO_i jara faga] [✓ (60a)]
 Awa be.able-PFV INF PRO lion kill
 ‘Awa managed to kill the lion.’

In the situation depicted in (60a), Adama has killed the lion without knowing it. Clearly, in such a situation, his mental state is not such that he would be disposed to say, "I killed the lion". For this reason, an OC construction with *banba* ‘manage’ is infelicitous (60b). Instead, a periphrastic construction involving the modal predicate *se* ‘be able’ with Perfective marking could be used (60c).¹⁰

A similar judgment applies to the OC construction involving the object control predicate *karaba* ‘force.’ Here, too, the sentence in (61b) cannot serve as a report of

¹⁰This construction has the meaning effect reminiscent of the use of ability modals combined with perfective aspect in French and Italian; a meaning effect known as actuality entailment (since Bhatt 1999).

- (1) cf. Giannakidou and Mari (2021, p. 194)
- a. Jean a pu prendre le train.
 John has can.PAST.PART to.take the train
 ‘John managed to take the train.’
- b. Gianni ha potuto prendere il treno.
 Gianni has can.PAST.PART to.take the train
 ‘Gianni managed to take the train.’

the situation depicted in (61a), where Madu entertains the desire to go to school without experiencing it as him having been unwillingly caused to do so.

(61) a. Context

Adama is a rigorous teacher. All the children in the village are afraid of him. One morning, he was informed that a boy named Madu refused to come to school. He decided to intervene. Adama knows Madu very well because it is not the first time he has refused to go to school. As Adama got close to the courtyard where Madu lives, he saw the boy running towards the school. For Adama, it was out of fear of him that Madu went to school. However, he does not know that before he arrived, Madu's mother had already convinced her son by promising him sweets after school. Moreover, Madu did not even know that Adama was coming, and he did not even see him coming.

- b. Adama_i ye Madu_j karaba [kà PRO_j taga lakoli la] [✗ (61a)]
 Adama PFV Madu force INF PRO go school PostP
 'Adama_i forced Madu_j to go to school.'

By comparing the Jula data with the English data seen before, one can observe that in Jula, the obligatory *de se* reading of PRO obtains in those English OC constructions that do not require a *de se* reading of PRO (compare 56 with 59). One reason for this variation, it seems, lies in the language-specific semantic requirements associated with the relevant predicates. For example, we have seen that in English, the predicate *force* permits non-animate controllers, and therefore does not require a *de se* reading (cf. 56). Its semantic equivalent in Jula *karaba* 'force', however, requires a *de se* reading. As predicted, this predicate does not allow any of its individual-denoting arguments to be inanimate. For this reason, an equivalent of the English example with an inanimate controller is infelicitous (62).

- (62) # kurantige_i ye mansini_j karaba [kà PRO_j lo]
 power.cut PFV machine force INF PRO stop
 'The power cut forced the machine to stop.'

Another difference between English and Jula is that, unlike the former, the latter permits inanimate controllers with some attitude predicates. Two revealing cases are illustrated in (63) and (64).

(63) Animate controllers

- a. **Awa**_i tun be a fe [kà PRO_i bon lon] (# nga **a**_i ma bo
 Awa PAST COP 3SG at INF PRO house build but 3SG PFV.NEG distinguish
 o kala ma)
 DEM.POSS sens PostP
 'Awa_i wanted to build a house (# but she_i does not realize that).'
- b. **Adama**_i ban-na [kà PRO_j taga lakoli la] (# nga **a**_j ma bo
 Adama refuse-PFV INF PRO go school PostP but 3SG PFV.NEG distinguish
 o kala ma)
 DEM.POSS sens PostP
 'Adama_i refused to go to school (# but he_i did not realize that).'

- (64) Inanimate controllers
- a. **Sanji**_i tun bε a fε [kà PRO_i na]
rain PAST COP 3SG at INF PRO come
'Rain was about to fall.'
Lit. 'Rain wanted to come.'
 - b. **mɔbili**_i ban-na [kà PRO_i lɔ]
car refuse-PFV INF PRO stop
'The car did not stop.'
Lit. 'The car refused to stop.'

These data show that the *de se* reading of PRO is obligatory only when the controller is animate. However, with inanimate controllers, the *de se* reading is not an issue since, per default, inanimate entities are incapable of bearing awareness.

Overall, with the Jula data, we have confirmation that the *de se* reading of PRO is not a systematic requirement of OC constructions. Also, they indicate that the *de se* reading is potentially subject to cross-linguistic variation.

6.4.4 Interim summary

The discussion of the two last criteria listed in (34) has confirmed our conclusion on the nature of the control relation in Jula. OC constructions in general require neither (i) c-commanding controllers nor (ii) an obligatory *de se* reading of PRO. In this, the OC constructions in Jula behave as expected. Thus, the conclusion is that control in Jula is an instance of OC with the properties summarized in (65).

- (65) OC properties of Jula control constructions
- a. Arbitrary control is impossible
 - b. Long-distant controllers are impossible
 - c. PRO is interpreted as a bound variable
 - d. Non-c-commanding controllers are possible.
 - e. PRO is not always read *de se*

With this in place, we are ready to answer the remaining questions presented in the introduction:

- (66) a. How does the control relation come about, i.e., which mechanism(s) of the language is/are responsible for the referential dependency between PRO and its controller? (cf. 5b)
- b. How is the controller determined/chosen? (cf. 4b)

Proceeding from top to bottom, answering these questions will be at the core of the following two sections.

6.5 Accounting for control in Jula

This section aims to account for the control relation in Jula, i.e., answering the question: How does the control relation come about, i.e., which mechanism(s) of the language is/are responsible for the referential dependency between PRO and its controller? The previous literature has provided so many diverging answers to this question that reviewing them

appears far beyond the scope of a single section. I will therefore refrain from performing such a review and instead refer the reader to the following works that contain insightful reviews of the state of affairs: Lee (2009, Introduction), Park (2011, chapter 2), Landau (2013, Chapter 2), Kiss (2015), Potsdam and Haddad (2017, section 5).

That being said, the background for my analysis will be Landau (2015, 2018), which I now turn to discuss.

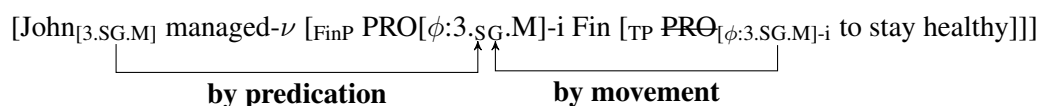
6.5.1 Landau (2015, 2018): a Two-Tiered Theory of control

At the core of Landau's theory of control is the claim that there exist two types of OC constructions: predicative control attested with non-attitude predicates (67a) and logophoric control found with attitude predicates (67b).

- (67) a. Predicative control
 John **managed** to stay healthy.
 b. Logophoric control
 John **intends** to visit Athens

In terms of analysis, in predicative control, the control relation is established through two mechanisms: movement and predication, as illustrated in (68).

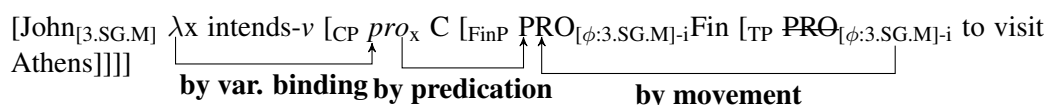
- (68) Predicative control (Landau 2015, p. 49)



In (68), PRO is considered a minimal pronoun, i.e., a pronoun that lacks any feature specification (cf. Kratzer 2009, and earlier Kratzer 1998); a view I also adopt (cf. 6.2.2). It moves from SpecTP to SpecFinP, thereby turning the infinitival FinP into a predicate. That predicate is directly applied to the controller in the matrix clause. In this way, PRO is transmitted the controller's features; based on the general premise that predication is a vehicle for feature transmission (aka agreement).

As shown in (69), logophoric control, by contrast, involves predicative control plus an additional mechanism: variable binding. Here, the infinitival FinP is contained in a "perspectival CP," whose specifier position hosts the pronominal variable, Pro_x , which, like PRO, is a minimal pronoun. The matrix controller binds and thereby transmits its feature to Pro_x , assuming that variable binding is a vehicle for feature transmission (aka agreement, cf. Heim 2008, Kratzer 2009). The features which Pro_x inherits from the controller are then transmitted to PRO via predication, i.e., by applying the predicate-denoting infinitival FinP to Pro_x .

- (69) Logophoric control (Landau 2015, p. 50)



In a nutshell, predicative and logophoric control do not only involve two distinct ways of establishing the relation between PRO and the controller, but they also represent two structurally different types of syntactic constructions, which, according to Landau, are characterized by the following properties.

(70) Predicative vs. logophoric control

	Predicative control	Logophoric control
Predicates	non-attitude: <i>manage, forget, remember, force, be able, begin...</i>	attitude predicate: <i>intend, want, claim, persuade, tell, refuse...</i>
Inflected complement	✓	✗
[-human] PRO	✓	✗
Implicit control	✗	✓
Control shift	✗	✓
Partial control	✗	✓
Split control	✗	✓
<i>de selde te</i> reading of PRO	✗	✓

Without questioning the merits of Landau's approach, as far as Jula is concerned, I do not see, based on the set of properties listed in (70), any empirical evidence that justifies a distinction between predicative and logophoric control.

Take first the inflectional property of the complement clauses. The empirical prediction here is that complement clauses whose heads are inflected for phi-features are compatible with predicative control but incompatible with logophoric control. As a piece of evidence, Landau provides the following data from Greek and Turkish.

- (71) a. Predicative control: Greek subjunctive
 O Yanis kseri na kolimbai (*o Giorgos).
 the John.NOM knows PRT swim.3SG (*the George.NOM)
 'John knows how to swim.'
- b. Logophoric control: Turkish uninflected nominalized complement
 Ahmet_i [PRO_{i/*j} düş-mek]-ten kork-uyor-du.
 Ahmet PRO fall.INF-ABL fear-PROG-PST.3SG
 'Ahmet was afraid to fall.'
- c. No Control: Turkish inflected nominalized complement
 Ahmet_i [pro_{?i/j} düş-me-sin]-den kork-uyor-du.
 Ahmet Pro fall.INF-3SG.P-ABL fear-PROG-PST.3SG
 'Ahmet was afraid that he would fall.'

Arguably, the Greek subjunctive complement clause in (71a) exhibits predicative control. By contrast, the data in (71b) and (71c) allegedly show, respectively, that in Turkish logophoric control is possible with an uninflected nominalized complement but impossible with an inflected one. However, it is unclear how one could take these data as evidence for the presence or absence of inflection in the following Jula examples.

- (72) a. Adama_i banba-la [kà PRO_i (*be/*ye) bon lɔn]
 Awa manage-PFV INF PRO HAB/PFV house build
 'Awa managed to build a house.'
- b. Awa_i bɛ a fɛ [kà PRO_i (*be/*ye) bon lɔn]
 Awa COP 3SG at INF PRO HAB/PFV house build
 'Awa wants to build a house.'

Landau would predict that the infinitival complement clause with the non-attitude predicate 'manage' in (72a) is more likely to be inflected and would therefore exhibit

predicative control. Reversely, the infinitival complement clause of ‘want’ in (72b) should be uninflected and thus exhibit logophoric control. Unless one is reluctant to assume it merely, this prediction has no chance of being borne out, since nothing in their inflectional properties distinguishes these two types of complement clauses from each other. As a matter of fact, like any infinitival clause in Jula (see in 3.4.2, chapter 3), the infinitival complement clauses in (72) equally cannot contain any overt inflectional marker.

Another empirical claim made in (70) is that [-human] controllers are possible with predicative control, but impossible with logophoric control. Recall, however, that predicative control is found with non-attitude predicates and logophoric control with attitude predicates. Suppose one takes this as a correct generalization. In that case, two points already mentioned concerning OC in Jula appear particularly challenging: (i) there exist non-attitude predicates that are incompatible with a [-human] controller (cf.62), and (ii) attitude predicates that are compatible with [-human] controllers (cf. 64). Thus, we cannot strictly take any animacy restriction on the controller to motivate two distinct types of OC in Jula.

Furthermore, it has already been shown in sections 6.3.1 and 6.3.2 that implicit control, control shift, split control and partial control are not attested within Jula infinitival complementation sentences, irrespective of the semantic type of predicate involved. Thus, no distinction between predicative and logophoric control can be established based on these control patterns.

Finally, as for the *de se* reading, I have already presented evidence that in Jula, both attitude and non-attitude predicates may be associated with a *de se* reading (cf. 6.4.3). This fact does not fall under Landau’s two-tiered approach, which instead predicts the following split (73).

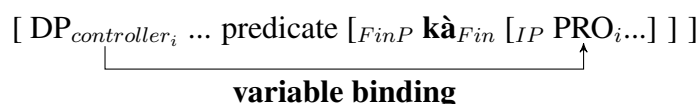
- (73) logophoric control ⇒ attitude predicates ⇒ de se reading
 predicative control ⇒ non attitude predicates ⇒ non de se reading

Thus, to summarize, the pieces of evidence that support Landau’s distinction between two types of control relation, i.e., predicative vs. logophoric control, and accordingly, two ways of deriving OC, come short when considering the system of Jula. For this reason, I will not follow him in his two-tiered approach. Instead, I will pursue a unifying analysis of the control relation in Jula.¹¹

6.5.2 The proposal

Pursuing a unifying approach, I propose implementing the control relation in Jula as in (74).

- (74) Control via direct variable binding



In line with the insights from previous chapters (4 and 5), in (74), the infinitival clause is represented as a FinP, which is reminiscent of what Landau proposes for predicative control constructions (see 68). However, unlike in Landau’s account, PRO does not move

¹¹For different reasons than mine, Reed (2020) also concludes by rejecting Landau’s two-tiered approach for a "single-tier Agree-based model."

to SpecFinP, for the control relation is not established by predication. Instead, I use variable binding as proposed for logophoric control constructions, with the difference that the controller directly binds PRO, thereby transmitting its features to the latter, under the assumption that variable binding is a vehicle for feature transmission (Heim 2008, Kratzer 2009). This approach is not only compatible with PRO being a minimal pronoun (cf. 6.2.2), but also fits together with the conclusion that it (PRO) has a bound variable reading (cf. 6.4.1). Finally, I take (74) to apply to any OC construction in Jula, irrespective of the semantic type of predicate it may contain. This permits capturing the control relation equally for infinitival complement clauses and for consecutive and purpose clauses, which, we have seen in subsection 6.4.2, also exhibit OC properties.

In what follows, I justify the analysis by discussing two points: first, there exist arguments that OC in Jula cannot be derived via predication, and second, the absence of *c-command* in OC is compatible with a variable binding analysis since, like in OC, binding relations do not require *c-command*.

6.5.3 Why not predication?

As pointed out, Landau's approach offers two mechanisms to derive the relation between PRO and its controller: predication or variable binding. This suggests that we could also have implemented the OC relation in Jula using predication instead of variable binding. However, for three reasons, this option cannot be considered for Jula.

The first reason is conceptual. Note that in a predication-based derivation, the control relation is strictly speaking not between the controller and PRO but between the controller and the infinitival clause (see Williams 1980, Lebeaux 1984, Chierchia 1984, Landau 2013, p. 47, Kiss 2015, p. 1321). That PRO refers to the controller is just a consequence of the predication relation, i.e., due to PRO being transmitted the features of the controller. As the attentive reader may notice, this implies adopting a different definition of control than the one we propose in the introduction: conceptually, we cannot derive control via predication if we define it as a referential dependency relation between two arguments (see section 6.1, p. 93). Predication is a typical DP-predicate relation, while a referential dependency is typically between two DP-like constituents. Now, binding constitutes one of the mechanisms that establish referential dependencies in natural languages (Sportiche 2013, p. 189). Thus, for conceptual reasons, variable binding has to be preferred over predication.

The second reason is technical. In deriving the syntax of infinitival complementation, we have proposed that the infinitival clause stands in a predication relation with a correlate that may be overtly realized or not. To the extent that this analysis is correct, it is unclear whether it leaves room for a predication-based analysis of control. If we derive the control relation as a case of predication, we would have to assume that the infinitival clause is predicated of two different argument positions within the matrix clause simultaneously, i.e., both the correlate and the controller. It appears doubtful how this sort of "double-predication" is technically feasible: situations in which two distinct predicates apply to one argument position are well-attested (e.g., *John left angry*), but not those where a single predicate applies to two distinct argument positions. As pointed out by Landau (2015), predication typically does not allow split readings. This is the reason why below in (75), the predicate *angry* may apply either to John or Mary (75a), but not to both John and Mary simultaneously (75b).

(75) Based on Landau (2015, p. 77)

- a. John_i met Mary_j angry_{i/j}
- b. John_i met Mary_j angry_{*i+j}

Now, treating the control relation in Jula in terms of predication would yield a configuration similar to (75b), where the infinitival clause is predicated of both the correlate *a* and the controller *Awa*, as shown in (76a).

(76) a. Control via predication

a_i bε **Awa_j** kɔnɔ [kà PRO bon lɔ]_{*i+j}
 3SG COP Awa.POSS belly INF PRO house build
 ‘Awa intends PRO to build a house.’

b. Control via binding

a_i bε **Awa_j** kɔnɔ [kà PRO_j bon lɔ]_i
 3SG COP Awa.POSS belly INF PRO house build
 ‘Awa intends to build a house.’

In the face of the empirical evidence that predication does not allow split readings, a configuration such as the one in (76a) becomes technically difficult to derive. In contrast, no technical issues arise in the case of variable binding (76b), since variable binding has the advantage of not "interfering" with the predication relation between the correlate and the infinitival clause because its targets would be two DP-like constituents: the controller in the matrix clause and PRO in the infinitival clause. This is the second reason why the control relation in Jula should be accounted for in terms of variable binding and not via predication.¹²

The third reason is empirical. In the predication-based account, the controller’s features are passed over to PRO via predication. However, in Jula, there is no empirical evidence that predication involves any feature transmission mechanism. For example, a verbal predicate does not agree with its subject argument (77a), nor does an adjectival predicate agree with the nominal it modifies (77b).

- (77) a. **Den** be tama
 Child HAB walk
 ‘The child walks.’
- b. **Den** fitini
 child small
 ‘A small child’

¹²In addition, note that it seems technically challenging to apply predication in the case of possessor control (see ex. 76). For instance, the following sentences suggest that predication does not target possessor DPs.

- (1) a. John_i’s father_j met Mary_k angry_{*i/j/k}
- b. John_i met Mary_j’s father_k angry_{i/*j/k}

By contrast, a possessor DP/QP may seamlessly bind a pronominal expression (2).

- (2) a. John/everone_i’s father_j loves him_{i/*j}
- b. Mary placed John/everone_i’s father_j next to him_{i/*j}

Thus, a variable binding approach is more promised for possessor control than a predication-based one.

In (77), the morphological realization of the nominal DP *den* ‘child’ does not suggest the existence of any feature that it could have transmitted to or obtained from the related verbal or the adjectival predicate. Against this general state of affairs, it is unclear how predication could in Jula instantiate feature transmission in the case of control. By contrast, we have evidence that two elements involved in a referential dependency must have matching features (78).

- (78) ***Awa**_i be [n **yεrε**]_i kanu
 Awa HAB 1SG self love
 Int. ‘Awa_i loves myself_i.’

The nominal DP *Awa* with third-person features cannot bind the reflexive with first-person features, *n yεrε* ‘myself.’ This shows that the features of two elements in a referential dependency relation must match. In OC, the feature matching requirement is obtained through feature transmission since, unlike typical pronouns, PRO is deprived of any inherent features. However, these features cannot have been transmitted via predication, since, in Jula, predication does not manifest feature transmission (aka agreement). Therefore, the only option left to explain how PRO obtains the controller’s features is variable binding.

In sum, there exist good reasons for deriving OC in Jula via variable binding instead of predication.

6.5.4 The c-command problem

A variable binding approach is also compatible with the absence of c-command requirements observed in OC constructions (see in 6.4.3).

It has commonly been accepted since Reinhart (1983b) that binding relations abide by c-command: the element that binds must c-command the bound element. This is generalized as follows.

- (79) Reinhart’s Generalization (cf. Büring 2005, p. 91)
 Pronoun binding can only take place from a c-commanding A-position.

Considering such a generalization, one may object that control may involve variable binding. Empirical data, however, tell another story. Indeed, Barker (2012) reports several examples of binding relations that do not involve c-command. Thus, each sentence below shows a quantifier element that does not c-command the pronoun it binds (80).

- (80) a. Binding out of a possessive phrase (Barker 2012, ex.22c, p.620)
 [**Each student**]_i’s advisor] paid **his**_i gambling debts for **him**_i.
 b. Binding out of a DP argument (Barker 2012, ex.25c, p.621)
 [The cost of [each **item**]_i] was clearly marked on **its**_i label.
 c. Binding out of a PP (Barker 2012, ex.29a, p.623)
 [In **everyone**_i’s own mind] **they**_i are the most important person in the world.
 d. Binding out of a VP (Barker 2012, ex.30d, p.623 taken from Harley 2003, p. 64)
 A book [was given to [**every boy**]_i] by **his**_i mother.

The examples in (80a) - (80d) illustrate a clear violation of the c-command requirement: the quantifier is embedded within a phrasal constituent, though it can bind a pronoun outside its phrasal domain. The example in (80a) is particularly reminiscent of the data

used above to show that the c-command requirement does not hold in OC (cf. section 6.4.3, ex. 48 - 52).

Faced with data like those in (80), there are at least three theoretical reasonings one could adopt. One could see them as exceptions to the c-command requirement and try to explain how these exceptions arise. A second way of going could be to redefine the c-command requirement to cover these data (cf. Kayne 1994). While on these two first reasonings, the c-command requirement is kept valid, one may go a third way, which is more drastic: these data could suggest that c-command is not a requirement for binding relations (cf. Bresnan 1994, Safir 2004b, 2004c, Jäger 2005, Barker 2009, 2012).¹³ Whatever conclusion one wishes to draw from these data is, I think, less important than the fact that they exist. Indeed, their existence suggests a parallel between control relations in OC and variable binding relations: as is the case for OC, in variable binding, the binder can be embedded in a phrase and still get access to the element it binds. Thus, the violation of the c-command requirement does not stand against treating OC in Jula as an instance of variable binding. Instead, it bespeaks in its favor.

Interim summary

Overall, the impossibility of applying a predication-based approach to the control relation in Jula and the fact that variable binding allows non-commanding binders appear to speak in favor of my proposal. Thus, in answering the question (5b), we maintain that the mechanism responsible for control in Jula is (variable) binding, i.e., PRO is directly bound by its controller. In the upcoming lines, I will attempt to explain how the choice of "binding controller" is made.

6.6 The controller choice

This last section discusses controller choice, i.e., how the controller is determined/chosen in OC constructions.

In section 6.4, we have seen that situations where PRO lacks a specific controller within the control sentence, i.e., arbitrary control, are excluded. Also, long-distant controllers are impossible. So in Jula, the controller must be sentence-internal. Besides the lack of inherent features (cf. 6.2.2), this is another aspect in which PRO differs from genuine pronouns. Consider (81).

- (81) a. **Awa**_{*i*} be a lɔn [ko **a**_{*i/j*} ye bon lɔn]
 Awa HAB 3SG know COMP 3SG PFV house build
 ‘Awa_{*i*} knows that she_{*i/j*} has built a house.’
- b. **Awa**_{*i*} be a fɛ [kà **PRO**_{*i/*j*} bon lɔn]
 Awa COP 3SG at INF PRO house build
 ‘Awa_{*i*} wants PRO_{*i/*j*} to build a house.’

In (81a), the pronoun *a* may have either a sentence-internal antecedent, i.e., the matrix subject *Awa*, or a non-realized sentence-external antecedent. By contrast, PRO in (81b) only has a sentence-internal antecedent, i.e., the matrix subject *Awa*. In the literature, this aspect of the control relation is known as the locality constraint: the controller of

¹³Safir (2004b) and Barker (2012) propose to replace the c-command requirement by a scope requirement.

PRO must be in the clause immediately dominating the infinitival clause, i.e., the matrix clause, to paraphrase Landau (2013, p. 124). Another one is explaining how granted locality, the controller DP's identity is specified, i.e., how do subject, object, oblique or possessor control readings arise? Accounting for these two related aspects constitutes one of the most challenging issues of the control phenomenon; this is evident from the rich and diverse proposals made in the literature.¹⁴ After earlier syntactic accounts have failed (Rosenbaum 1967, Chomsky 1980, Bresnan 1982, Bech 1983, Larson 1991, i.a.), the current general agreement is that controller choice is regulated by semantic-pragmatic principles (cf. Panther and Köpcke 1993, Landau 2000, 2013, 2015, Jackendoff and Culicover 2003, Kiss 2015, Potsdam and Haddad 2017, i.a.). Despite this agreement, however, “we are still in short of an explicit, sufficiently fine-grained theory that explains this obvious fact” (Landau 2013, p. 130).

It is not my aim to develop a theory of controller choice. Instead, I will attempt to explain in connection with Jula how the locality and the controller's identity can be accounted for on semantic-pragmatic grounds. Briefly, I propose that the locality constraint arises from an "entailment-like" principle associated with the binding of the world variable hosted by the infinitival head $k\grave{a}$: PRO is bound by an argument of the element that evaluates/binds the world variable hosted by $k\grave{a}$ (cf. 4.5). The controller's identity is determined through the meaning of both the matrix and the infinitival predicate: the controller is the specific argument of the predicate that satisfies the meaning requirement of the infinitival predicate, whatever its syntactic position. I clarify these points in what follows.

6.6.1 Locality of the controller

Why must the controller be within the immediately embedding clause? I propose the locality constraint on the controller results from the following entailment-like principle.

- (82) PRO must be bound by an individual argument of the element that binds/values the world variable hosted by the infinitival head $k\grave{a}$.

The generalization in (82) bears on the idea that a correlation exists between the binding of the world variable on $k\grave{a}$ and the interpretation of PRO. Infinitival questions best illustrate that correlation.

In chapter 4 (section 4.5), we have argued that $k\grave{a}$ should bear a world variable because finiteness serves to relate a clausal content to the world. Since infinitival clauses are, per default, not related to a specific world, their use is felicitous only when the world variable hosted by $k\grave{a}$ is valued through binding. In infinitival questions, the world variable is bound by a context operator within the configuration presented in (83a). This results in w getting the actual world as a value (83b).

- (83) Binding by context operator
- a. $OP_{\langle s,h,t,w \rangle} [FinP \underset{\substack{\uparrow \\ \text{variable binding}}}{k\grave{a}_w} [IP \text{ PRO...}]]$
- b. $k\grave{a}_{w^{actual}} \text{ PRO}_{speaker} \text{ bon } l\text{ɔ} \text{ wa } ?$
 INF PRO house build PART
 ‘Should I build a house?’

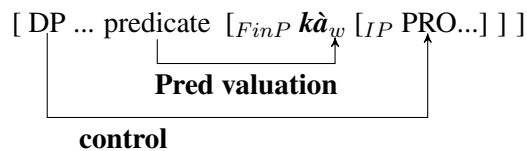
¹⁴A whole chapter is devoted to reviewing the literature on this issue in Landau (2013, ch.5)

Interestingly, as (83b) shows, w being bound by the context operator, and consequently getting the actual world as value, PRO is parallelly interpreted as referring to the actual speaker, i.e., getting its interpretation from the speaker-denoting argument of the context operator. We may represent this as follows (84).

$$(84) \quad \text{OP}_{\langle s, h, t, w \rangle} [{}_{FinP} \mathbf{k}\hat{a}_w [{}_{IP} \text{PRO} \dots]]$$

To the extent that (84) correctly captures the interpretation of PRO within the infinitival questions, I suggest that the interpretation of PRO in OC constructions goes along a similar line. Recall, I have argued in the section 4.5 of Chapter 4 that in the case of infinitival complementation, the world variable hosted by $k\hat{a}$ is bound by the matrix predicate (via predicate valuation). Building on that, I propose that the locality constraint on the controller arises from the principle in (82): PRO necessarily gets its reference from an individual argument of the predicate that binds the world variable hosted by $k\hat{a}$ (85).

(85) Predicate valuation triggers control



Thus, because w is bound by the matrix predicate, PRO is obligatorily controlled by an argument of the matrix predicate, in line with (82). This explains the impossibility of arbitrary control (86a) and long-distant controllers (86b), previously mentioned in section 6.4.1.

(86) a. no arbitrary control

***Awa_i** be a fe [kà PRO_{arb} [i yεε]_{arb} tando]
 Awa COP 3SG at INF PRO 2SG SELF praise
 Int. 'Awa_i wants PRO_{arb} to praise oneself.'

b. no long-distant controllers

Madu_i be a lɔn ko **Awa_j banba**-la [kà PRO_{*i/j} bon lɔn]
 Madu HAB 3SG know COMP Awa manage-PFV INF PRO house build
 'Madu_i knows that Awa_j managed PRO_{*i/j} to build a house.'

In (86a), PRO cannot have a generic or arbitrary interpretation since its binding domain is fixed to the matrix clause, as required by the entailment-like principle in (82). In (86b), the predicate that binds/values w is *banba* 'manage', and not *lɔn* 'know'. Therefore, the controller of PRO is the argument of 'manage', i.e., *Awa*, and not the long-distant subject argument of 'know', i.e., *Madu*.¹⁵

In sum, to the extent that my approach is correct, the locality constraint on the controller is amenable to a general entailment-like principle that operates beyond OC constructions: it is merely the case that PRO must obtain its reference from an individual argument of the element that binds/values the world variable hosted by the infinitival head $k\hat{a}$. Since in OC constructions, the world variable is bound by the matrix predicate, PRO

¹⁵In terms of syntactic derivation, 'manage' combines first with the infinitival clause. Thus, when the structure "manage + infinitival clause" is associated with the predicate 'know', the controller of PRO is already specified.

is obligatorily controlled by an individual argument of the matrix predicate. The question is, then, if more than one individual arguments are available, which one is "(s)elected" as the controller of PRO?

6.6.2 Identity of the controller

This is not the most straightforward question to answer. Though, I propose the following explanation as an attempt to answer it.

- (87) The controller is the specific individual argument of the matrix predicate that satisfies the infinitival predicate's meaning requirements, whatever its syntactic realization.

In other words, the meaning of the matrix predicate specifies which of its argument may function as a controller, on the one hand. On the other hand, the control relation will be successful only if the potential controller's semantic-pragmatic properties are such that it can participate in the situation depicted by the infinitival predicate. This is illustrated in the following lines.

Embedding (matrix) predicate specifies the controller

Two semantic types of predicates are involved in control constructions. One type expresses individual physiological or psychological situations (88a). Another type of predicate expresses an interaction between two entities followed by an effect (88b), (cf. Jackendoff 1992, Talmy 2000, Pinson 2015).

- (88) a. Type1-predicates
banba 'manage', *se* 'succeed', *jija* 'try hard', *dεεε* 'fail', *son* 'dare', *lamine* 'dare', *ɲine* 'forget', *bàn* 'refuse', *son* 'accept', *nikanko* (N) 'will/intention', *labennin* (PTCP) 'be ready to', *malo* 'be ashamed', *siran* 'be afraid', *se* 'be able to', periphrastic predicates with bouletic meaning: 'want', 'intend', 'hope', emotive meaning: 'please', and modal meaning: 'have to' (cf. ex.8, chapter 3, p.22).
- b. Type2-predicates
dεmε 'help', *karaba* 'force/oblige', *waajibiya* 'to force/oblige', *bali* 'prevent', *keɲε* 'prevent'.

With the type1-predicates, the controller is the individual involved in the depicted physiological or psychological situation. Depending on the predicates, that individual can be encoded as a subject (89a), a possessor (89b) or an oblique (89c).

- (89) a. Subject controller
 Awa_i bε a fε [kà PRO_i bon lɔ]
 Awa COP 3SG at INF PRO house build
 ‘Awa_i wants PRO_i to build a house.’
- b. Possessor controller
 a bε Awa_i kɔnɔ [kà PRO_i bon lɔ]
 3SG COP Awa.POSS belly INF PRO house build
 ‘Awa_i intends PRO_i to build a house.’
- c. oblique controller
 a ka di Awa_i ye [kà PRO_i bon lɔ]
 3SG COP good Awa PostP INF PRO house build
 ‘It pleases Awa_i PRO_i to build houses/a house.’

As an effect of the type1-predicates expressing individual situations, the OC constructions in (89) contain only one individual argument that can function as a controller, the second argument being the infinitival clause. Things are different with the type2-predicates.

Here, the matrix clauses contain two arguments that interact in a given situation. Typically, the share of involvement of each argument is inherently encoded in the meaning of the predicate. There is generally one argument that initiates the situation, hence the initiator (cf. Farkas 1988), and another one that is affected by the situation, hence the "affectee". The former is realized as a subject argument, while the latter occurs as an object argument. In OC constructions, the "affectee" is chosen as the controller. For this reason, all type2-predicates express object control (90).

- (90) Object controllers
- a. Awa_i ye Adama_j karaba [kà PRO_{*i/j} bon lɔ]
 Awa PFV Adama force INF PRO house build
 ‘Awa_i forced Adama_j PRO_{*i/j} to build a house.’
- b. Fantaya_i ye Adama_j bali [kà PRO_{*i/j} bon lɔ]
 poverty PFV Adama prevent INF PRO house build
 ‘Poverty_i prevented Adama_j PRO_{*i/j} from building a house.’

So, as it is, the controller’s identity is predictable from the meaning of the matrix predicate. If this feels intuitively correct, we show in the next lines that the meaning of the infinitival predicate also plays a determining role.

Restrictions from infinitival predicates

If the embedding (matrix) predicate specifies which one of its arguments may serve as a controller, the control relation is effectively established only when the latter argument satisfies the meaning requirement of the infinitival predicate. This can be shown with three sets of data.

First, consider the case of matrix control predicates that allow both animate and inanimate controllers. Here, it is often the case that the meaning of the infinitival predicate constrains the possibility of having either animate or inanimate controllers. For example, a fire cannot be involved in a "going-situation"; for this reason, when the infinitival predicate is *taga* ‘go’, no control relation can be established between the matrix subject *tasuma* ‘fire’ and PRO (91a). For the control relation to be possible, an animate DP subject is obligatory (91b).

- (91) a. ***Tasuma**_i bɛ a fɛ [kà PRO_i **taga**]
 fire COP 3SG at INF PRO go
 Int.*‘The fire is about to go.’
- b. **Awa**_i bɛ a fɛ [kà PRO_i **taga**]
 fire COP 3SG at INF PRO go
 ‘Awa wants to go.’

Reversely, with an infinitival predicate such as *mɛnɛ* ‘light up’, a subject animate controller is not allowed, as the contrast between (92a) and (92b) shows.

- (92) a. **Tasuma**_i bɛ a fɛ [kà PRO_i **mɛnɛ**]
 fire COP 3SG at INF PRO light.up
 ‘The fire is about to start (light up).’
- b. ***Awa**_i bɛ a fɛ [kà PRO_i **mɛnɛ**]
 fire COP 3SG at INF PRO light.up
 Int.*‘Awa wants to light up.’

The minimal pairs in (91) and (92) suggest that the controllers must have semantic properties that align with the meaning of the infinitival predicate. Cases of coercion confirm this.

Second, there are cases of coercion. These are situations where the possibility of either animate or inanimate controllers reflects the infinitival predicate allowing animate or inanimate subject arguments with a different meaning. For instance, a predicate like *lɔ* takes on the meaning ‘stand up’ or ‘stop’ with animate subject arguments (93a), but only the meaning ‘stop’ with an inanimate subject argument (93b).

- (93) a. Adama lɔ-la.
 Adama stand.up-PFV
 ‘Adama stood up / stopped (e.g. running).’
- b. mɔbili lɔ-la.
 car stop-PFV
 ‘The car *stood up / stopped.’

These two meaning possibilities are reflected in the OC constructions. An animate subject controller corresponds with the ‘stand up/stop’ meaning (94a), while the predicate must be interpreted as ‘stop’ when the controller is an inanimate such as *car* (94b).

- (94) a. **Adama**_i ban-na [kà PRO_i lɔ]
 Adama refuse-PFV INF PRO stop
 ‘Adama refused to stand up / stop.’
- b. **mɔbili**_i ban-na [kà PRO_i lɔ]
 car refuse-PFV INF PRO stop
 ‘The car did not *stand up / stop.’
 Lit. ‘The car refused to *stand up / stop.’

This is another piece of evidence that the semantic properties associated with the controller align with the infinitival predicate’s meaning.

Third and last, some control predicates allow only animate controllers. As already mentioned in section 6.4.3, this is the case for *banba* ‘manage’ and *karaba* ‘force’. Now, note that such a constraint goes along with a restriction on the semantic type of predicate permitted within the infinitival clause. To see this, consider the minimal pairs in (95) and (96).

- (95) a. Adama_i banba-la [kà PRO_i **taga**]
 Adama manage-PFV INF PRO go
 ‘Adama managed to go.’
- b. *Adama_i banba-la [kà PRO_i **yerege**]
 Adama manage-PFV INF PRO spread
 Int.*‘Adama managed to spread.’
- (96) a. Awa_i ye **Adama**_j karaba [kà PRO_{*i/j} **je**]
 Awa PFV Adama force INF PRO shut.up
 ‘Awa_i forced Adama_j PRO_{*i/j} to shut up.’
- b. *Awa_i ye **Adama**_j karaba [kà PRO_{*i/j} **gongoro**]
 Awa PFV Adama force INF PRO get.bent
 Int.*‘Awa_i forced Adama_j PRO_{*i/j} to get bent.’

Unlike (95a) and (96a), the examples in (95b) and (96b) are ungrammatical because the individual argument that is specified as the controller, i.e., *Adama* (through the meaning of the matrix predicate) can semantically not participate in the situation described by the infinitival predicate. Animate entities do neither spread nor get bent. Consequently, the control relation, which must obligatorily hold, cannot be established. I take this additional fact as compelling evidence to the effect that the control relation between PRO and its controller can be established only if the controller can participate in the situation instantiated by the infinitival predicate. In sum, the infinitival predicate imposes semantic restrictions on the choice of the controller.

This generalization goes beyond OC with infinitival complement clauses. It is verified within purposive and consecutive clause constructions. For example, in a purpose clause construction, the subject controller is typically an animate DP.¹⁶ Therefore, control is possible when the infinitival clause contains a predicate such as *sunogo* ‘sleep’ (97a), but not when it contains *gongoro* ‘get bent’ (97b); simply because animate entities may sleep, but not get bent.

(97) Purposive clauses

- a. Adama_i na-na yan [kà PRO_i **sunogo**]
 Adama come-PFV here INF PRO sleep
 ‘Adama came here to sleep.’
- b. *Adama_i na-na yan [kà PRO_i **gongoro**]
 Adama come-PFV here INF PRO get.bent
 Int.*‘Adama came here to get bent.’

Similarly, in the consecutive clause constructions in (98), the animate DP like *Awa* may fall down as well as the inanimate DP *buteli* ‘bottle.’ However, only *Awa* may hurt herself, and only the bottle can break. Accordingly, control is established or not.

(98) Consecutive clauses

- a. Awa_i/*buteli_i ben-na [kà PRO_i **mandimi**]
 Awa/bottle fall.down-PFV INF PRO hurt
 ‘Awa /* the bottle fell down and hurt herself/*itself.’
- b. *Awa_i/buteli_i ben-na [kà PRO_i **ci**]
 Awa/bottle fall.down-PFV INF PRO break
 ‘*Awa /the bottle fell down and broke.’

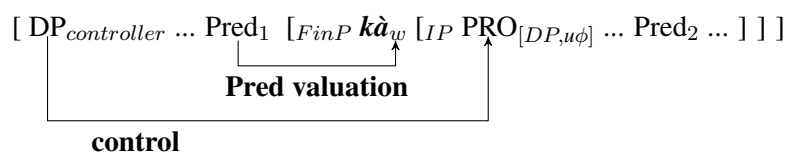
¹⁶Certainly, because only animate or sentient entities may bear intentions.

To conclude, the meaning of the embedding (matrix) predicate determines which argument may control, but control is established if that argument satisfies the infinitival predicate's meaning requirements. This explains the controller choice in all Julia OC constructions, including complementation sentences.

6.7 Conclusion

This chapter has discussed the phenomenon of control in Julia, that is, the issues concerning the interpretation of the null subject PRO of infinitival complement clauses. We have argued that PRO is a minimal pronoun, i.e., a pronoun with no feature specification. However, it must occur as a null subject because it is assigned nominative Case by the null head I of the infinitival clause, in line with the general distribution of null elements in the language. Also, as a rule, PRO in Julia is invariably and exhaustively controlled by a unique argument in the matrix clause associated with the infinitival clause, which may be a subject, an object or a possessor DP. Furthermore, we have observed that the relation between PRO and its controller exhibits the defining properties of obligatory control (OC). We have suggested subsequently that this relation comes about via binding, as sketched below.

(99) Control in Julia



Thus, the binding of PRO by an argument of the matrix clause is triggered by the embedding (matrix) predicate ($Pred_1$) binding the world variable hosted by $k\hat{a}$ (cf. predicate valuation). Which of its arguments may bind or control PRO is a piece of information retrievable from the meaning of the embedding (matrix) predicate. Nevertheless, whatever the identity of the controlling argument, it must denote an entity or individual that is semantically capable of participating in the situation depicted by the infinitival predicate ($Pred_2$). This is a significant requirement for control to be effective, that is, for PRO to get an interpretation.

Part III

Finite complementation: the case of *ko*-clauses

Chapter 7

Aspects of *ko*-clause complementation

7.1 Introduction

This chapter is concerned with *ko*-clause complementation, i.e., complement clause constructions involving the say-complementizer *ko*. If most of the grammars on Manding languages already acknowledged the existence of such constructions (see in Friedländer 1992 Dumestre, 2003 Creissels 2013b), it is my purpose in what follows to discuss their main aspects and characteristics.

The outline of the chapter is as follows. In section 7.2, we look at the form and meaning of the predicates that take *ko*-clauses as arguments. In section 7.3, we present arguments supporting the idea that complement *ko*-clauses are embedded, while aspects concerning their argumenthood and positional distribution are discussed in section 7.4. Section 7.5 explores the internal and external syntax of complement *ko*-clauses and section 7.6 concludes the chapter.

7.2 The predicates

The predicates that take a *ko*-clause as complement constitute by number the largest group of predicates that occur with complement clauses. In the following, we discuss aspects of their form and meaning.

7.2.1 The form

Complement *ko*-clauses occur with two forms of predicates: simple and periphrastic predicates. Under simple predicates, we mean lexical verbal forms: verbal forms that are neither derived nor complex, as illustrated in (1).

(1) Simple predicates

a. Transitive verb

Awa ye a **fɔ** [ko Adama ye bon lo]
Awa PFV 3SG say COMP Adama PFV house build
'Awa said that Adama has built a house.'

b. Intransitive verb

Awa **ɲine-na** [ko Adama ye bon lo]
Awa forget-PFV COMP Adama PFV house build
'Awa forgot that Adama has built a house.'

The second form of predicates, periphrastic predicates, are particular because their meaning within the complementation construction is a composite that necessarily includes the complement clauses, as shown by the translations in (2).

(2) Periphrastic predicates

- a. (a bɛ) Awa jɛ na (ko Adama ye bon lo)
 3SG COP Awa.POSS eye PostP COMP Adama PFV house build
 ‘Awa thinks/believes that Adama has built a house.’
 ‘It is in Awa’s eye.’ (without the *ko*-clause)
- b. (a bɛ) Awa hakili la (ko Adama ye bon lo)
 3SG COP Awa.POSS mind PostP COMP Adama PFV house build
 ‘Awa thinks/believes that Adama has built a house.’
 ‘It is in Awa’s mind.’ (without the *ko*-clause)

Meaning shift is not restricted to periphrastic predicates. In Jula, we found different contexts in which the meaning of the matrix predicates changes. We now turn to this phenomenon.

7.2.2 Meaning

The meaning of the predicates that occur with *ko*-clauses may be affected in different ways. Sometimes, the presence of the *ko*-clause affects the meaning. This is often the case with predicates that allow more than one complement type. For example, the lexical predicate *miiri* expresses either a belief or a reflection, depending on whether it takes a *ko*-clause or a nominal argument (3).

- (3) a. Awa be miiri ko Adama ye bon lo (**belief**)
 Awa HAB think COMP Adama PFV house build
 ‘Awa thinks that Adama has built a house.’
- b. Awa be miiri Adama ka kuma la (**reflection**)
 Awa HAB think Adama POSS saying PostP
 ‘Awa thinks /ponders about what Adama has said.’

Similarly, the three complements of the verb *sɔn* correspond to different meanings (4).

- (4) a. *ko*-clause
 Awa sɔn-na **ko** a fili-la
 Awa accept-PFV COMP 3SG do.wrong-PFV
 ‘Awa admitted/conceded that she was wrong.’
- b. infinitival clause
 Awa sɔn-na [**kà** bon lo (Adama ye)]
 Awa accept-PFV INF house build Adama PostP
 ‘Awa accepted/agreed to build a house (for Adama).’
- c. subjunctive clause
 Awa sɔn-na [Adama **ká** bon lo]
 Awa accept-PFV Adama SBJV house build
 ‘Awa allowed/permitted Adama to build a house.’

With periphrastic predicates, too, meaning the form of the complements may induce change. This is the case for periphrastic constructions involving nouns like *hakili* ‘mind’ and *kɔnɔ* ‘belly’, as shown in (5) and (6), respectively.

- (5) a. Awa hakili bɛ a la **ko** Adama ye bon lo
 Awa.POSS mind COP 3SG PostP COMP Adama PFV house build
 ‘Awa remembers that Adama has built a house.’
- b. Awa hakili bɛ a la **kà** bon lo
 Awa.POSS mind COP 3SG PostP INF house build
 ‘Awa hopes to build a house.’
- (6) a. a bɛ Awa kɔnɔ **ko** Adama ye bon lo
 3SG COP Awa.POSS belly COMP Adama PFV house build
 ‘Awa thinks/believes that Adama has built a house.’
- b. a bɛ Awa kɔnɔ **kà** bon lo
 3SG COP Awa.POSS belly INF house build
 ‘Awa intends to build a house.’

The form of complement affects not only the substantive meaning of the predicate but also factive and implicative readings. For example, in (9), while a *ko*-clause under *lon* ‘know’ is interpreted as a fact, a nominalization is interpreted as a generic ability (cf. Givón 2001).

- (7) a. Awa be a lon **ko** Adama ye bon lo
 Awa HAB 3SG know COMP Adama PFV house build
 ‘Awa knows that Adama has built a house.’
- b. Awa be **bon lo** lon
 Awa HAB house build know
 ‘Awa knows how to build a house.’

Along similar lines, the factive reading of the verb *jine* ‘forget’ comes along with the presence of the *ko*-clause (8a). However, with an infinitival clause, the same verb has an implicative reading (8b).

- (8) a. Awa jine-na **ko** Adama ye bon lo
 Awa forget-PFV COMP Adama PFV house build
 ‘Awa forgot that Adama has built a house.’
- b. Awa jine-na **kà** bon lo (Adama ye)
 Awa forget-PFV INF house build Adama PostP
 ‘Awa forgot to build a house (for Adama).’

Besides the form of the complement, TAM-marking, especially future marking within the *ko*-clause, can affect the meaning expressed by some matrix predicates. Thus, as shown below in (9), when the *ko*-clause of the perception verb *yé* ‘see’ contains the future marker *bena*, the verb takes on a meaning close to the meaning of *faamu* ‘understand’.¹

- (9) see → understand
- a. Awa ye a **yé** ko Adama **bena** bon lo
 Awa PFV 3SG see COMP Adama FUT house build
 ‘Awa understood that Adama will build a house.’
- b. Awa ye a **faamu** ko Adama **bena** bon lo
 Awa PFV 3SG understand COMP Adama FUT house build
 ‘Awa understood that Adama will build a house.’

¹A reading whereby the verb is interpreted as an expression of mental vision is also available.

Likewise, in (10), the verb *lon* ‘know’ is reinterpreted as *lalɔnniya* ‘inform’. However, unlike the latter, the informant with *know* is implicit. In all the cases, the *ko*-clause itself is understood as an intention or intended action.

(10) know → inform

- a. Awa be a **lon** ko Adama **bona** bon lo
Awa HAB 3SG know COMP Adama FUT house build
‘Awa is informed that Adama will build a house.’
- b. Fatu ye Awa **lalɔnniya** ko Adama **bona** bon lo
Fatu PFV Awa inform COMP Adama FUT house build
‘Fatu informed Awa that Adama will build a house.’

Finally, meaning change may be triggered by the nature of the syntactic relation between the complement and the matrix predicate. Compare the two examples below in (11).

- (11) a. Awa ye a yé Adama be na-na
Awa PFV 3SG see Adama HAB come-PROG
‘Awa saw Adama coming.’
- b. Awa ye a yé **ko** Adama be na-na
Awa PFV 3SG see COMP Adama HAB come-PROG
‘Awa has seen/realized that Awa was coming.’

The example (11a) is syntactically a parataxis construction (cf. Noonan 2007), as shown by the absence of the complementizer *ko*.² Thereby, the verb *see* expresses direct perception, and one can infer that the subject of the matrix clause, *Awa*, directly bears witness to the event of the complement clause. In the presence of *ko*, as in (11b), such inference can hardly be made. Here, the meaning of the matrix verb does not involve any perception per se. Instead, the event of the *ko*-clause is presented as a mental percept that results from external evidence.³

So, it appears from this brief discussion that the meaning of the matrix predicate may be subject to some change triggered by the internal properties of the complement *ko*-clause. Accordingly, we may view the semantics of complementation as the result of the relation between the matrix predicates and the complement clauses (cf. Givón 2001, Noonan 2007, Cristofaro 2005, 2008). In what follows, we consider the nature of the relationship between complement *ko*-clauses and the predicates with which they occur. I show that that relationship is an instance of embedding (aka subordination).

7.3 Embedding properties

In the context of complementation, the notion of embedding implies that the complement clause is dependent on the matrix clause in such a way that the former is a constituent of the latter (cf. Longacre and Thompson 1985, Quirk et al. 1985, Mish 1991, Bußmann 2006, Noonan 2007). The complement clause is thus said to be *embedded* in the matrix clause. In this respect, the two clauses behave just like a single sentence. As a result, the relation between the matrix and the embedded complement clause exhibit the following properties:

²Even though it resembles a gerund semantically.

³For example, Awa realized that Adama was coming as she heard the sound of a car driving by.

- (12)
- i. Phonology: there is prosody unity; that is, the matrix and embedded clause are uttered under a single prosody contour.
 - ii. Syntax: the embedded clause occupies an argument position within the matrix clause.
 - iii. Semantics: the embedded clause is an argument within the matrix clause; e.g., it completes the meaning of the matrix predicate.
 - iv. Pragmatics: the embedded clause is illocutionarily dependent on the matrix clause, and, therefore, it lacks illocutionary force.

These four properties constitute the core definitional criteria of embedded complement clauses that have been mentioned in various works (cf. Fabricius-Hansen 1992, Hoeksema and Napoli 1993, Dixon 2006, Comrie 2008, i.a.). The discussion of the syntactic property (ii) is postponed to section 7.4. Below, I consider the properties (i), (iii) and (iv), and I show that phonologically, semantically and pragmatically, *ko*-clauses are embedded.

7.3.1 Phonology

Phonologically, the matrix clause and the *ko*-clause form a prosody unit. Evidence for this is the impossibility of marking an intonation break between the two clauses. For an illustration, consider (13), where the *ko*-clause occurs as the complement of the speech verb *ko*.

- (13) Awa **ko** n ye bon lɔ
 Awa say 1SG PFV house build
- a. ‘Awa_i said: I_{i/*j} have built a house.’ (direct speech)
 - b. ‘Awa_i said that I_{*i/j} have built a house.’ (indirect speech)

As is commonly the case with quotative complementizers (cf. Frajzyngier 1995, Dimmendaal 2001, Güldemann 2002, 2005 i.a.), *ko* is optional with the speech verb *ko*. Thus, the sentence in (14) is ambiguous between a direct and indirect speech reading, depending on the intonation. The direct speech reading requires an intonation break between the first and second clauses. In this case, the first pronoun *n* ‘I’ refers to the subject of the speech verb *ko*, namely *Awa*. In the indirect speech reading, however, an intonation break would be impossible, and the first-person pronoun would have to refer to the (actual) speaker and not to *Awa*.

Interestingly, it is the indirect speech reading that is compatible with the insertion of the complementizer *ko*. As evidence, the presence of *ko* prevents any element that triggers an intonation break. This is the case, for example, with interjection particles like *jaa* (14).

- (14) a. Awa **ko** (jaa) Adama ye bon lɔ
 Awa say PART Adama PFV house build
 ‘Awa said: (unexpectedly,) Adama has built a house.’
- b. Awa **ko** (*jaa) ko Adama ye bon lɔ
 Awa say PART COMP Adama PFV house build
 ‘Awa said (*unexpectedly) that Adama has built a house.’

In the presence of the complementizer *ko* in the example (14b), which expresses indirect speech, the interjection *jaa*, which expresses unexpectedness, cannot occur between the *ko*-clause and the matrix clause, because the construction does not allow any intonation

break. In the absence of *ko*, however, specifically in the direct speech construction in (14a), the insertion of *jaa* is possible, because the construction permits an intonation break.

If embedding (aka subordination) involves prosody unity, i.e., the absence of an intonation break between the embedding and the embedded clause (cf. Fabricius-Hansen 1992, Hoeksema and Napoli 1993), the upshot of the above is that *ko*-clauses are embedded clauses. Support for this conclusion also comes from the semantics.

7.3.2 Semantics

Semantic evidence for the embedded status of *ko*-clauses comes from their truth-value. It is a general observation that embedding predicates impact the truth-value of their complements. Complement clauses can be said to be true or false either from the speaker's perspective or from the perspective of a matrix clause argument, say the subject. For example, the complement clause of *know*, under the factive reading, is true both for the subject and the speaker. This is illustrated by the impossibility of the continuations in (15a) and (15b).

- (15) a. Awa be a lɔn ko Adama ye bon lɔ, # nga a fɛ tɪɛ
 Awa HAB 3SG know COMP Adama PFV house build but 3SG for truth
 tɛ
 COP.NEG
 'Awa knows that Adama has built a house, # but for her, it is not true.'
- b. Awa be a lɔn ko Adama ye bon lɔ, # nga ne fɛ tɪɛ
 Awa HAB 3SG know COMP Adama PFV house build but 1EMP for truth
 tɛ
 COP.NEG
 'Awa knows that Adama has built a house, # but for me, it is not true.'

Also, predicates that express thoughts or beliefs take a complement clause which is only true for the thinker or believer, but not necessarily for the speaker, e.g.:

- (16) a. Awa jɛ na ko Adama ye bon lɔ, # nga a fɛ tɪɛ
 Awa.POSS eye PostP COMP Adama PFV house build but 3SG for truth
 tɛ
 COP.NEG
 'Awa thinks/believes that Adama has built a house, # but for her, it is not true.'
- b. Awa jɛ na ko Adama ye bon lɔ, nga ne fɛ tɪɛ
 Awa.POSS eye PostP COMP Adama PFV house build but 1EMP for truth
 tɛ
 COP.NEG
 'Awa thinks/believes that Adama has built a house, but for me, it is not true.'

Finally, speech predicates do not say anything about the truth of their complement clauses. It follows that the continuations in (17a) and (17b) do not produce a contradiction.

- (17) a. Awa ye a fɔ ko Adama ye bon lɔ, nga a fɛ tɪɛ tɛ
 Awa PFV 3SG say COMP Adama PFV house build but 3SG for truth COP.NEG
 ‘Awa said that Adama has built a house, but for her, it is not true.’
- b. Awa be a fɔ ko Adama ye bon lɔ, nga ne fɛ tɪɛ tɛ
 Awa HAB 3SG say COMP Adama PFV house build but 1EMP for truth COP.NEG
 ‘Awa said that Adama has built a house, but for me, it is not true.’

The facts in (15)-(17) illustrate that the truth-value of the content expressed by the *ko*-clause, namely ‘Adama has built a house’, is dependent on the matrix predicate. That is because the *ko*-clause is interpreted as a constituent within the matrix clause, e.g., it constitutes the object of the content expressed by the matrix predicates. In other words, the *ko*-clause informs about *what is known*, *what is thought/believed*, and for *what is said*, respectively. In short, it is the semantic argument of the matrix predicates, and consequently, it is semantically embedded in the matrix clause.

Note that the argumenthood of the *ko*-clause holds, notwithstanding the property (ii) above. I will come back to the issue concerning the property (ii) in section 7.4. Before that, I conclude this section by showing that *ko*-clauses are also pragmatically embedded, as they lack illocutionary force; that is, they are not asserted.⁴

7.3.3 Pragmatics

Recall from chapter 4 (cf. 4.4); if a clause has illocutionary force, it should be able to have a question tag associated with it (cf. Haegeman 2009, 2003, i.a.). What the examples below in (18) show, however, is that the Jula equivalent of the English tag question, the particle *kɛ*, cannot have scope just over the *ko*-clause.

- (18) a. Awa ye a fɔ ko Adama ye bon lɔ **kɛ** ?
 Awa PFV 3SG say COMP Adama PFV house build PART
 ‘Awa_i said that Adama_j has built a house, didn’t she_i / *hasn’t he_j?’
- b. Awa *ɲɛ* na ko Adama ye bon lɔ **kɛ** ?
 Awa.POSS eye PostP COMP Adama PFV house build PART
 ‘Awa_i thinks/believes that Adama_j has built a house, doesn’t she_i / *hasn’t he_j?’
- c. Awa be a lɔn ko Adama ye bon lɔ **kɛ** ?
 Awa HAB 3SG know COMP Adama PFV house build PART
 ‘Awa_i knows that Adama_j has built a house, doesn’t she_i / *hasn’t he_j?’

From the facts illustrated in (18), it follows that *ko*-clauses lack illocutionary force. Following Hooper and Thompson (1973), we may say in this respect that they are not asserted. Further evidence comes from the distribution of speaker-oriented discourse expressions.

In Jula, some discourse particles are used by the speaker to convey various attitudes and expectations. Two examples are *walayi* ‘I swear’ and *ayiwa* ‘ok, so’. In their distribution, they behave like illocutionary modifiers (cf. Krifka 2001, Faller 2002), as they only occur in constructions that have illocutionary force such as declarative and imperative main clauses (19).

⁴It is for sure old-fashioned to say that the notion of illocutionary force is part of pragmatics since it is treated in both syntax and semantics. The use of the term in connection with pragmatics serves a descriptive purpose.

- (19) a. Declarative
walayi/ayiwa Adama ye bon lo
 PART Adama PFV house build
 ‘I swear / So, Adama has built a house!’
- b. Imperative
walayi/ayiwa nan yan
 PART come here
 ‘I swear / So, come here!’

Reversely, they are absent from constructions that lack illocutionary force. This is the case for infinitival complements (cf. chapter 3), relative clauses, and conditional protases, as illustrated in (20).

- (20) a. Infinitival clause
 Awa bàn-na [kà (***walayi/ayiwa**) bon lo]
 Awa refuse-PFV INF PART house build
 ‘Awa refused to (*I swear/*so) build a house.’
- b. Relative clause
 cɛ na-na yan [min (***walayi/ayiwa**) ye bon lo]
 man come-PFV here REL PART PFV house build
 ‘A man came here, who (*I swear/*so) has built a house.’
- c. Conditional clause
 Adama te bon lo [ni (***walayi/ayiwa**) Awa ma sɔn]
 Adama HAB.NEG house build COMP PART Awa PFV.NEG agree
 ‘Adama will not build a house, if (*I swear/*so) Awa does not agree.’

The facts above suggest that declarative main clauses and imperatives have illocutionary force. By contrast, infinitival, relative clauses, and conditional protases lack illocutionary force. With this in place, the conclusion one can draw from the examples below is that *ko*-clauses, unlike their main clause counterparts (cf. 19a), lack illocutionary force, i.e., they are not asserted. For, in (21a), (21b) and (21c), respectively, the particles *walayi* ‘I swear’ and *ayiwa* ‘ok, so’ are illicit inside the *ko*-clause the same way as they are inside infinitival, relative clauses, and conditional protases.

- (21) a. Awa ye a fɔ [ko (***walayi/ayiwa**) Adama ye bon lo]
 Awa PFV 3SG say COMP PART Adama PFV house build
 ‘Awa said that (*I swear/*so) Adama has built a house.’
- b. Awa ɲɛ na [ko (***walayi/ayiwa**) Adama ye bon lo]
 Awa.POSS eye PostP COMP PART Adama PFV house build
 ‘Awa thinks/believes that (*I swear/*so) Adama has built a house.’
- c. Awa be a lɔn [ko (***walayi/ayiwa**) Adama ye bon lo]
 Awa HAB 3SG know COMP PART Adama PFV house build
 ‘Awa knows that (*I swear/*so) Adama has built a house.’

In sum, if it is true that embedded clauses lack illocutionary force, the fact that *ko*-clauses lack illocutionary force means that they are pragmatically embedded in the matrix clause on which they depend.

7.3.4 Interim summary

In this section, I have argued that *ko*-clauses are embedded based on three arguments. First, as for their phonological property, the matrix clause and *ko*-clause form a prosody unity, i.e., they are uttered under a single prosody contour. Second, from a semantic point of view, the *ko*-clause is an argument within the matrix clause, i.e., it completes the meaning of the matrix predicate. Third, the *ko*-clause is illocutionarily dependent on the matrix clause, and, therefore, it lacks illocutionary force.

Section 7.5 discusses further consequences of this by looking at the scope of adverbs, questions, and negation over *ko*-clauses. In the next section, I turn to the issue concerning the position of *ko*-clauses and how the positional restrictions on *ko*-clauses are compatible with the claim that they are arguments.

7.4 Argumenthood and positional restrictions

In this section, I argue that the positional restriction of *ko*-clauses is not due to them not being arguments. Instead, the impossibility for *ko*-clauses to occupy an argument position within the matrix clause to which they belong is because these positions are Case-marked. Clauses being Case-less, *ko*-clauses cannot occupy these positions. The absence of left-dislocation configuration for *ko*-clauses confirms that their argumenthood does not align with their syntactic positions. It seems, *ko*-clauses generally are incapable of occupying any structural positions available to nominal arguments.

7.4.1 Positional restrictions within the matrix clause

Following a general rule for clausal constituents in Jula, *ko*-clauses always occupy a peripheral position in the clauses in which they are embedded. They can never be in the canonical (unmarked) subject (22a), object (22b), and oblique position (22c). In this respect, they differ from nominal arguments.

- (22) a. *ko*-clause in sentence initial subject position
*[ko Adama ye bon lɔ] bɛ Awa jɛ na
COMP Adama PFV house build COP Awa.POSS eye PostP
Int. 'Awa thinks/believes that Adama has built a house.'
- b. *ko*-clause in preverbal object position
*Awa be [ko Adama ye bon lɔ] lɔn
Awa HAB COMP Adama PFV house build know
Int. 'Awa knows that Adama has built a house.'
- c. *ko*-clause in postverbal oblique position
*Awa jɛnɛ-na [ko Adama ye bon lɔ] kɔ
Awa forget-PFV COMP Adama PFV house build PostP
Int. 'Awa forgot that Adama has built a house.'

The default and exclusive position of complement *ko*-clauses is, in fact, at the right periphery of the matrix clause. *Ko*-clauses being restricted to occur in that position, their argument status within the matrix clause is often signaled by a correlate. Correlates are obligatory with subject and object *ko*-clauses (23).

- (23) a. *ko*-clause with subject correlate
 *(a) bɛ Awa jɛ na [ko Adama ye bon lɔ]
 3SG COP Awa.POSS eye PostP COMP Adama PFV house build
 Int. 'Awa thinks/believes that Adama has built a house.'
- b. *ko*-clause with object correlate
 Awa be *(a) lɔn [ko Adama ye bon lɔ]
 Awa HAB 3SG know COMP Adama PFV house build
 Int. 'Awa knows that Adama has built a house.'

With oblique *ko*-clauses, however, the correlate is either obligatory as in (24a) or ungrammatical as in (24b).

- (24) a. *ko*-clause with obligatory oblique correlate
 Awa la-la *(a la) [ko Adama ye bon lɔ]
 Awa be.sure-PFV 3SG PostP COMP Adama PFV house build
 Int. 'Awa is sure that Adama has built a house.'
- b. *ko*-clause with ungrammatical oblique correlate
 Awa jɪnɛ-na (*a kɔ) [ko Adama ye bon lɔ]
 Awa forget-PFV 3SG PostP COMP Adama PFV house build
 Int. 'Awa forgot that Adama has built a house.'

It is thus evident that only nominal elements such as correlates may occupy an argument position inside the matrix clause, and never the complement clauses. This is problematic considering the syntactic criterion for embedding presented in the introduction of the section 7.3. Recall that the latter criterion stipulates that only clauses that can occupy an argument position within the matrix clause can be said to be embedded and accordingly be considered complement clauses (cf. Dixon 2006, Foley and Van Valin 1984, Lehmann 1988). In this line of thought, *ko*-clauses cannot be considered complements, given the fact that they cannot occupy a position inside the matrix clause. In the literature on Manding languages, this view has been advocated by Diallo (1987) and Idiatov (2010).

For the two authors, the correlates are the real arguments of the matrix predicate. The *ko*-clauses constitute an elaboration of the latter instead. In this respect, their reasoning amounts to the idea of treating clausal complementation as a particular instance of relativization (e.g. Aboh 2005, 2010, Arsenijević 2009, Caponigro and Polinsky 2011, Kayne 2014, i.a.). The *ko*-clauses contribute, accordingly, to the specification of the correlates in the same way a relative clause is said to specify nominal expressions. Nevertheless, there are three good reasons to dismiss this view, as far as I can see. The first reason concerns the general distribution of *ko*-clauses in Jula. Recall first from the example in (24b) that not all *ko*-clauses co-occur with correlates. Without further assumption, the reasoning will fail to explain these cases. To that, one may add that in Jula, *ko*-clauses never occur as a complement to a nominal, unlike in other languages.⁵ For example, in German, a noun like *Tatsache* 'fact' can take a complement *dass*-clause (25a); moreover, as the translations show, this is also the case in English. However, in Jula, the noun *kó* 'fact', which is homophonous to the complementizer *ko*, cannot take a *ko*-clause as a complement (25b).⁶

⁵As for Manding languages, Creissels (2013b) report examples where *ko*-clauses modify a nominal in Mandinka.

⁶This is true for any noun, including typical cases cited in the literature like *rumor*, *claim*, *idea*, etc. (see 5.7)

- (25) a. Awa weiß die **Tatsache**, dass Adama ein Haus gebaut hat.
 Awa know.3PRS the fact that Adama a house built has
 ‘Awa knows the fact that Adama has built a house.’
- b. *Awa be **kó** lón [ko Adama ye bon ló]
 Awa HAB fact know COMP Adama PFV house build
 Int. ‘Awa knows the fact that Adama has built a house.’

Hence, if one follows Diallo (1987) and Idiatov (2010), one would expect *ko*-clauses to occur as complements of nominals, and consequently (25b) to be grammatical in Jula, which is not the case.

In a similar vein, it is essential to note that from a syntactic point of view, the relation between the correlates and the *ko*-clauses does not reflect a typical case of noun-complement relation. For example, in Jula, relative clauses may appear adjacent to the head noun or not. Crucially, each option corresponds to a different interpretation of the modified noun, as illustrated in (26a) and (26b).

- (26) a. relative clause adjacent to noun
ce [min ye móbili san] ye Awa neni
 man REL PFV car buy PFV Awa insult
 ‘The man who has bought a car insulted Awa.’
- b. relative clause non-adjacent to noun
ce ye Awa neni [min ye móbili san]
 man PFV Awa insult REL PFV car buy
 ‘A man insulted Awa who has bought a car.’

Ko-clauses, however, never occur adjacent to the correlates. This is problematic, given the fact that the former is supposed to be the complement of the latter.

- (27) a. *ko*-clause with subject correlate
 ***a** [ko Adama ye bon ló] be Awa *ɲɛ* na
 3SG COMP Adama PFV house build COP Awa.POSS eye PostP
 Int. ‘Awa thinks/believes that Adama has built a house.’
- b. *ko*-clause with object correlate
 *Awa be **a** [ko Adama ye bon ló] lón
 Awa HAB 3SG COMP Adama PFV house build know
 Int. ‘Awa knows that Adama has built a house.’
- c. *ko*-clause with oblique correlate
 *Awa la-la **a** [ko Adama ye bon ló] la
 Awa be.sure-PFV 3SG COMP Adama PFV house build PostP
 Int. ‘Awa is sure that Adama has built a house.’

The impossibility of the sentences in (27) constitutes the second reason why *ko*-clauses cannot be seen as complements of the correlates. The third reason is semantic.

As we have shown in connection with infinitival complements in chapter 3 (cf. section 3.3.1), correlates do not have a specific referent, unlike genuine nominal expressions. As supporting evidence, a referring nominal expression cannot replace a correlate. This was already shown by the example above in (25b). A further illustration is given below in (28).

- (28) a. subject correlate replaced by a noun
 ***hakililata** bε Awa jε na [ko Adama ye bon lɔ]
 thought COP Awa.POSS eye PostP COMP Adama PFV house build
 Int. 'Awa has the thought that Adama has built a house.'
- b. oblique correlate replaced by a noun
 *Awa la-la **kó** la [ko Adama ye bon lɔ]
 Awa be.sure-PFV fact PostP COMP Adama PFV house build
 Int. 'Awa is sure about the fact that Adama has built a house.'

Since they are non-referential, i.e., semantically defective, the correlates cannot be considered semantic arguments of the matrix predicates. Accordingly, one cannot claim that the *ko*-clause elaborates on the meaning of the correlate.

To be sure, both syntactically and semantically, there exists no reason to see in the *ko*-clause a complement of the correlate. Semantically, the correlate also does not constitute an argument of the matrix predicate, but the *ko*-clause does. As shown below, the answer to a question about the content of *know* must necessarily include the *ko*-clause.

- (29) a. Awa be **mun** lɔn ?
 Awa HAB what know ?
 'What does Awa know?'
- b. # Awa be **a** lɔn
 Awa HAB 3SG know
 'Awa knows it.'
- c. Awa be **a** lɔn *([ko Adama ye bon lɔ])
 Awa HAB 3SG know COMP Adama PFV house build
 Int. 'Awa knows it.'

The sentence in (29b) with the pronoun *a* alone, although syntactically well-formed, does not constitute an appropriate answer to the question in (29a). Instead, in this case, a sentence like (29c) has to be used, with the *ko*-clause being obligatorily present. The presence of the *ko*-clause is thus semantically important, as it provides the content of the answer to the content question.

In sum, the impossibility of occupying an argument position inside the matrix clause, i.e., the absence of syntactic embedding, does not evidence against the argument status of *ko*-clauses. That being said, no explanation is given as to why it might not be possible to place the *ko*-clause inside the matrix clauses. Nor do we explain why the correlates are required in some cases.

On the first question, recall that in chapter 3 it has been proposed that clausal arguments do not occupy argument position inside the matrix clause because they cannot be Case-marked. In particular, I have suggested that clauses being Case-less, they cannot be in the subject, object, and oblique position of the matrix clause, since these positions involve Case-marking. I assume that the same constraint applies to *ko*-clauses too.

For the second question, I have suggested in the analysis proposed for infinitival complementation that the distribution of correlates is regulated by both Case marking and the following principle.⁷

⁷See Chapter 5, section 5.6.2.

(30) **Condition on overt SpecX**

Only the specifier position of an overt Case assigning head can be realized overtly. Thus, a DP occupying the specifier position of a covert Case assigning head remains unrealized at the surface.

The presence of correlates within *ko*-clauses complementation abides by the same rules. For example, since subject arguments are assigned nominative Case by I-heads in SpecI, a subject DP cannot be omitted (31a) unless the I-head is omitted, too, e.g., the copula *bε* as in (31b).

- (31) a. *ko*-clause with subject correlate
*(a) *bε* Awa *ɲε* na [ko Adama ye bon lɔ]
3SG COP Awa.POSS eye PostP COMP Adama PFV house build
'Awa thinks/believes that Adama has built a house.'
- b. *ko*-clause with subject correlate
(a *bε*) Awa *ɲε* na [ko Adama ye bon lɔ]
3SG COP Awa.POSS eye PostP COMP Adama PFV house build
'Awa thinks/believes that Adama has built a house.'

Also, object arguments are assigned accusative Case by transitive V-heads in SpecV. Since verbs are always obligatory (32a), the object correlates can never be dropped (32b).

- (32) a. *ko*-clause with object correlate
Awa be a *(lɔn) [ko Adama ye bon lɔ]
Awa HAB 3SG know COMP Adama PFV house build
'Awa knows that Adama has built a house.'
- b. *ko*-clause with object correlate
Awa be *(a) lɔn [ko Adama ye bon lɔ]
Awa HAB 3SG know COMP Adama PFV house build
'Awa knows that Adama has built a house'

Finally, oblique arguments get Case-marked in SpecP. In the case the P head cannot be realized (33a), there can be no overt correlate associated with the complement *ko*-clause.⁸ Reversely, whenever the P head is obligatorily realized as in (33b), the complement *ko*-clause must be associated with an overt correlate.

- (33) a. Awa *ɲine*-na *(a *ko*) [ko Adama ye bon lɔ]
Awa forget-PFV 3SG PostP COMP Adama PFV house build
'Awa forgot that Adama has built a house.'
- b. Awa *hakili* *bε* *(a *la*) [ko Adama ye bon lɔ]
Awa.POSS mind COP 3SG PostP COMP Adama PFV house build
'Awa remembers that Adama has built a house.'

Thus, the conclusion here is that the correlate and the relating *ko*-clauses fulfill different requirements. The correlate fulfills a syntactic requirement, i.e., overt Case marking. The *ko*-clause is the semantic argument and does not fulfill the syntactic requirement of being in the argument position due to its inherent property of being Case-less.

In what follows, we will see that even though the *ko*-clause is a semantic argument of the matrix clause, it cannot undergo left-dislocation, which in chapter 3 was shown to be possible with infinitival and nominal arguments.

⁸Like I have done before with infinitival clauses, in the derivation proposed in chapter 9, I will posit a covert correlate for cases like that. As evidence, in Diallo (1987), we found that the predicates that disallow overt correlates in Jula allow them in Bambara.

7.4.2 Left-dislocation

Another positional restriction of complement *ko*-clauses concerns fronting via left-dislocation. We have established in the previous chapter that in Jula, the fronting of arguments necessitates a left-dislocation configuration (cf. 3.3.3). This was demonstrated with nominal and infinitival arguments, illustrated again in (34-35).

- (34) a. nominal argument in canonical position, i.e. oblique

Awa bàn-na **wari ma**
 Awa refuse-PFV money PostP
 ‘Awa refused the money.’

- b. Left-dislocation of nominal argument, i.e. oblique

wari_i, Awa bàn-na ***(a_i) ma**
 money Awa refuse-PFV 3SG PostP
 ‘The money_i, Awa refused it_i.’

- (35) a. infinitival argument in canonical position, i.e. oblique

Awa bàn-na [**kà bon lɔ**]
 Awa refuse-PFV INF house build
 ‘Awa refused to build a house.’

- b. Left-dislocation of infinitival argument, i.e. oblique

[**kà bon lɔ**]_i Awa bàn-na ***(o_i) ma**
 INF house build Awa refuse-PFV DEM PostP
 ‘[To build a house]_i, Awa refused that_i.’

In (34b) and (35b), the nominal oblique argument and the oblique infinitival clause, respectively, appear detached from the clause to which they belong. Within that clause, the correlate *a* resumes the nominal argument and *o* the infinitival clause. Interestingly, the left-dislocation construction has the same interpretation as the canonical counterpart in either case. In other words, the sentence in (34b) is semantically equivalent to the sentence in (34a), in the same way as (35b) is equivalent to (35a).

As for complement *ko*-clauses, however, their position is fixed to the right of the matrix clause. Besides the fact that they cannot occur inside the matrix clause, complement *ko*-clauses do not seem to undergo left-dislocation. Consider the two sentences below.

- (36) a. Awa be a lɔn [ko Adama ye bon lɔ]
 Awa HAB 3SG know COMP Adama PFV house build
 ‘Awa knows that Adama has built a house.’

- b. **ko Adama ye bon lɔ**, Awa be **o** lɔn
 COMP Adama PFV house build Awa HAB DEM know
 1. ‘Reportedly, Awa has built a house. Awa knows that.’
 2. ‘Reportedly, Awa knows that Adama has built a house.’

In (36a), the complement *ko*-clause appears to the right of the matrix clause as usual. The sentence in (36b) exhibits formal properties of left-dislocation: the *ko*-clause appears leftward, followed by another clause that contains the resumptive pronoun *o*. Nevertheless, as the English translations above show, the two sentences differ drastically in their meaning. In (36b) mainly, *ko* contributes a meaning similar to a reportative

evidential marker.⁹ The sentence has two readings. In the first reading, the sentence contains two related, but independent clauses and *ko* scopes over the first clause only. The second reading involves the dislocation counterpart of a sort of paratactic construction. The two clauses are in a complementation relationship (following Noonan 2007), and *ko* scopes over the entire paratactic construction. Each of the readings is sketched below in (37).

- (37) a. First reading
 [ko [Adama ye bon lɔ]], [Awa be o_i lɔn]
 COMP Adama PFV house build Awa HAB DEM know
 ‘Reportedly, Awa has built a house. Awa knows that (it is reported that Awa has built a house.’
- b. Second reading
 ko [[Adama ye bon lɔ]_i, Awa be o_i lɔn]
 COMP Adama PFV house build Awa HAB DEM know
 ‘Reportedly, Awa knows that Adama has built a house.’

Semantically, none of the readings in (39) corresponds to the sentence in (38a) above. Consequently, the sentence in (38b) does not constitute a left-dislocation counterpart of the latter, since left-dislocation constructions are not supposed to differ semantically from their canonical counterparts (cf. Lambrecht 2001). Similar meaning effects are observed with speech predicates. Compare (38a) and (38b).¹⁰

- (38) a. First reading
 [ko [Adama ye bon lɔ]], [Awa ye o fɔ]
 COMP Adama PFV house build Awa PFV DEM say
 ‘ "Reportedly, Awa has built a house", said Awa.’
- b. Second reading
 ?ko [[Adama ye bon lɔ], Awa ye o fɔ]
 COMP Adama PFV house build Awa PFV DEM say
 ‘Reportedly, Awa said that Adama has built a house.’

To summarize, whenever *ko* appears in front of a whole sentence, the interpretation that results is not that of left-dislocated complement clauses. On this semantic ground, I conclude that even though they are arguments, complement *ko*-clauses do not undergo left-dislocation. They cannot be placed in any other position than to the right of the matrix clause. Thus, it seems to be a general property of *ko*-clauses not to surface in the same syntactic position as nominal arguments.

The next section discusses other issues concerning negation, questions, and adverbs in and outside complement *ko*-clauses.

7.5 Inside and outside complement *ko*-clauses

In this section, I discuss other properties concerning the internal syntax of *ko*-clauses and the relation to the matrix clause. The discussion on negation shows that *ko*-clauses constitute a separate negation domain; thus, a different IP-domain, since negation in Jula is expressed within the IP-domain. Nevertheless, the fact that (polar and content)

⁹More on this in chapter 8

¹⁰The second reading is not as good as the first one.

questions and CP adverbs do not affect the content of *ko*-clauses suggests that they are indeed embedded, which confirms the conclusion of section 7.3.

7.5.1 Negation

In chapter 3, I have mentioned a connection between negation and TAM-marking. More explicitly, in Jula, (sentential) negation markers are part of the inflectional system. For any positive TAM-marker, there exists a corresponding negative counterpart, and therefore negating a Jula clause consists of replacing a positive TAM-marker with its negative counterpart (cf. Kiemtoré 2015). Put it differently, negation marking in Jula operates within the IP-domain, in line with Pollock (1989) and subsequent works.

Against this background, note that being finite, i.e., containing a subject and TAM-marking, complement *ko*-clauses constitute an independent negation domain. As an evidence, they can contain a negative polarity item (hence NPI).

- (39) a. Awa **ye** a fɔ [ko Adama **ma** fen **si** san]
 Awa PFV 3SG say COMP Adama PFV.NEG thing NO buy
 ‘Awa said that Adama did not buy anything.’
 b. Awa **ma** a fɔ [ko Adama **ye** fen (***si**) san]
 Awa PFV.NEG 3SG say COMP Adama PFV thing NO buy
 Int. ‘Awa did not say that Adama did not buy anything.’

In (39a), the NPI element *si* ‘no’ is licensed in the *ko*-clause because it contains a negative TAM-marker, namely the perfective *ma*. Conversely, the presence of *si* within the *ko*-clause in (39b) yields ungrammaticality since the latter does not contain any negation, but the positive perfective marker *ye*. The sentence is ungrammatical, although the matrix clause contains a negation (e.g., *ma*). It thus appears that the negation domain of the matrix clause does not extend to the *ko*-clause, and accordingly that both matrix clause and complement *ko*-clause constitute two independent negation domains. That being said, there exist contexts in which matrix negation seems to affect the content of the complement *ko*-clause. That happens mainly with a few embedding predicates, namely, periphrastic predicates expressing mental states. To give an illustration, consider the example in (40).

- (40) a. **te** Awa hakili la [ko Adama ye bon lo]
 3SG COP.NEG Awa.POSS mind PostP COMP Adama PFV house build
 ‘Awa does not think/believe that Adama has built a house.’
 ⇒ ‘Awa thinks/believes that Adama has not built a house.’

As can be seen from the translation above, the negation marker of the matrix clause is interpreted within the *ko*-clause, although the latter does not contain any negation marker. In the literature, this phenomenon is traditionally dubbed as negative raising, “a situation where a negative marker appears to be removed from the complement clause with which it is logically associated and raised to the ordinary position for negative markers within the matrix clause” (Noonan 2007, p. 51). In this vein, we have to consider that in (40), the negative marker belongs to the *ko*-clause. If this is true, the following contrast in (41) should not arise.

- (41) a. a **tɛ** Awa hakili la [ko Adama ye fen (***si**) san]
 3SG COP.NEG Awa.POSS mind PostP COMP Adama PFV thing no buy
 Int. 'Awa does not think/believe that Adama has bought anything.'
- b. a **tɛ** Awa hakili la [ko Adama **ma** fen **si** san]
 3SG COP.NEG Awa.POSS mind PostP COMP Adama PFV.NEG thing no buy
 'Awa does not think/believe that Adama has not bought anything.'

Just as in (40), in the absence of a local negative marker, the NPI *si* is ungrammatical within the *ko*-clause (41a). Inversely, it is licensed in the presence of negation (41b). This is unexpected if the matrix clause negation is logically associated with the *ko*-clause, as predicted by a negative raising approach.

Instead, I think these facts indicate that the matrix clause and the *ko*-clause never form a single negation domain. The interpretive effect obtained in (40) is probably due to the semantico-pragmatic relation that exists between the matrix predicate and the *ko*-clause, e.g., complementation. The putative raising negative effect may be explained in the following terms: since the predicate expresses a specific mental state, namely a thought/belief, negating it implies that that particular mental state does not hold (for an individual).¹¹ Now, being an argument, the *ko*-clause constitutes the content of that mental state, e.g., the content of thought/belief. Consequently, negating the predicate (hence the mental state it expresses) amounts to negating the content of the mental state. For the latter exists iff the former holds. Viewed in this way, the apparent "negative raising effect" is a manifestation of a tight relationship between the *ko*-clause and the respective matrix clause.¹² As discussed in section 7.3, the former is embedded into the latter phonologically, semantically, and pragmatically. Nevertheless, negation being expressed within the IP-domain, it appears natural that *ko*-clauses and their respective matrix clauses constitute two different negation domains.

7.5.2 Questions

As a general rule, questions do not affect complement *ko*-clauses; that is, question marking within the complementation construction does not turn a *ko*-clause into a question. That holds for polar questions as well as for content questions.

¹¹The structure of the example is very suggestive. The glossing shows that we are dealing with a locative copula construction, roughly translatable as "It is not in Awa's mind that Adama has built a house." This means that the content of thought/belief, namely, the complement clause, is not part of Awa's mental state.

¹²A similar effect arises in causal relations. Williams (1974) observed that negation marking within the matrix clause of a causative construction might be interpreted either within the matrix clause or within the causal clause. For example, a sentence like "Awa did not go to school because she was sick" may have the following readings:

- (1) a. The reason why Awa did not go to school is that she was sick (negation within the matrix clause)
 b. The reason why Awa went to school is not that she was sick (negation within the causal clause)

Polar questions

In Jula, polar questions are formed by the sentence-final question particle *wa*. The interpretation of the sentences in (42) shows that polar questions do not affect complement *ko*-clauses.

- (42) a. Awa ye a fɔ [ko Adama ye bon lɔ] **wa** ?
Awa PFV 3SG say COMP Adama PFV house build PART
✓ ‘Did Awa say that Adama built a house?’
✗ ‘Awa said (asked) whether Adama built a house.’
- b. Awa ɲɛ na [ko Adama ye bon lɔ] **wa** ?
Awa.POSS eye PostP COMP Adama PFV house build PART
✓ ‘Does Awa think/believe that Adama built a house?’
✗ ‘Awa thinks/believes whether Adama built a house.’
- c. Awa be a lɔn [ko Adama ye bon lɔ] **wa** ?
Awa HAB 3SG know COMP Adama PFV house build PART
✓ ‘Does Awa know that Adama built a house?’
✗ ‘Awa knows whether Adama built a house.’

In the different examples in (42), the question particle *wa* is placed directly after the *ko*-clause. Nevertheless, it does not turn the *ko*-clause into an embedded question. Instead, it is the whole sentence that is under the scope of the polar question particle. For this, the examples in (43) provide further supportive evidence.

- (43) a. Awa ye a fɔ (***wa**) [ko Adama ye bon lɔ] ?
Awa PFV 3SG say PART COMP Adama PFV house build
Int. ‘Did Awa say that Adama built a house?’
- b. Awa ɲɛ na (***wa**) [ko Adama ye bon lɔ] ?
Awa.POSS eye PostP PART COMP Adama PFV house build
Int. ‘Does Awa think/believe that Adama built a house?’
- c. Awa be a lɔn (***wa**) [ko Adama ye bon lɔ] ?
Awa HAB 3SG know PART COMP Adama PFV house build
Int. ‘Does Awa know that Adama built a house?’

The question particle cannot be positioned between the matrix clause and the *ko*-clause because this would produce a question that bears on the matrix clause alone, thus excluding the *ko*-clause.

In sum, the scopal behavior of polar questions in (42) and (43) is suggestive of two related points. Not only do the matrix clause and the *ko*-clause form a linguistic unit, but the *ko*-clause is not an independent asserted clause either. It is not only semantically and pragmatically dependent on the matrix clause, but also syntactically. The scope of content questions, to which we turn now, confirms this.

Content questions

Recall from chapter 2.7 (cf. section 2.4.4) that in Jula, content questions are realized in situ; that is, the question word occurs in whatever position the questioned constituent could have occupied within the sentence. For instance, within the *ko*-clause in (44), the question word for animate constituents *jon* ‘who’ occupies the subject position, while

the question word for inanimate constituents *mun* ‘what’ occurs in the object position. Fronting of the questions words is, in these cases, impossible (45).¹³

- (44) a. Awa ye a fɔ [ko **jon** ye bon lɔ] ?
 Awa PFV 3SG say COMP who PFV house build
 ✓ ‘Who did Awa say built a house?’
 ✗ ‘Awa said "who built a house?"’
- b. Awa ye a fɔ [ko Adama ye **mun** lɔ] ?
 Awa PFV 3SG say COMP Adama PFV what build
 ✓ ‘What did Awa say that Adama built?’
 ✗ ‘Awa said "what did Adama build?"’
- (45) a. ***jon** Awa ye a fɔ [ko ye bon lɔ] ?
 who Awa PFV 3SG say COMP PFV house build
 Int. ‘Who did Awa say built a house?’
- b. ***mun** Awa ye a fɔ [ko Adama ye lɔ] ?
 what Awa PFV 3SG say COMP Adama PFV build
 Int. ‘What did Awa say that Adama built?’

Despite their position, it is interesting to note that the question induced by the question words does not bear on the *ko*-clause alone. By that, I mean that the sentences are not interpreted as if Awa’s saying was expressed in the form of a question. Instead, the question bears on the whole sentence, including the matrix clause. Consequently, it is understood as a question about a piece of information contained in what Awa said, e.g., in the *ko*-clause. The same facts are observed with non-speech predicates that can take on a factive reading (46).

- (46) a. Awa hakili tɛ a la [ko Adama ye **mun** lɔ] ?
 Awa.POSS mind COP.NEG 3SG PostP COMP PFV what build
 ‘What does Awa not remember that Adama built?’
- b. ***mun** Awa hakili tɛ a la [ko Adama ye lɔ] ?
 what Awa.POSS mind COP.NEG 3SG PostP COMP Adama PFV build
 Int. ‘What does Awa not remember that Adama built?’

I interpret these facts as a confirmation that complement *ko*-clauses are not independent clauses and form a linguistic unit with the matrix clause.

7.5.3 Scope of adverbs

The scope of adverbs is particularly revealing of the internal structure of *ko*-clauses. Not only that, but adverbs are also suggestive of the nature of the relation between the *ko*-clauses and the respective matrix clauses.

VP adverbs

The fact that both the matrix clause and the *ko*-clauses can each contain different VP-adverbs indicates the presence of two different VP-domains.

¹³Arguments contrast with adjuncts. With some adjunct question words, fronting is possible, often accompanied by focus marking.

- (47) a. Awa ye a ye **joona** [ko Adama ma ɲɔn susu **kɔsɔbe**]
 Awa PFV 3SG see quickly COMP Adama PFV.NEG millet pound very.well
 ‘Awa realized quickly that Adama did not pound the millet very well.’
- b. Awa be a ɔn **kɔsɔbe** [ko Adama ma ɲɔn susu **joona**]
 Awa PFV 3SG know very.well COMP Adama PFV.NEG millet pound quickly
 ‘Awa knows very well that Adama did not pound the millet quickly.’

IP adverbs

As already pointed out in the discussion on negation, the *ko*-clause contains an IP domain different from that of the matrix clause. The scopal behavior of IP adverbs further illustrates that.

Indeed, the occurrence of IP adverbs within *ko*-clauses is dependent on the temporal-aspectual specification therein, independent of the temporal-aspectual specification within the matrix clause. For instance, in the examples below, note that the habitual adverb *tuma bɛɛ* ‘always’ is ungrammatical with progressive marking in (48a), but grammatical with the habitual TAM-marker *be* in (48b). Likewise, the presence of the temporal adverb *kunu* ‘yesterday’ requires perfective marking as in (49a), and therefore future marking is not acceptable (49b). Nevertheless, in all the examples, the matrix predicate is past-tense marked.

- (48) a. Awa **tun** ɲɛ na [ko Adama **be** ɲɔn susu-**la**
 Awa.POSS PAST eye PostP COMP Adama HAB millet pound-PROG
 (***tuma bɛɛ**)]
 always
 Int. ‘Awa thought that Adama was always pounding the millet.’
- b. Awa **tun** ɲɛ na [ko Adama **be** ɲɔn susu **tuma bɛɛ**]
 Awa.POSS PAST eye PostP COMP Adama HAB millet pound always
 ‘Awa thought that Adama always pounds the millet.’
- (49) a. Awa **tun** ɲɛ na [ko Adama **ye** ɲɔn susu **kunu**]
 Awa.POSS PAST eye PostP COMP Adama PFV millet pound yesterday
 ‘Awa thought that Adama had pounded the millet yesterday.’
- b. Awa **tun** ɲɛ na [ko Adama **bena** ɲɔn susu (***kunu**)]
 Awa.POSS PAST eye PostP COMP Adama FUT millet pound yesterday
 Int. ‘Awa thought that Adama would have pounded the millet yesterday.’

Similarly, IP adverbs within the matrix clause are sensitive to the temporal-aspectual specification therein. Their presence does not affect TAM-marking within the *ko*-clause.

- (50) a. Awa **be/*ye** a fɔ **tuma bɛɛ** [ko Adama **be/ye/bena** ɲɔn susu]
 Awa HAB/PFV 3SG say always COMP Adama HAB/PFV/FUT millet pound
 ‘Awa always says/*said that Adama pounds/pounded/will pound the millet.’
- b. Awa ***be/ye** a fɔ **kunu** [ko Adama **be/ye/bena** ɲɔn susu]
 Awa HAB/PFV 3SG say yesterday COMP Adama HAB/PFV/FUT millet pound
 ‘Yesterday Awa *says/said that Adama pounds/pounded/will pound the millet.’

Thus, the relation between the matrix clause and the *ko*-clause is not such that either imposes restrictions on the temporal-aspectual specification within the other, for each of them constitutes a separate IP-domain.

Another critical aspect to mention concerning IP adverbs is their role in the interpretation of the temporal-aspectual specification of *ko*-clauses. As we know from various works, the temporal-aspectual specification within embedded clauses may be interpreted either relative to the matrix clause, hence anaphoric(ally), or relative to the external discourse context, hence deictic(ally) (cf. Brecht 1974, 1975, Enç 1987, Ogihara 1995, 1996, Abusch 1997, von Stechow 2003, Stowell 2007).¹⁴ In Jula, it holds that per default, the temporal-aspectual specification within the *ko*-clause is interpreted anaphorically. The presence of IP-adverbs helps to obtain a deictic interpretation. To give an illustration of what I mean, let us first look at the following examples in (51).

- (51) a. *ko*-clause is simultaneous with matrix clause
 Awa **tun** ɲɛ na [ko Adama **be** ɲɔn susu]
 Awa.POSS PAST eye PostP COMP Adama HAB millet pound
 ‘Awa thought that Adama (habitually) pounds millet.’
- b. *ko*-clause is anterior to matrix clause
 Awa **tun** ɲɛ na [ko Adama **ye** ɲɔn susu]
 Awa.POSS PAST eye PostP COMP Adama PFV millet pound
 ‘Awa thought that Adama had pounded millet.’
- c. *ko*-clause is posterior to matrix clause
 Awa **tun** ɲɛ na [ko Adama **bena** ɲɔn susu]
 Awa.POSS PAST eye PostP COMP Adama FUT millet pound
 ‘Awa thought that Adama would pound (the) millet.’

In the above examples, the habitualis (51a), future (51b), and perfective (51c) markers within the *ko*-clause indicate simultaneity, posteriority, and anteriority, not with the discourse context in which the sentences (including the matrix clause) are uttered, but rather with the time of the matrix clause action or event. For instance, when a speaker utters (51a), s/he does not communicate that Adama is in the habit of pounding millet at the time of speaking, but rather s/he communicates that at a particular moment in the past, Awa was thinking of Adama as someone who is in the habit of pounding millet. A similar explanation applies to (51b) and (51c).

Adding to *ko*-clauses temporal IP adverbs results in a deictic interpretation of the temporal specification therein. In other words, the adverbs anchor the situation/event of the *ko*-clause to the discourse context in which the whole sentences in (52) are uttered.

- (52) a. *ko*-clause is anterior to discourse context
 Awa **tun** ɲɛ na [ko Adama **ye** ɲɔn susu **kunu**]
 Awa.POSS PAST eye PostP COMP Adama PFV millet pound yesterday
 ‘Awa thought that Adama pounded millet yesterday.’
- b. *ko*-clause is posterior to discourse context
 Awa **tun** ɲɛ na [ko Adama **bena** ɲɔn susu **sini**]
 Awa.POSS PAST eye PostP COMP Adama FUT millet pound tomorrow
 ‘Awa thought that Adama will pound (the) millet tomorrow.’

Therefore, if the sentences above were uttered, say, on a Saturday, in (52a), Adama is supposed to have pounded the millet the day before Saturday, i.e., Friday, whereas, in (52b), Adama is supposedly going to pound the millet the day after Saturday, i.e., Sunday.

¹⁴Brecht (1974) uses instead of the terms anaphoric(ally) vs. deictic(ally), the terms endophorically endophoric(ally) and exophoric(ally), respectively.

Aspectual IP-adverbs, however, do not affect the interpretation of the aspectual specification within the *ko*-clause, as the latter is still anchored to the matrix clause. Informally speaking, the sentence in (53) means that Awa was thinking about Adama that he always pounds millet at a particular moment in the past.

- (53) Awa **tun** ꞑɛ na [ko Adama **be** ꞑɔn susu **tuma beɛ**]
 Awa.POSS PAST eye PostP COMP Adama HAB millet pound always
 ‘Awa thought that Adama always pounded millet.’

We can conclude the discussion on IP adverbs with two generalizations: First, complement *ko*-clauses and the related matrix clauses form distinct IP domains. Therefore, TAM-marking within the matrix clause does not, in general, restrict the TAM-marking within the *ko*-clause. Second, per default, the temporal-aspectual specification within complement *ko*-clauses is interpreted anaphorically, i.e., relative to the matrix clause. The presence of temporal adverbs within the *ko*-clause may trigger a deictic interpretation, i.e., an interpretation against the utterance context.

CP adverbs

Recall from chapter 3 that in Jula, CP adverbs always precede the sentence or clause over which they scope. Nevertheless, CP adverbs cannot directly scope over complement *ko*-clauses but over the entire sentence, including both matrix and the *ko*-clause. This is shown by their position being restricted within the following sentences in (54).

- (54) a. *sebe la/nasɔɔ* Awa ye a fɔ (**sebe la/nasɔɔ*) [ko
 honestly/probably Awa PFV 3SG say honestly/probably COMP
 (**sebe la/nasɔɔ*) Adama ye bon lɔ]
 honestly/probably Adama PFV house build
 ‘Honestly/probably, Awa said that Adama has built a house.’
- b. *sebe la/nasɔɔ* Awa ꞑɛ na (**sebe la/nasɔɔ*) [ko
 honestly/probably Awa.POSS eye PostP honestly/probably COMP
 (**sebe la/nasɔɔ*) Adama ye bon lɔ]
 honestly/probably Adama PFV house build
 ‘Honestly/probably, Awa thinks that Adama has built a house.’
- c. *sebe la/nasɔɔ* Awa ꞑinɛ-na (**sebe la/nasɔɔ*) [ko (**sebe la/nasɔɔ*)
 honestly/probably Awa forget-PFV honestly/probably COMP honestly/probably
 Adama ye bon lɔ]
 Adama PFV house build
 ‘Honestly/probably, Awa forgot that Adama has built a house.’

The speech act adverb *sebe la* ‘honestly’ and the epistemic adverb *nasɔɔ* ‘probably’ can only occur in front of the matrix clause, from where they scope over the entire sentence. However, these adverbs are illicit between the matrix clause and the *ko*-clause and inside the latter.

In the literature, the presence of CP adverbs is considered to be the reflex of the presence of illocutionary force (Bayer 2015, Haegeman 2006a, 2006b). In this spirit, the fact that CP-adverbs cannot scope over *ko*-clauses confirms the conclusion of section 7.3.3, namely, that *ko*-clauses lack illocutionary force, as they are embedded into the matrix clause. Besides, as noted by Cinque 1999 and Tenny 2000, CP adverbs have the

characteristic of being speaker-oriented. On this basis, we can also conclude that speaker-oriented elements are incompatible with *ko*-clauses. This conclusion seems to be borne out, given the earlier discussion on discourse particles in section 7.3.3, which are speaker-oriented too.

7.6 Conclusion

In this chapter, we have discussed various aspects concerning *ko*-clause complementation. Starting from the top, we have first looked at the predicates that occur with a complement *ko*-clause. It has been shown that they can be lexical or periphrastic. In either case, the meaning of these predicates is often subject to change or shifting, triggered by the form or the complement types' internal properties. We have concluded that the semantics of complementation results from the relation between the matrix predicates and the complement.

Section 7.3 has shown that the relation between complement *ko*-clauses and their matrix clause involves embedding. First, phonologically, they form a prosody unity, i.e., they are uttered under a single prosody contour. Second, semantically, the *ko*-clause is an argument within the matrix clause; i.e., it completes the meaning of the matrix predicate. Third, the *ko*-clause is illocutionarily dependent on the matrix clause.

Then, we have moved on to discuss the syntactic position of *ko*-clauses. In this regard, I have shown that *ko*-clauses generally are incapable of occupying any structural positions available to nominal arguments: (i) clauses being Case-less, *ko*-clauses cannot occupy a Case-marked position within the matrix clause; (ii) unlike nominal arguments *ko*-clauses cannot be left-dislocated. These are properties of *ko*-clauses, but they do not constitute evidence against the existence of *ko*-clause complementation. It just seems that the argumenthood of complement *ko*-clauses does not align with their syntactic position.

The final section has permitted to reveal further aspects concerning *ko*-clause complementation. Here, we have seen that complement *ko*-clauses have a separate negation domain, and therefore a different IP-domain, negation being expressed within the IP domain. For this reason, negation raising does not arise. With the scope of IP adverbs, it has been shown that generally, TAM-marking within the *ko*-clause is not restricted by the TAM-marking within the matrix clause. Nevertheless, per default, the temporal-aspectual specification within complement *ko*-clauses is interpreted anaphorically, i.e., relative to the matrix clause. Finally, the scope of (polar and content) question and CP adverbs have confirmed that the relationship between complement *ko*-clauses and their relating matrix clause involves embedding.

Chapter 8

The gang of *ko* and the three complementizers

8.1 Introduction

This chapter sets the stage for the discussion of the function of the complementizer *ko* in chapter 9. Mainly, I argue here for the existence of three instances of complementizer *ko*, occurring in main, causal, and complement clause constructions. I start the discussion by presenting in 8.2 the distributional range of the morpheme *ko*, to which the complementizers *ko* are related. The main reason for doing so is that I will propose in chapter 9 to derive the function of the complementizers *ko* from all the other uses of the morpheme *ko*. Section 8.3 presents the evidence for three instances of the complementizer *ko*. In section 8.4, I discuss another property common to all three complementizers *ko*, which concerns the identity of the source of information of the clause they introduce. Section 8.5 summarizes.

8.2 The different uses of *ko*

Before we start discussing the complementizer *ko*, some background on the different uses of *ko* and the approach I will adopt is in order. The morpheme *ko* is, in Manding, certainly one of the morphemes with the broadest range of distributions and uses (cf. Dumestre 2003, Idiatov 2010 Creissels 2013b). In Jula, we may distinguish three main uses: verbal, semi-verbal, and non-verbal.

Characteristic of the verbal uses in (1) is the obligatory presence of a subject argument preceding *ko* and the possibility of adding the past tense marker *tun*. However, the verbal *ko* is defective since, unlike other verbs, it cannot co-occur with TAM-markers (e.g., perfective *ye*).

(1) Verbal uses

a. Defective verb ‘say’

*(**Awa**) (**tun**) (***ye**) ko an ma: "Adama ye bon lo"
Awa PAST PFV say 1PL PostP Adama PFV house build
‘Awa said to us: "Adama has built a house.”’

b. intention ‘want to/be about to’

*(**Adama**) (**tun**) (***ye**) ko a be mɔbili soɲe polisi-w na-na
Adama PAST PFV say 3SG HAB car steal policeman-PL come-PFV
‘Adama wanted/was about to steal the car as the policemen came.’

c. naming

*(**a**) tɔgɔ (**tun**) (***ye**) ko Awa
3SG.POSS name PAST PFV say Awa
‘Her name was Awa.’

I use the term semi-verbal for the similative *ko* in (2) because, unlike the verbal *ko*, the latter does not occur with the past tense marker *tun*. Besides, the only subject argument allowed in the construction is the second-person pronoun *i* ‘you’.

(2) semi-verbal use: the similative ‘like’

Awa be kuma *(**i**) (***tun**) (***ye**) ko den
Awa HAB speak 2SG PAST PFV say child
‘Awa speaks like a child.’

Finally, non-verbal uses in (3), besides the fact that they are defective like other uses of *ko*, can be preceded neither by a subject nor by the past tense marker *tun*.

(3) non-verbal uses

a. designation

Aliman-w be a fɔ o ma *(**i**) (***tun**) (***ye**) ko Kuddelmuddel
German-PL HAB 3SG say DEM PostP 2SG PAST PFV say Kuddelmuddel
‘Germans call that "Kuddelmuddel".’

b. main clause

*(**i**) (***tun**) (***ye**) ko Adama ye bon lo
2SG PAST PFV COMP Adama PFV house build
‘Reportedly, Adama has built a house.’

c. complement clauses

Awa be a lɔn [(**i**) (***tun**) (***ye**) ko Adama ye bon lo]
Awa HAB 3SG know 2SG PAST PFV COMP Adama PFV house build
‘Awa knows that Adama has built a house.’

d. causal clauses

Adama dimi-na [(**i**) (***tun**) (***ye**) ko Awa ye bon lo]
Adama get.upset-PFV 2SG PAST PFV COMP Awa PFV house build
‘Adama got upset because Awa has built a house.’

The following table summarizes the different uses of *ko* and their respective features.

(4) Table 1: The different uses of *ko*

Use/environment		Features		
		TAM-marking	Past tense <i>tun</i>	grammatical subject
verbal	speech verb	✗	✓	✓
	expression of intention	✗	✓	✓
	naming construction	✗	✓	✓
semi-verbal	similative marker	✗	✗	✓ (cf. <i>i</i> 'you')
non-verbal	expression of designation	✗	✗	✗
	main clauses	✗	✗	✗
	complement clauses	✗	✗	✗
	causal clauses	✗	✗	✗

As the table above shows, there is one feature common to the uses of *ko*, namely the impossibility of TAM-marking. I think this not accidental since it suggests a relation between the different uses. Based on this observation, my discussion on the function of the complementizer *ko* will incorporate the following two assumptions.

- (i) First, in line with Kayne (2000, 2005, 2019), Leu (2017) and others, I propose that the different uses of *ko* do not constitute a case of homophony. In clear, they are, strictly speaking, not different words that happen to have the same form or phonology. Instead, they are related to each other in that they represent different instances of a single morpheme *ko*, which appears to exhibit different morpho-syntactic and semantic properties depending on the environments of use.
- (ii) Second, I take the relation between the form and function to be non-arbitrary (cf. Haspelmath 1989, Newmeyer 1994). It is, therefore, possible that two morphologically identical morphemes may be functionally related. In this spirit, it is my premise that there is a function common to all the instances of *ko*.

Against these assumptions, I start the discussion by first claiming three instances of the complementizer *ko* in Jula. By complementizer, I do not only mean the non-verbal use of *ko* in complementation (3c) but also the instances of *ko* in main clauses and adjunct causal clauses in (3b) and (3d), respectively. Below, I show that the three complementizers *ko* are related not only historically but also functionally.

8.3 *ko* as complementizer: the evidence

8.3.1 Grammaticalization

Grammaticalization provides the first argument in favor of treating these three uses of *ko* as related. In fact, the observation that speech verbs constitute one of the familiar sources for complementizers is now commonplace in the literature (Lord 1976, 1993, Saxena 1995, Frajzyngier 1995, 1995, Heine and Kuteva 2002, Güldemann 2002, 2008, Kuteva et al. 2019, among others). In many languages around the world, speech verbs have arguably undergone a process of grammaticalization that led to them being reanalyzed as complementizers. This idea is also found among a good number of Manding linguists (Diallo 1987, Friedländer 1992, Dumestre 2003, Creissels 2013b, Creissels 2020). Here, the point is that the *ko* that is used to introduce complement and causal clauses originates diachronically from the defective speech verb *ko*.

As far as Jula is concerned, we can find support for this claim in the data presented above in 8.2. As described by Klammer (2000), the grammaticalization process from verbal 'say' to complementizers involves semantic bleaching, i.e., the loss of argument structure and verbal inflection. In this respect, the fact that, unlike the defective verb *ko* (1a), *ko* in complement and causal clauses (3c and 3d) occurs neither with a subject argument nor with the past tense marker *tun* suggests that the latter is no longer a verb. Accordingly, a grammaticalization process must have occurred, which causes the loss of these verbal properties.

Interestingly, Frajzyngier (1996, p. 99) proposed that a speech verb grammaticalizes into a complementizer along the following lines: "A verb of saying is followed by a complement that consists of a speech fragment by some speaker. Consequently, by metonymic process (*pars pro toto*), the verb of saying becomes the marker of a proposition that is a speech fragment." In other words, a speech verb becomes a complementizer in that parts of the sentence containing that speech verb get deleted, keeping out the speech verb plus the clause that denotes the speech content.

What Frajzyngier's scenario suggests is that in Jula probably, the complementizer *ko* has been obtained by deleting from the example below in (5a), the subject of the verb *ko*, thereby yielding the sentence in (5b), which corresponds to the use of *ko* in main clauses.

- (5) a. **Awa** ko Adama ye bon lo
 Awa say Adama PFV house build
 'Awa said that Adama has built a house.'
- b. ko Adama ye bon lo
 COMP Adama PFV house build
 'Reportedly, Adama has built a house.'

It may appear, therefore, that the *ko* in main clauses constitutes the first stage of grammaticalization of the verb *ko* into a complementizer. In fact, in this use too, *ko* does not occur with a subject argument, nor does it allow the past tense marker *tun* (see in (3a) above).

Given this, I propose the grammaticalization path in (6), whereby, under the standard assumption, the use in the causal clause constitutes an extension of the use in complementation.

- (6) The grammaticalization path of the complementizer *ko*
 speech verb > main clause > complement clause > causal clause

In sum, grammaticalization shows that there may exist a relation between the use of *ko* in main, complement, and causal clauses. Cross-linguistic data further support this, at least to a certain extent.

8.3.2 Cross-linguistic evidence

To start with, cross-linguistically, it is not uncommon to find complementizers that occur with both complement and adverbial clauses. For example, the complementizer *che* in Italian, *pu* in Greek, and *ki* in Hebrew can introduce, beside complement clauses, purpose, result, and causal clauses, respectively, as shown in (7).

- (7) a. Italian *che* in purpose clause (Fagard et al. 2016, p. 87)
 vieni qua **che** ti spiego
 come.IMP.2SG here that you.DAT explain.PRS.1SG
 ‘Come here and I’ll explain.’
- b. Greek *pu* in result clause (Ingria 1981, p. 140)
 to xioni ixe stroθi ston kambo ke stin politia toso **pu** ta skepase
 the snow had spread on-the country and on-the city so-much that them it-covered
 ala
 all
 ‘The snow had spread over the country and the city so that it covered everything completely.’
- c. Hebrew *ki* in causal clause (Zuckermann 2006, p. 81)
 ha-neeshám zuká **ki** hu khaf mi-péssha
 DEF-accused:m acquit:3msgPAST:PASS CAUS he clean from-crime
 ‘The accused was acquitted because he was innocent.’

What is more, there exists evidence across languages that the distribution of complementizers is not limited to complex sentences. Main clause complementizers (cf. Frajzyngier 1995) exist in many languages. By way of example, let us consider the following cases: *que*, *dass* and *niby* introduce complement clauses in Spanish, German and Polish, respectively. Nevertheless, they occur in the sentence-initial position of the main clauses in (8).

- (8) a. Iberian Spanish (adapted from Etxepare 2010, p. 606)
Que está lloviendo
 COMP it.is raining
 ‘It has been reported that it is raining.’
- b. German (Kenesei and De Urbina 1994, p. 7)
Dass du ja deine Füße von Tisch lässt!
 COMP you yes your feet off table keep
 ‘Keep your feet off the table!’
- c. Polish (Frajzyngier 1995, p. 495)
Niby byl w Warszawie
 COMP be.3M.SG.PFV PREP Warsaw.DAT
 ‘Apparently he was in Warsaw.’

From the perspective of the cross-linguistic data presented in (7) and (8), the occurrence of the complementizer *ko* in adverbial and main clause constructions is not surprising, for it appears to be the reflex of a distributional tendency for complementizers. In this way, it is possible to claim that all the three occurrences of *ko*, namely in complement, causal, and main clause, are different instances of the use of the morpheme *ko* as a complementizer. This receives further support from the arguments that we turn to now. Their use features syntactic properties characteristic of complementizers.

8.3.3 Syntactic evidence

Syntactically, complementizers can be identified by their position and the grammatical properties of the clause they introduce (cf. Radford 2004, Van Gelderen 2013, i.a.).

The first property common to all the three instances of *ko* is the finiteness of the clause they introduce. Earlier discussions have shown that complement *ko*-clauses are finite, e.g., they obligatorily contain a subject and inflection marking and can, therefore, be negated (see 7.5.1 in chapter 6). That same property applies to *ko* in both main clauses and causal clauses. As the examples below show, none of them can head an infinitival clause, which lacks a subject and inflection along with negation (cf. chapter 3).

(9) complement clause

- a. Awa jine-na **ko** Adama ye bon lo
 Awa forget-PFV COMP Adama PFV house build
 ‘Awa forgot that Adama has built a house.’
- b. Awa jine-na [(***ko**) **kà** bonda tugu]
 Awa forget-PFV COMP INF house.door close
 ‘Awa forgot to close the house door.’

(10) causal clause

- a. Awa dimi-na [**ko** ale ma foyi sɔɔ]
 Awa get.upset-PFV COMP 3EMP PFV.NEG nothing get
 ‘Awa got upset because she did not get anything.’
- b. *Awa dimi-na [**ko** **kà** foyi sɔɔ]
 Awa get.upset-PFV COMP INF nothing get
 Int. ‘Awa got upset for not having got anything.’

(11) main clause

- a. **ko** Adama ye bon lo wa ?
 COMP Adama PFV house build QP
 ‘Has Adama built a house?’
 ‘Has it been said that Adama has built a house?’
- b. ***ko** **kà** bon lo wa ?
 COMP INF house build QP
 Int. ‘Should I build a house?’
 Int. ?Has it been said that I should build a house?’

The non-occurrence of *ko* with infinitival clauses supports the view that *ko* is indeed a complementizer. Since *kà* is a complementizer that marks the clause it takes as non-finite, it can only be in complementary distribution with *ko*, for the latter associates only with finite clauses. Thus, the ungrammaticality of the sentences in (9b), (10b), and (11b) is due to a “clash” between two complementizers with different functional requirements.

In the same vein, we have seen in chapter 3, building on Rizzi (1997), that the complementizer *kà* cannot precede topics. Note now that, in this respect, *kà* contrasts with *ko*, for both topics and foci may follow the latter. That is true not only of complement *ko*-clauses but also of main *ko*-clauses, as illustrated in (12).

- (12) a. main clause
 ko *kunu kɔni Adama le* ye mɔbili boli
 COMP yesterday TOP Adama FOC FUT car drive
 ‘It is/has been said that, as for yesterday, it is Adama who drove the car.’
- b. complement clause
 Awa be a lɔn ko *kunu kɔni Adama le* ye mɔbili boli
 Awa HAB 3SG know COMP yesterday TOP Adama FOC PFV car drive
 ‘Awa knows that, as for yesterday, it is Adama who drove the car.’

Causal clauses, however, do not allow topics. Here, *ko* can only be followed by foci, as shown by (13).

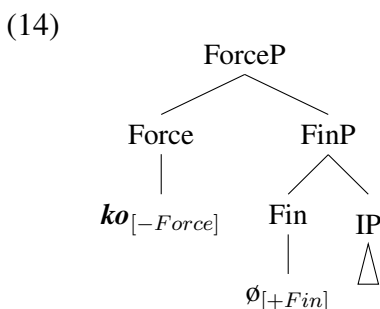
- (13) causal clause
 Awa dimi-na ko (**kunu kɔni*) *malo dɔrɔn le* ale ye a sɔrɔ
 Awa get.upset-PFV COMP yesterday TOP rice only FOC 3EMP PFV 3SG get
 ‘Awa got upset because (*as for yesterday) she got only rice.’

Despite the asymmetry between main/complement clauses and causal clauses concerning topical elements, the facts in (12) and (13) indicate that in all three instances of use, *ko* behaves like the type of complementizers which in Rizzi’s (1997) sense occupy the highest complementizer position, namely Force. One could therefore claim that *ko*-clauses in Jula contain a ForceP projection.

Recall, however, that we have shown previously that complement *ko*-clauses lack illocutionary force since, besides being unable to allow tag questions and discourse particles (cf. 7.3.3), they cannot be under the scope of CP-adverbs (cf. 7.5.3). The upcoming discussion in 8.4.1 and 8.4.2 shows that this also holds for main and causal *ko*-clauses. Now, if as adopted for infinitival clauses in 4.3.2, the occurrence of CP adverbs is dependent on the presence of illocutionary force (cf. Tenny 2000, Bayer 2015, Haegeman 2003, 2010), it seems contradictory to assume a ForceP projection in *ko*-clauses.

That notwithstanding, I maintain that *ko*-clauses contain a ForceP projection in the sense of Rizzi (1997). Accordingly, I will assume, like previously with the finiteness of infinitival *kà*-clauses, that the lack of illocutionary force in *ko*-clauses is due to *ko* being negatively specified for the force feature, thus endowed with [-Force]. This negative specification of *ko* for the force feature is, as I will elaborate on in Chapter 9, section 9.4, the reflex of *ko*-clauses representing a piece of information that the actual speaker does not directly assert. Specifically, their content belongs to a discourse context different from that of the actual speaker. Therefore, they are not accessible for speaker-oriented expressions such as tag questions, discourse particles, and CP-adverbs.

To account for the finiteness requirement of *ko*-clauses, I will posit a FinP projection with a Fin head positively specified for finiteness. Correspondingly, the structure of *ko*-clauses looks like in (14).



In the next section, I discuss another property common to all three complementizers *ko*, which concerns the identity of the *ko*-clause's source of information. Namely, it holds that the identity of the source of information for a *ko*-clause is predictable from the linguistic context.

8.4 Constraints on the source

By source, I mean the person who bears responsibility for the truth or reliability of the information in the *ko*-clause. Either because the information originates from her/him or because s/he subscribes to its content.¹

As a general rule, a *ko*-clause must have an identifiable source, i.e., the content of a *ko*-clause is unequivocally attributed to someone. In other words, for any *ko*-clause, there is some individual X, such as X is the source of the *ko*-clause's content. Nevertheless, the source's identity depends on the linguistic context in which the *ko*-clause appears. The following principle appears to hold: *The less the ko-clause is linguistically dependent on another clause, the more unlikely is the sentence external speaker the source of information.* Thus, main *ko*-clauses cannot have indexical discourse participants, i.e., speaker and hearer, as sources. The main argument of the matrix clause is understood as the default source for both causal and complement *ko*-clauses.² However, unlike complement *ko*-clauses, and like with main *ko*-clauses, the (external) speaker cannot be the source of information for a causal *ko*-clause. The following lines illustrate these points.

8.4.1 Main *ko*-clauses

As a rule of thumb, a main clause headed by *ko* necessarily has a source, i.e., its content must be attributable to someone. For this reason, the continuation below in (15) is impossible.

- (15) **ko** [Adama ye bon lo]_i # nga mɔgɔ ma o_i fɔ
 COMP Adama PFV house build but person PFV.NEG DEM tell
 'It has been said that Adama has built a house, but nobody said that.'

Furthermore, the source of a main clause must be identifiable. Consequently, a *ko*-clause cannot be used to introduce a tale.

- (16) Example based on an excerpt from Saanògò 1999, p. 7
 (*ko) nin kɛ-ra den dɔ ye. Den nin tun ka ji kosebe. A
 COMP DEM be-PFV child INDEF PostP child DEM PAST COP good very 3SG
 be kɔpuman dɔnrɔn le kɛ
 HAB good.things only FOC do
 'There was a child. That child was very good. He only does good things.'

¹My definition of source incorporates Sigurðsson's (1990) notion of "speaker responsibility", Chafe and Nichols' (1986) notion of reliability adopted in Culy (1994b), and Sells' (1987) notion of SOURCE.

²By *main argument*, I mean primarily the subject argument, but not only. In periphrastic constructions discussed in section 7.2.1, the main argument does not occupy the subject position within the matrix clause. Instead, it is part of a possessive phrase, as in "It is Awa's eye that Fatu has come," whereby Awa is the main argument. The term "main argument" is meant to do justice to these data.

Generally, the first sentence of a tale serves to set the scene by presenting, for example, the protagonists. However, that introductory sentence never contains information about the tale's source. The main reason is that tales cannot be attributed to someone since they are part of the shared social and cultural memory. Starting a tale with a *ko*-clause would imply that the storyteller is telling the tale based on someone else's saying and thus ascribes a source to the tale. Since this is not possible, as the ungrammaticality of the sentence in (16) shows, we conclude that *ko* does not introduce contents that do not have an identifiable source. In other words, the content of a *ko*-clause "cannot be a general, impersonal saying, but must be a clear and definite one, unequivocally attributed to a given author" (Etxepare, 2010, p. 613). Finally, and most importantly, indexical discourse participants, i.e., speaker and hearer, cannot be the source of the content expressed by the main *ko*-clause. As evidence, note first that speaker-oriented expressions cannot associate with main *ko*-clauses. That is the case for interjections, for example.

- (17) a. Interjections in "canonical" main clauses
walayi/ayiwa Adama ye bon lo
 PART Adama PFV house build
 'I swear / So, Adama has built a house!'
- b. Interjections inside main *ko*-clauses
 ***ko walayi/ayiwa** Adama ye bon lo
 COMP PART Adama PFV house build
 Int. 'I swear / So, reportedly Adama has built a house.'
- c. Interjections scope over the *ko*-clause construction
walayi/ayiwa ko Adama ye bon lo
 PART COMP Adama PFV house build
 'I swear / So, It is / has been said that Adama has built a house.'

Interjections can generally precede genuine main clauses, as in (17a). However, these interjections cannot occur inside a clause headed by *ko* (17b). They are only felicitous in case they have scope over the whole *ko*-clause construction (17c). A similar contrast arises with CP-adverbs, as illustrated in the grammaticality difference between (18a), (18b) and (18c).

- (18) a. CP-adverbs in "canonical" main clauses
sebe la/nasɔrɔ Adama ye bon lo
 honestly/probably Adama PFV house build
 'Honestly/probably Adama has built a house.'
- b. CP-adverbs in main *ko*-clauses
 ***ko sebe la/nasɔrɔ** Adama ye bon lo
 COMP honestly/probably Adama PFV house build
 Int. 'Honestly/probably, Adama has reportedly built a house.'
- c. CP-adverbs scope over the *ko*-clause construction
sebe la/nasɔrɔ ko Adama ye bon lo
 honestly/probably COMP Adama PFV house build
 'Honestly/probably, it is / has been said that Adama has built a house.'

From the impossibility of speaker-oriented expressions in (17b) and (18b), one can conclude that main *ko*-clauses do not pertain to the discourse domain of the speaker. Indeed, the speaker cannot be the source of the content expressed by the main *ko*-clause.

Because the speaker is not the source, s/he can disclaim the authorship of the content expressed within the main *ko*-clause (19a). However, disclaiming the authorship of a canonical main clause results in a contradiction, for here, the speaker is, per default, the source of information (19b).

- (19) a. **ko** Adama ye bon lo_i nga ne ma o_i fo
 COMP Adama PFV house build but 1EMP PFV.NEG DEM tell
 ‘It has been said that Adama has built a house, but I did not say that.’
 b. Adama ye bon lo_i # nga ne ma o_i fo
 Adama PFV house build but 1EMP PFV.NEG DEM tell
 ‘Adama has built a house, but I did not say that.’

In the same vein, note that the hearer cannot be the source of information for a *ko*-clause, i.e., *ko* cannot be used to report the saying of a hearer.

- (20) a. Mother: N ye mun fo i ye kunu ? ‘What did I tell you yesterday?’
 1SG PFV what tell 2SG PostP yesterday
 b. Son: *(i) **ko** n kána taga lakoli la ‘You told me not to go to school.’
 2SG say 1SG SUBJ.NEG go school PostP

In the context of (20), a mother is reprimanding her sick son for having gone to school, although she told him not to go. As a reply to the question in (20a), the child cannot repeat (report) what his mother told him the day before, using a main-clause construction. Instead, the report has to involve a verbal *ko* with the relevant subject, i.e., the second person *i* ‘you’ (20b).

In sum, the source of the main *ko*-clause must be an identifiable non-indexical discourse entity. That the source is always identifiable also holds for causal and complement *ko*-clauses. There, the main argument of the matrix clause is, per default, the source of information.

8.4.2 Causal *ko*-clauses

The first observation concerning causal *ko*-clauses is that they impose an animacy restriction on the main argument within the matrix clause. Compare (21a) and (21b).

- (21) a. Adama / yiri ben-na [**sabu** Awa ye a panti]
 Adama / tree fall-PFV COMP Awa PFV 3SG push
 ‘Adama fell because Awa has pushed him.’
 ‘The tree fell because Awa has pushed it.’
 b. Adama / *yiri ben-na [**ko** Awa ye a panti]
 Adama / tree fall-PFV COMP Awa PFV 3SG push
 ‘Adama fell because Awa has pushed him.’
 Int.*‘The tree fell because Awa has pushed it.’

The sentence in (21a) illustrates the case of a causal construction with the conjunction *sabu* ‘because’. There, the matrix clause’s subject can be an animate noun *Adama* or an inanimate noun *yiri* ‘tree’. The sentence is grammatical in either case. In the case of a causal clause introduced by *ko*, however, the subject of the matrix clause cannot be inanimate (21b). The reason is that the source of a causal clause introduced by *ko* is, per default, the main argument of the matrix clause. Since inanimate entities cannot be a source of information, it follows that they cannot occur in a matrix clause associated with a causal *ko*-clause.

Besides, it appears that, unlike for second and third-person, first-person discourse participants cannot be the source of information, as illustrated in the contrast of judgment between (22a), 22b) and 22c).

- (22) a. ?? n taga-ra Bobo [**ko** Awa mako tun be n na]
 1SG go-PFV Bobo COMP Awa.POSS need PAST HAB 1SG PostP
 ‘I went to Bobo because Awa needed me.’
- b. ? i taga-ra Bobo [**ko** Awa mako tun be i na]
 2SG go-PFV Bobo COMP Awa.POSS need PAST HAB 2SG PostP
 ‘You went to Bobo because Awa needed you.’
- c. Adama taga-ra Bobo [**ko** Awa mako tun be ale la]
 Adama go-PFV Bobo COMP Awa.POSS need PAST HAB 3EMP PostP
 ‘Adama went to Bobo because Awa needed him.’

Concerning the acceptability of (22a), there are divergent opinions among Jula speakers I have consulted. For one group of speakers, the sentence is less common but acceptable. A second group does not consider it an original Jula sentence. In comparison, the divergence of opinion on the grammaticality of (22b) is minor.³ However, there is no substantive divergence of opinion about the acceptability of (22c). More interestingly, only the two last sentences allow an interpretation whereby the matrix clause’s subject is understood as the source. Here, one infers that the hearer in (22b) or Adama in (22c) has given the reason for going to Bobo. Conversely, for the Jula speakers who accept (22a), the sentence does not imply that the first-person subject, e.g., the speaker, is the source of the *ko*-clause. Instead, it is understood as if the subject (speaker) was informed by someone else. Accordingly, ‘I went to Bobo because I was told that Awa needs me’ is a possible paraphrase.

In sum, even if within causal *ko*-clause constructions, the main argument of the matrix clause is, per default, the source of information, the external speaker can hardly be the source of information. The distribution of speaker-oriented expressions further illustrates that point. For example, interjections and CP-adverbs cannot occur in causal *ko*-clauses, even when the matrix clause contains the first-person pronoun.

- (23) a. Interjections
 *n taga-ra Bobo [**ko walayi/ayiwa** Awa mako tun be n na]
 1SG go-PFV Bobo COMP PART Awa.POSS need PAST HAB 1SG PostP
 Int. ‘I went to Bobo because, I swear / so Awa needed me.’
- b. CP-adverbs
 *n taga-ra Bobo [**ko sebe la/nasɔɔ** Awa mako tun be n
 1SG go-PFV Bobo COMP honestly/probably Awa.POSS need PAST HAB 1SG
 na]
 PostP
 Int. ‘I went to Bobo because honestly/probably Awa needed me.’

The impossible occurrence of interjections and CP adverbs within causal *ko*-clauses renders the latter very much alike main *ko*-clauses discussed above, and particularly like complement *ko*-clauses discussed in 7.3.3 and 7.5.3. In what follows, I also show that, like with causal *ko*-clauses, the main argument of the matrix clause is the default source of information for a complement *ko*-clause.

³To me, the sentence in (22a) does not sound like a natural way of speaking, but I am less reticent about (22b).

8.4.3 Complement *ko*-clauses

Dimmendaal (2001) postulates that evaluation problems do not arise in languages with a complementizer derived from *say*. In other words, there is generally no confusion about the source of information for the content of the embedded clause. The facts observed above with causal *ko*-clauses suggest that Dimmendaal's assumption might be correct for Jula. Recall, we have seen that in these cases, the main argument of the matrix clause, i.e., the subject, is interpreted as the source of *ko*-clause content. Consequently, a potential amalgam of the source information is excluded. A similar assumption holds for complement *ko*-clauses.

Intuitively, we take the matrix clause's main argument to be the source of information for the content of the complement *ko*-clauses. Informally speaking: "what you see in the matrix clause is what you get for the complement clause." If the sentences in (24) were uttered, we would unequivocally attribute the content of the *ko*-clause to the speaker (24a), the hearer (24b), or Adama (24c).

- (24) a. *n* ye a fɔ [ko Awa ye bon lɔ]
 1SG PFV 3SG say COMP Awa PFV house build
 'I said that Awa has built a house.'
- b. *i* ye a fɔ [ko Awa ye bon lɔ]
 2SG PFV 3SG say COMP Awa PFV house build
 'You said that Awa has built a house.'
- c. *Adama* ye a fɔ [ko Awa ye bon lɔ]
 Adama PFV 3SG say COMP Awa PFV house build
 'Adama said that Awa has built a house.'

Evidence for this comes from a dialectal variant of Jula spoken in Samatiguila (Ivory Coast). Consider the following examples.⁴

- (25) Braconnier (1987, pp. 48–51), based on Idiatov (2010, p. 4)
- a. First person speaker said
n / *an* naa a fɔ-ra [n-ko Seku tɛ shɔn]
 1SG / 1PL PFV 3SG say-PFV 1SG-COMP Seku IPFV.NEG agree
 'I/we said that Seku will not agree.'
- b. a third or second person said
Musa / *i* naa a fɔ-ra [ko Seku tɛ shɔn]
 Musa / 2SG PFV 3SG say-PFV COMP Seku IPFV.NEG agree
 'Musa / You said that Seku will not agree.'

As Braconnier (1987) reported, in Jula of Samatiguila, the complementizer may have different forms depending on whether the speaker or someone else is the source of information for the *ko*-clause. When the speaker is the source as in (25a), the complementizer is *nko*, which is composed of the first-person pronoun *n* 'I' and the complementizer *ko*. Second and third person sources are indicated by the absence of

⁴The type of examples discussed here are described in the literature as cases of complementizer agreement (see Carstens 2003, Kawasha 2007, Baker 2008, Diercks 2013, Carstens and Diercks 2013, among others). Besides Jula of Samatiguila, complementizers agreement is attested in several other Mande languages, including Jowulu (Mali and Burkina Faso), the Yaba dialect of Southern San (Burkina Faso), Tura (Ivory Coast), and the Ko dialect of Mende (Sierra Leone) (cf. Idiatov 2010 and the sources cited therein).

person marking on the complementizer *ko*, as in (25b). In short, information originating from the speaker is marked differently from information originating from someone else.

I think these data are to be put in the broader perspective of how the source information for a complement *ko*-clause is identified. Crucially, I take them as confirmation that in Jula, complement clauses introduced by *ko* are typically interpreted from the perspective of the matrix clause's main argument, which per default is the source of information for the content of the *ko*-clause. Jula of Samatiguila appears to have grammaticalized this principle.

8.5 Conclusion

I hope to have shown in the above section that the source of a *ko*-clause is easily identifiable from the linguistic context. If it is true that the latter property is common to the three complementizers *ko*, the source's identity varies from one *ko*-clause to another one. In constructions with main *ko*-clauses, the set of potential sources does not include indexical discourse participants. With causal *ko*-clauses, only speaker sources are excluded. The source of a complement *ko*-clause can be any discourse participants, including indexical ones. The matrix clause's main argument is the default source in the two latter cases, thus excluding possible ambiguities.

Having an identifiable source is not the sole property common to the three complementizers *ko*. The previous discussion has already pointed to a suggestive relation. In subsection 8.3.1, I have used insights from the grammaticalization of complementizers to argue that the three *ko* are historically related. They represent different uses of a complementizer form that evolved from the speech verb *ko*. Also, from a cross-linguistic perspective, as discussed in 8.3.2, their distribution reflects that of complementizers since it is not unusual for the same form of complementizer to occur with main clauses, adjuncts clauses, and complement clauses. Syntactically, the three forms also exhibit properties specific to complementizers. Thus, the fact that they occupy a position higher than topics or focused elements indicates that they are complementizers with Force features. As such, they also impose a finiteness restriction on the clauses they introduce: *ko*-clauses must be finite, i.e., they obligatorily contain a subject and inflection marking and can, accordingly, contain negation. That has been discussed in 8.3.3.

Based on the above-mentioned suggestive relation, I will attempt in the next chapter to find a function common to the three complementizers *ko*.

Chapter 9

Finding a common function for the *ko*-complementizers

9.1 Introduction

This chapter's primary goal is to capture the function of the complementizer *ko* within the complementation sentences. We think that given the preceding chapter's insights, achieving this goal involves considering the two other instances of *ko*. In other words, we need a functional description that captures all the uses of *ko* as a complementizer, not only in complementation sentences but also within main and causal clause constructions.

I will propose that the function of the complementizer *ko* is to anchor a clause to a speech context different from the actual speech context, i.e., the speech context in which the actual speaker utters the sentence containing the *ko*-clause. The speech context of the *ko*-clause is encoded in the syntax of the *ko*-clause constructions. The general idea of the proposal is presented in 9.3. Sections 9.4 and 9.5 provide the supporting arguments, and 9.6 explore some implications of the proposal. Before that, I discuss and dismiss two potential ways of treating the complementizer *ko* in 9.2.1 and 9.2.2.

9.2 What the complementizer *ko* is not

In this section, I argue that the complementizer *ko* does not have a complementizing/subordinating function, nor can we treat it as on a par with evidentials.

9.2.1 A complementizing/subordinating function

It is evident that, under the "complement clauses-centered" notion of complementizer, it is not possible to account for the suggestive similarities between the different uses of *ko* in complement, causal and main clauses. For instance, given the occurrence of *ko* with main clauses and causal clauses, it cannot be considered a morpheme whose primary function is to identify a complement clause (Rosenbaum 1967, Hopper and Traugott 1993, Noonan 2007 i.a.).

Also, it is not quite correct to consider *ko* a subordinating morpheme, that is, a morpheme that signals a dependency relation between two clauses, whereby one is a constituent of another (Givón 1990, Cristofaro 2005 i.a.).¹ Here, the problem is mainly

¹This also includes approaches that explain the subordinating function of complementizers in terms of

that the use of *ko* in main clauses does not involve any bi-clausal constructions so that *ko* cannot be said to signal a dependency relation between two clauses.

In general, then, *ko* is not a morpheme whose primary function is to signal a grammatical relationship between clauses.

9.2.2 *ko* as an evidential

The premise for this discussion is the claim that cross-linguistically complementizers are involved in the coding of modality meanings; either as their primary function (cf. Frajzyngier 1995, 1996) or as their secondary function (cf. Ransom, 1986). To give some examples: complementizers that encode speaker's degree of certainty (hence epistemic modality, cf. Cinque 1999, Speas 2004) are found in many languages including Baltic, Basque, Celtic, Finnic, Maltese, Turkish and Slavic languages (Kehayov and Boye 2016), the Mayan language Jacalteco (Craig 1977), the Bantu language Kinyarwanda (Givón 1982) and Japanese (Suzuki 2000). Complementizers that are associated with the coding of the speaker's source of information (hence evidentiality, cf. Aikhenvald 2004, 2015) have been reported in Kehayov and Boye (2016) for Estonian and Finnish, in Awad (1998) for Palestinian Arabic, in Simpson and Wu (2002) for Taiwanese and in Kidwai (2014) for Bengali.² Relatedly, it has been claimed that there exists a functional parallelism between reportative evidential markers and complementizers derived from the verb *say* (cf. Dimmendaal 2001, Simeonova 2020). What about the Jula complementizer *ko*?

The appearances

In appearances, it is tempting to look at *ko* as a reportative evidential. The use of *ko* in main clauses is particularly suggestive of this idea. As pointed out earlier in 8.4.1, the main clause headed by *ko* is intuitively interpreted as a piece of information whose source is not the actual speaker. Compared to (1a), the presence of *ko* in (1b) indicates that the speaker has no direct evidence for the content of the clause, namely for the fact that Adama has built a house. Instead, s/he relies on information obtained by someone else.

- (1) a. Adama ye bon lo
Adama PFV house build
p= Adama has built a house. (Speaker uttered p)
- b. **ko** Adama ye bon lo
COMP Adama PFV house build
p= Adama has built a house. (Speaker was informed that p)

When considering the data in (1b) the meaning contribution of *ko* appears indeed similar to that of reportative evidentials like *-si* in Quechua (2a) and *ku7* in St'át'imcets (2b).

illocutionary dependency (cf. Fagard et al. 2016)

²See Nordstrom (2010) for more discussion on the connection between complementizers (subordinators) and modality.

- (2) a. Cuzco Quechua (Faller 2002, p. 194)
 Para-sha-n-si
 rain-prog-3-rep
 p= it is raining (speaker was told that p)
- b. St'át'imcets (Matthewson et al. 2007, p. 4)
 wa7 **ku7** ku sts'éts'qwaz' l-ta stswáw'cw-a
 be REPORT DET trout in-DET creek-EXIS
 '[reportedly] There are trout in the creek.'

This similarity is further supported by the fact that, like with canonical reportative evidentials, the indirect evidence reading conveyed by *ko* cannot be canceled. As the following example from St'át'imcets shows, a speaker using a reportative evidential cannot, at the same, claim to have witnessed the content of the report (3).

- (3) Matthewson et al. 2007, p. 27
- # nilh **ku7** k-Sylvia ku wa7 xílh-tal'i; wá7-lhkan t'u7
 FOC REPORT DET-Sylvia DET IMPF do(CAUS)-TOP IMPF-1SB.SUBJ just
 áts'x-en
 see-DIR
 '[reportedly] it was Sylvia who did it; I saw her.'

The same can be said for the use of the complementizer *ko*, as shown by the data in (4).

- (4) a. Main clause
ko Adama_i ye wari sonya, # **ne** **yere ye** a_i **yee**
 COMP Adama PFV money steal 1EMP self PFV 3SG see
 'It is said that Adama_i has stolen the money, # I saw him_i myself.'
- b. Complement clause
 Awa ye a fə [**ko** Adama_i ye wari sonya], # **ne** **yere ye** a_i **yee**
 Awa PFV 3SG say COMP Adama PFV money steal 1EMP self PFV 3SG see
 'Awa said that Adama_i has stolen the money, # I saw him_i myself.'
- c. Clausal clause
 Awa ye Adama_i bugə [**ko** a_i ye wari sonya], # **ne** **yere ye** a_i
 Awa PFV Adama say COMP 3SG PFV money steal 1EMP self PFV 3SG
yee
 see
 'Awa has beaten Adama_i because he_i has stolen the money, # I saw him_i myself.'

Thus, against these facts, it seems logical to treat the complementizers *ko* on a par with reportative evidentials. This approach, however, cannot be effectively applied for the reasons to be discussed below.

Despite appearances: *ko* is typologically distinct from reportative evidentials

First of all, note that reportative evidentials are generally considered a particular type of evidential, whose primary function is to encode information that the speaker obtained from someone else (Aikhenvald, 2004). Based on this, and given our discussion in 8.4, the notion of reportative evidential can hypothetically be applied to the uses of *ko* in both main clauses and causal clauses, for there, the speaker cannot be the information source. However, extending it to complement clauses appears challenging, mainly because of the following sentences (5).

- (5) a. **n** ye a fɔ [**ko** n ma wari sonya]
 1SG PFV 3SG say COMP 1SG PFV money steal
 ‘I said that I have not stolen the money.’
- b. **n** tun jɛ na [**ko** Adama ma wari sonya]
 1SG PAST eye PostP COMP 1SG PFV money steal
 ‘I thought/believed that Adama has not stolen the money.’

If, as proposed in section 8.4.3, the main argument of the matrix clause is per default, the information source of a complement *ko*-clause, (5a) and (5b) are problematic for the idea of treating *ko* as reportative evidential in that they show that the use of *ko* does not always exclude the speaker as an information source. Better, they prove that *ko* does not necessarily encode information that the speaker obtained from someone else.

Keeping the above in mind, it is essential to add that first-person pronouns do not freely occur with reportative evidentials. They are typically used in reports that bear on involuntary or uncontrolled events or actions (cf. Curnow 2003, Aikhenvald 2015). This may include either events/actions carried out by the speaker unconsciously (e.g., being drunk or dreaming) or past events/actions that s/he cannot remember accurately (e.g., his/her infancy), as explained by Faller (2002, pp. 190–191). Now, as far as Jula is concerned, the use of first-person subjects with *ko*-clauses does not obey this constraint. For example, even though the sentences below in (6) involve the speaker’s reporting on what someone else said about him/herself, none of them carries the direct implication that the speaker “unconsciously” stole the money or that s/he does not remember having done it. Specifically, that a continuation like “but I have not stolen the money” is possible indicates that the speaker may consider the content of the *ko*-clause in (6a), (6b) and (6c) an untrue statement or information, which would then imply the possibility that s/he bears awareness towards the content of the *ko*-clause.

- (6) a. Main clause
ko ne ye wari sonya, (**kasɔrɔ ne ma wari sonya**)
 COMP 1EMP PFV money steal CONJ 1EMP PFV.NEG money steal
 ‘It is said that I have stolen the money, (but I have not stolen the money).’
- b. Complement clause
 Awa ye a fɔ [**ko** ne ye wari sonya], (**kasɔrɔ ne ma wari sonya**)
 Awa PFV 3SG say COMP 1EMP PFV money steal CONJ 1EMP PFV.NEG
wari sonya)
 money steal
 ‘Awa said that I have stolen the money, (but I have not stolen the money).’
- c. Clausal clause
 Awa ye n bugɔ [**ko** ne ye wari sonya], (**kasɔrɔ ne ma wari sonya**)
 Awa PFV 1SG beat COMP 1EMP PFV money steal CONJ 1EMP PFV.NEG
wari sonya)
 money steal
 ‘Awa has beaten me because I have (allegedly) stolen the money, (but I have not stolen the money).’

The data in (5) - (6) demonstrate therefore that, despite appearances, *ko* is functionally distinct from reportative evidentials.

Furthermore, as discussed previously, a hallmark of *ko*-clauses is that they have an identifiable source. This is contrary to what is generally found with reportative evidentials across languages. Typically, the latter can be used to report on events or information

with an unknown information source, including folklore or folktales (cf. Willett 1988, Aikhenvald 2004). Consider the following examples from Quechua and St’át’imcets.

- (7) a. Cuzco Quechua (Faller 2002, p. 189)
 Huk kutin-**si** huk forastero Pinchimuro ayllu-manta ch’in pajonal-kuna-pi
 One time-si one forastero Pinchimuro village-abl quiet pajonal-pl-loc
 puri-sha-sqa.
 walk-prog-pst2
 ‘One time a forastero from Pinchimuro was walking through quiet pajonales.’
- b. St’át’imcets (First line of a legend ‘The Dog Children’, Matthewson et al. 2007, p. 7)
- wá7 **ku7** láti7 ti pápel7-a smúlhats
 be REPORT DEIC DET one(HUMAN)-EXIS woman
 ‘[reportedly] There was this woman.’

According to Faller (2002), the use of the clitic *-si* in (7a) indicates that the storyteller (the speaker) presents the tale as it has been traditionally passed onto him/her. The example in (7b) illustrates a case where the reportative evidential *ku7* is contained in the introduction sentence of a legend. Nothing similar is found with the use of *ko*, which, for instance, cannot be used to introduce a tale (consider the example 16 above in 8.4.1).³

Despite appearances: *ko* is not analyzable as reportative evidential

Typically, depending on the level of meaning to which they contribute, evidentials are treated either as modal operators or as illocutionary operators (cf. Matthewson et al. 2007). Thus, modal evidentials contribute to propositional contents, while illocutionary evidentials contribute to speech acts. Put differently, the former operate at the propositional level, while the latter operate beyond the propositional level. Examples of each type are the St’át’imcets reportative evidential *kut7* and the Quechuan reportative evidential *-si*, respectively. So, if *ko* is a reportative evidential, we expect its behavior to be compliant with one type of evidentials. However, as it turns out, the criteria applied in distinguishing a modal evidential from an illocutionary evidential are not conclusive of an analysis of *ko* on a par with evidentials in general and with reportative evidentials in particular.

- (a) **Truth-value:** It has been argued that a speaker using a modal reportative evidential (e.g., *ku7* in St’át’imcets) conveys that s/he only has indirect evidence for a particular proposition *p*, so that s/he can neither assert nor negate the truth of *p* (cf. Matthewson et al. 2007). This predicts the infelicity of modal reportative evidentials with both propositions known to be false and those known to be true. On the contrary, a speaker using an illocutionary reportative evidential (e.g., *si* in Quechua) does not convey that s/he believes a particular proposition to be true or false (Faller 2002). For this reason, illocutionary reportative evidentials are felicitous independently of whether the speaker believes the proposition to be true or not.

In Jula, a proposition expressed by main *ko*-clauses and causal *ko*-clauses can be false. The previous examples in (6b) and (6c) illustrate this. Nevertheless, it is odd for the

³Note that in this respect *ko* resembles the Iberian Spanish complementizer *que*, whose use necessitates the presence of a traceable source, that is, the report it associates with "cannot be a general, impersonal saying, but must be a clear and definite one, unequivocally attributed to a given author" (Etxepare 2010, pp. 613–614).

speaker to assert the truth of a proposition expressed by main *ko*-clauses and a causal *ko*-clauses, as shown in (8).

(8) a. Main clause

ko Adama_i ye [wari sonya]_j, # **tipe lo, a_i ye o_j ke**
 COMP Adama PFV money steal truth COP 3SG PFV DEM do
 ‘It is said that Adama_i has [stolen the money]_j, # it is true, he_i has done that_j.’

b. Clausal clause

Awa ye Adama_i bugo [**ko** a_i ye [wari sonya]_j], # **tipe lo, a_i ye**
 Awa PFV Adama say COMP 3SG PFV money steal truth COP 3SG PFV
o_j ke
 DEM do
 ‘Awa has beaten Adama_i because he_i has [stolen the money]_j, # it is true, he_i has done that_j.’

Combining the insights from the data in (6) and (8) results in a puzzle under both the modal and the illocutionary approach to evidentials: (i) if *ko* is a modal evidential, it is clear why the speaker cannot assert the truth of the proposition expressed by the *ko*-clause, but it is not clear why s/he can negate the truth of that proposition. (ii) if *ko* is an illocutionary evidential, it is clear why the speaker can negate the truth of the proposition expressed by the *ko*-clause, but it is not clear why s/he cannot assert the truth of that proposition. The puzzle carries over to the use of *ko* in complement clauses.

Recall from subsection 7.3.2 that the truth value of a complement *ko*-clause is dependent on the predicate within the matrix clause. For instance, predicates like *think* or *believe* indicate that the proposition expressed by the *ko*-clause is not necessarily true for the speaker, the continuation in (9a) being possible. In contrast, with the verb *know*, the speaker conveys that s/he considers the proposition to be true, the continuation in (9b) yielding a contradiction.

(9) Complement clauses

a. Awa $\mu\epsilon$ na [**ko** Adama_i ye [wari sonya]_j], **nga a_i ma o_j ke**
 Awa eye PostP COMP Adama PFV money steal but 3SG PFV.NEG DEM do
 ‘Awa thinks/believes that Adama_i has [stolen the money]_j, but he_i has not done that_j.’

b. Awa be a lon [**ko** Adama_i ye [wari sonya]_j], # **nga a_i ma**
 Awa HAB 3SG know COMP Adama PFV money steal but 3SG PFV.NEG
o_j ke
 DEM do
 ‘Awa knows that Adama_i has [stolen the money]_j, # but he_i has not done that_j.’

The examples in (9) indicate that the complementizer *ko* itself does not convey anything about the truth of the complement clause. Therefore, it is impossible to establish a connection between the truth-value of a proposition and the use of *ko*. This is contrary to what one could expect if *ko* was a (reportative) evidential.

(b) **Negation:** Both modal and illocutionary evidentials have in common that the meaning they convey cannot be affected by negation (cf. Matthewson et al. 2007).

Recall that in Jula, negation is marked within the IP-domain. Consequently, negation is always under the scope of the complementizer *ko*. Given this, there is no way for negation to affect whatever meaning *ko* may express. As the translations below show, it is impossible to obtain such a reading.

- (10) a. Main clause
ko Adama **ma** wari sonya
 COMP Adama PFV.NEG money steal
 ✓ ‘It is said that Adama has **not** stolen the money.’
 ✗ ‘It is **not** said that Adama has stolen the money.’
- b. Complement clause
 Awa ye a fɔ [**ko** Adama **ma** wari sonya]
 Awa PFV 3SG say COMP Adama PFV.NEG money steal
 ✓ ‘Awa said that Adama has **not** stolen the money.’
 ✗ ‘What Awa said is **not** that Adama has stolen the money.’
- c. Clausal clause
 Awa ye Adama bugɔ [**ko** a **ma** wari sonya]
 Awa PFV Adama beat COMP 3SG PFV.NEG money steal
 ✓ ‘Awa has beaten Adama because he has **not** stolen the money.’
 ✗ ‘Awa has beaten Adama **not** because he has stolen the money.’

Based on (10), the behavior of *ko* concerning negation may appear reminiscent of evidentials. However, in reality, the impossibility for negation to scope over *ko* is simply because negation never operates outside the IP-domain. *Ko* being part of the CP-domain, it cannot be affected by negation. As evidence, consider the licensing of NPIs in topic position in (11).

- (11) a. Awa **ma** den **si** sɔɔ
 Awa PFV.NEG child any get
 ‘Awa did not have any children.’
- b. [_{TOP} den]_i Awa **ma** **o**_i sɔɔ
 child Awa PFV.NEG DEM get
 ‘Children, Awa did not have any.’
- c. * [_{TOP} den **si**]_i Awa **ma** **o**_i sɔɔ
 child any Awa PFV.NEG DEM get
 Int: ‘Children, Awa did not have any.’

Remember from earlier discussions in the previous chapters (see 7.5.1 and 3.6.2) that in Jula NPI-elements like *si* are only licensed under the scope of negation. Accordingly, *si* is permitted in (11a) due to the presence of the negation marker *ma*. The example in (11b) illustrates a topic element occurring above an IP-domain, which contains negation (e.g., *ma*) and a pronoun that resumes the topicalized constituent. The crucial point is made by (11c): it shows that an NPI cannot appear in the topic position, even if the IP domain contains a negation. Since topics are part of the CP-domain (cf. Rizzi 1997), the non-licensing of NPIs in the topic position is evidence to the effect that negation does not have scope outside the IP-domain, and thus cannot affect elements in the CP-domain.

In this context, *ko* failing to be in the scope of negation does not constitute any evidence for treating it on a par with evidentials because that property is not attributable to *ko* itself, but it is a consequence of the scopal capacity of negation in Jula.

- (c) **Questions:** Modal evidentials are interpreted within the scope of questions, and therefore they do not allow speech-act readings with question words. The contrary is true for illocutionary evidentials: they cannot be in the scope of questions, and therefore they do allow speech-act readings with question words (cf. Matthewson et al. 2007).

The overall behavior of *ko* in questions is also puzzling. We have already shown in the discussion of section 7.5.2 that questions do not affect complement *ko*-clauses; that is, question marking does not turn a complement *ko*-clause into a question. The same applies to causal *ko*-clauses, as shown below.

(12) Causal clause

- Awa ye Adama bugo [ko a ye wari sonya] wa ?
 Awa PFV Adama beat COMP 3SG PFV money steal PRT
 ✓ ‘Has Awa beaten Adama because he has stolen the money?’
 ✗ ‘Awa has beaten Adama, (is that) because he has stolen the money?’

In (12), the question particle *wa* takes scope over the entire sentence, and not over the *ko*-clause alone. Thus, like with the complement clause, no speech-act reading arises, as predicted by the modal approach to evidentials. Nevertheless, the behavior of complement and causal *ko*-clauses relative to questions contrasts with that of main *ko*-clauses. For example, a question particle placed after the main *ko*-clause can be read in two different ways: either it is in the scope of *ko*, or it scopes over the *ko*-clause construction, as illustrated by the translations in (13).⁴

(13) Main clause

- a. ko [Adama ye wari sonya wa ?]
 COMP Adama PFV money steal PRT
 ‘Has Adama stolen the money?’ (Speaker is reporting what someone else asked)
- b. [ko Adama ye wari sonya] wa ?
 COMP Adama PFV money steal PRT
 ‘Has it been said that Adama has stolen the money?’ (speaker is asking a question about a report)

In (13a), the speaker is using *ko* to ask a question on behalf of someone else (cf. Faller 2002). It is thus a question, but not an assertion, that the speaker is reporting. This reading is compatible with an illocutionary analysis. In (13b), the speaker is asking a question on his/her own behalf: about whether someone else has made a report. That is the reading predicted by the modal analysis of evidentials.

So it appears, overall, the complementizer *ko* behaves both like a modal and like an illocutionary evidential relative to questions, contrary to what is commonly known about canonical evidentials.

- (d) **Assent/dissent test:** This test is based on the claim that with the use of a modal reportative evidential, the hearer can challenge (e.g., question, doubt, or disagree with) the reliability of the information source (the modal claim), but not the indirect evidence requirement. On the other hand, the hearer cannot challenge the speech eventuality conveyed by an illocutionary reportative evidential (cf. Matthewson et al. 2007).

Starting with main *ko*-clauses, a hearer (addressee) can react to a sentence like (14a) by uttering either (14b) or (14c), depending on the situation.

⁴Each reading goes along with a different intonation of the sentence. The first reading is obtained with an intonation break between *ko* and the rest of the sentence. In the second reading, *ko* and the rest form a single intonation unit.

(14) Main clause

- a. **A:** *ko* Adama ye wari sonya
COMP Adama PFV money steal PRT
'It is said that Adama has stolen the money.'
- b. **B:** *tjɛ tɛ.* Mɔgɔ min ye o fɔ i ye be galon tige
truth COP.NEG people REL PFV DEM tell 2SG PostP HAB lie tell
'That is not true. Whoever told you that is a liar (lies).'
- c. **B':** *tjɛ tɛ.* Mɔgɔ ma o fɔ i ye !
truth COP.NEG people PFV.NEG DEM tell 2SG PostP
'That is not true. Nobody told you that! '

A hearer who utters (14b) considers the report's content untrue and therefore presumes that the speaker's information source is not reliable. The answer in (14c) may be used if the hearer considers the speaker an unreliable person, probably because s/he is known as someone who habitually lies or spreads fake news. In this sense, the hearer's answer implies that s/he considers that the speaker is not relying on someone else's saying. From this, one can then deduce that not only does the hearer challenge the existence of a previous speech eventuality associated with the report, but also the fact that the speaker has indirect evidence for the report.⁵ To be sure, *ko* does not pattern with either modal or illocutionary evidentials. The following data on causal and complement *ko*-clauses constitute further support for this conclusion.

A hearer knowing the circumstances of the situation described by the sentence in (15a) can utter (15b) if s/he considers the speaker's source of information not reliable, that is, if s/he believes or knows that Awa has lied to the speaker A about the reason of beating Adama.⁶

(15) Causal clause

- a. **A:** Awa ye Adama bugɔ [*ko* a ye wari sonya]
Awa PFV Adama beat COMP 3SG PFV money steal
'Awa has beaten Adama because he has stolen the money.'
- b. **B:** *tjɛ tɛ.* Awa be galon tige
truth COP.NEG Awa HAB lie tell
'That is not true. Awa is a liar (lies).'
- c. **B':** *tjɛ tɛ.* Awa ma foyi fɔ
truth COP.NEG Awa PFV.NEG nothing tell
'That is not true. Awa did not say anything.'

An answer like (15c) could be used by a hearer who has witnessed Awa's beating Adama, and therefore knows that Awa did not say anything to justify her action. It could be the case that the speaker is lying by attributing the speech event associated with *ko* to Awa, or that s/he is mistaken about the identity of the person on whom s/he relies. In case the speaker is considered to be lying, the hearer's answer would imply the negation of the assertion of a speech act having taken place.

⁵It is clear that one needs to distinguish what the speaker conveys, i.e., wants the hearer to believe, from what the hearer is willing to accept based on what s/he knows about the situation. In (14b) and (14c), the reaction of the hearer indicates that s/he understands what the speaker is conveying: that s/he is making a report based on someone else's saying. Thus, the result of the dissent/assent test does not contradict the previous generalization on the use of *ko* in main clauses.

⁶Either because Adama has not stolen the money, or because Awa has beaten Adama for some other reasons.

Also, with complement clauses, we found that, given the right context, nothing would prevent a hearer from uttering either (16b) or (16c) as a reaction to (16a).

(16) complement clause

- a. **A:** Awa be a lɔn [ko Adama ye wari sonya]
 Awa HAB 3SG know COMP Adama PFV money steal
 ‘Awa knows that Adama has stolen the money.’
- b. **B:** tiɲɛ tɛ. Awa be galon tige
 truth COP.NEG Awa HAB lie tell
 ‘That is not true. Awa is a liar (lies).’
- c. **B’:** tiɲɛ tɛ. Awa te o lɔn. Ni o tɛ a tun
 truth COP.NEG Awa HAB.NEG DEM know if DEM COP.NEG 3SG PAST
 tena fɔ n ye ko Madu le ye wari sonya
 FUT tell 1SG PostP COMP Madu FOC PFV money steal
 ‘That is not true. Awa does not know that. Otherwise, she would not have told me that MADU has stolen the money.’

The possibility of having (16b) as an answer to (16a) indicates that the hearer considers it possible that the speaker’s report relies on information s/he obtained from Awa. In this case, the hearer can understand what the speaker conveys as follows: I am saying to you that Awa knows that Adama has stolen the money because she told me so (Adama has stolen the money).⁷ The hearer can challenge Awa’s reliability since she is presented as the information source. The answer in (16c), on the other hand, shows that the hearer can also challenge the fact that the speaker’s report is based on a speech event. Assume it is known to speaker A that Adama, an eight-year-old boy, has stolen from Awa, his mother. Having seen Awa beating Adama, speaker A reports (16a) to the hearer B’. Unbeknownst to the speaker, however, Awa was beating Adama because he had smashed a high-value water jar. The truth is, Awa does not know that it is Adama who has stolen her money, for as she has told the hearer B’, she suspects Adama’s elder brother Madu to have done that. Against such a context, by uttering (16c), hearer B’ would be conveying: It is not true that Awa knows that Adama has stolen the money since, based on what I have heard from herself, I do not believe she could have said (to you) "Adama has stolen the money." Thus, the hearer is not only negating the meaning expressed by the verb know (e.g., NOT know) but also the implication that the speaker’s report may be based on someone else’s saying. Put differently, the answer in (16c) could have the following paraphrase, in which *p* stands for *Adama has stolen the money*: It is not true that Awa has uttered *p* since Awa does not know that *p*.

To summarize

I have presented several data showing that despite appearances, the complementizer *ko* exhibits properties that set it apart from evidentials on the one hand in typological and distributional terms, and on the other hand, in terms of the semantics and pragmatics that accompany its use. For this reason, I conclude that *ko* cannot be analyzed on a par with run-of-the-mill evidentials.

⁷The use of the predicate *know* implies that Awa’s saying corresponds to what the speaker also believes to be true.

9.3 The proposal: *ko* anchors a clause to a discourse context

Having shown that neither the standard complementizing/subordinating approach nor a treatment of *ko* as evidential accounts for the function of the complementizer *ko*, I now propose: the role of *ko* is to anchor a clause to a discourse context different from the actual discourse context.

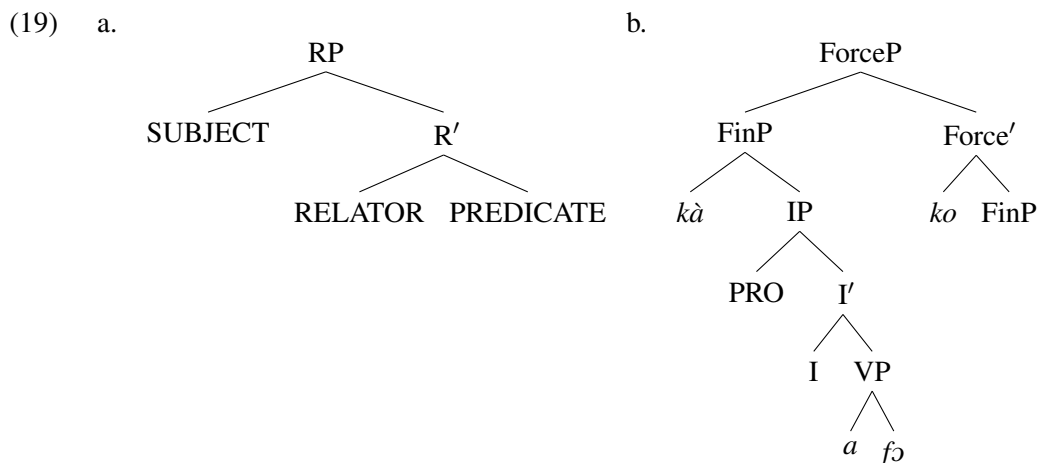
Following a standard practice in formal linguistics, I take a discourse context to be a tuple consisting of information about the discourse participants, e.g., speaker (*s*) and optional addressee (*h*), the time (*t*) at which and the world (*w*) in which the relevant discourse takes place (cf. Schlenker 1999, 2003, von Stechow 2012, 2003, Bianchi 2003, Safir 2004a, Landau 2015, 2018, i.a.).

- (17) Discourse context (based on Schlenker 1999, p. 12)
 $C = \langle s, h, t, w \rangle$ (= <speaker, addressee, time, world>)

Building on (17), the function of *ko* is captured along the following lines (18).

- (18) a. $\llbracket ko \rrbracket = \lambda p. \lambda C_2 \langle s_2, h_2, t_2, w_2 \rangle. \lambda C_1 \langle s_1, h_1, t_1, w_1 \rangle [\text{ANCHOR}(C_1 \langle s_1, h_1, t_1, w_1 \rangle)(p)] \ \& \ C_1 \neq C_2$
 b. There is a discourse context C_1 to which a clausal content p pertains, whereby C_1 differs from the actual discourse context C_2 .

In (18), the relation instantiated by *ko* is defined in terms of anchoring, (building on Wiltschko 2014 and Tsoulas 2018). In this sense, *ko* anchors a clausal content p to a discourse context C_1 different from the actual discourse context C_2 , which amounts to convey that p pertains to C_1 . I further propose that this function of *ko* is reflected in the syntax of *ko*-clause constructions, as illustrated in (19b).



The structure in (19b) reproduces the structure of predication à la Den Dikken (2006), as in (19a). In this respect, *ko* is the relator and the *ko*-clause the predicate, a conclusion drawn from the functional analogy between the complementizer *ko* and all other instances of *ko*, based especially on the speech predicate *ko* (9.4). The discourse context to which the *ko*-clause is related, i.e., anchored, occupies the specifier position of the phrase. As I show in 9.5, it is syntactically realized as *kà a fɔ*, i.e., as a FinP, whereby the Fin head *kà* bears the information about the world. The null I-head provides information on time. The null subject PRO stands for the discourse participant speaker. The optional discourse

participant addressee is, in this case, implicit. Finally, within the VP, the speech verb *fo* ‘say’ expresses that the discourse context involves a speech event, and the pronominal form *a* stands for *what is said* in that speech context.

Overall, the proposal is consistent with the by now standard view that like determiners, comple-mentizers have a discourse-related function, and thus that the CP-domain is a discourse domain (cf. Szabolcsi 1987, 1994, Stowell 1989, Ogawa 2001, Alexiadou 2001 and many others). It also readily fits our earlier conclusion that *ko* occupies the Force position (see 8.3.3). Indeed, in Rizzi’s account, Force is the position that relates clauses to discourse.

The next two sections will provide evidence in favor of the proposal. The functional relation of *ko* is discussed in 9.4, followed by 9.5, the section presenting the facts on the existence of an extra discourse context associated with *ko*-clauses.

9.4 The relational function of *ko*

9.4.1 Backgrounding

We know that elements identified as complementizers within a given language very often co-exist with other (lexical or functional) homophonous forms. There is mention that complementizers may be related to their homophones in terms of meaning, function and other grammatical properties. For example, Ransom (1988) argues for a correlation between the meaning expressed by a complementizer and the lexical item from which it is derived. In a similar vein, Van Gelderen (2011) proposed that the finiteness restriction associated with the English complementizer *that* is inherited from the deictic features of its source form, namely the demonstrative *that*. Also, relying on the inherent similarity between Germanic and Romance finite complementizers (*that*, *che*, *que*) and nominal elements like demonstrative, relative pronouns or *wh*-words, other scholars have claimed to reduce the former to the latter, suggesting thus that there is no categorial distinction between complementizers and their related nominal forms (Manzini and Savoia 2003, 2010, Manzini 2014, Roberts and Roussou 2003, Kayne 2008, 2014).⁸

As for *Jula*, I consider the complementizer *ko* and its verbal homophones as being of distinct grammatical category. As discussed in 8.2, the complementizer *ko* no longer exhibits verbal features such as TAM-marking and occurrence with nominal arguments. Nevertheless, I contend with the spirit of the above-cited works. In this sense, it is my premise that the function of the complementizer *ko* can be derived from its verbal origin.

9.4.2 The facts

Traditionally, it is admitted that the primary function of a verb is to express a relation between entities (aka predication). In this respect, the speech verb *ko* can be said to express a "saying" relation between two entities: a referential element (nominal) and a propositional clause. This is exemplified in (20).

⁸See Franco (2012) for arguments in favor of a categorial distinction between complementizers and their homophones.

(20) Defective verb *ko* ‘say’

- a. [Awa]_{DP} **ko** [Adama ye bon lo]_p
 Awa say Adama PFV house build
 ‘Awa said that Adama has built a house.’
- b. $[[ko]](p)(Awa) = SAY(p)(Awa)$

Interestingly, it turns out that, beyond the use as speech predicate, all other uses of *ko* presented in 8.2 involve a similar type of relation. Thus, when used to express intention as in (21a), *ko* relates an action intended to be carried out to the person who wants to carry out that action. The syntax is the same as for the speech verb (21b).

(21) intention ‘want to/be about to’

- a. [Adama]_{DP} **ko** [a be mɔbili soɲɛ]_p polisi-w na-na
 Adama say 3SG HAB car steal policeman-PL come-PFV
 ‘Adama wanted/was about to steal the car as the policemen came.’
- b. $[[ko]](p)(Adama) = INTEND(p)(Adama)$

In naming constructions, the use of *ko* is reminiscent of a copula verb in specificational constructions (see. Mikkelsen 2005, p. 110). Here, *ko* relates two nominal expressions: a possessive phrase and a proper name.

(22) naming

- a. [a tɔgɔ]_{DP} **ko** [Awa]_{DP}
 3SG.POSS name say Awa
 ‘Her name is Awa.’
- b. $[[ko]](\text{her name})(Awa) = SPECIFY(\text{her name})(Awa)$

In a designation sentence, *ko* functions like a copula verb in a predicational clause. It relates an entity to what is said about that entity (cf. Mikkelsen 2011).

(23) designation

- a. Aliman-w be a fɔ [o]_{DP} ma **ko** [Kuddelmuddel]_{NP}
 German-PL HAB CORR say DEM PostP say Kuddelmuddel
 ‘Germans call that "Kuddelmuddel".’
- b. $[[ko]](\text{Kuddelmuddel})(\text{that}) = PRED(\text{Kuddelmuddel})(\text{that})$

By definition, a similitive construction expresses a similarity relation between two terms of comparison (cf. Haspelmath and Buchholz 2011, Vanhove 2017, Treis 2019). In this respect, *ko* is used as a similitive marker to indicate that the actions or states conveyed by two clauses have a likeness of manner. Of the two compared clauses, the one following *ko* is typically an ellipsis. Consider (24).

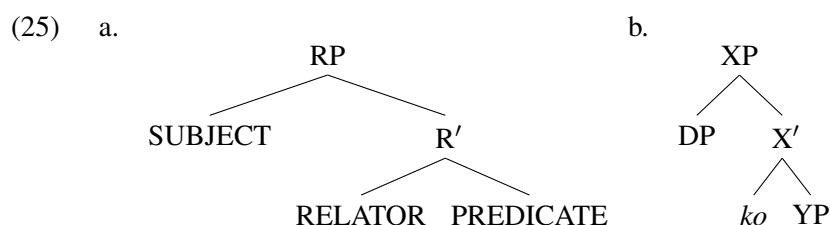
(24) semi-verbal use: the similitive ‘like’

- a. [Awa be kuma]_{p1} **i ko** [den be kuma]_{p2}
 Awa HAB speak 2SG say child HAB speak
 ‘Awa speaks like a child.’
- b. $[[ko]](p2)(\text{you}) = SAY(p2)(\text{you})$

The literal interpretation corresponding to (24a) is: *Awa speaks, you say a child speaks.*⁹ So as it is, *ko* here, unlike for the other cases, does not directly relate the two clauses. Instead, the similarity relation is brought about indirectly by *ko* establishing a speech relation between the second clause (the ellipsis) and the subject pronoun *i* ‘you’. That reminds one of the type of relationship set by the speech verb *ko* (compare 24b with 20b).

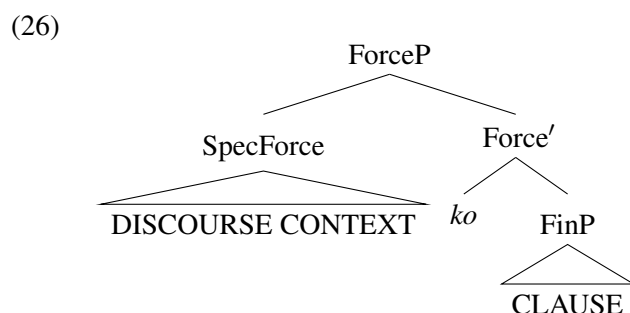
9.4.3 Making the link

Thus far, it appears, as for their function, both verbal and non-verbal uses of *ko* share a common denominator: they mediate a relation between two elements, e.g., the one occurring on the right of *ko* is related to the one in its left. The semantic type of relation and the nature of the related elements are constructions-dependent. In this respect, *ko*, in terms of function, resembles what Den Dikken (2006) refers to as RELATOR, i.e., a functional head that mediates a predication between two terms. Therefore, I will consider the structure in (25b) the syntactic representation of the function of *ko*, building on the structure of predication à la Den Dikken (2006), as in (25a).



Having shown earlier that the complementizer *ko* is derived from the speech verb *ko*, and given that all other derivatives of the speech verb *ko* function as a relator, we expect the complementizer *ko* to have the same function. This is indeed the case.

It is a well-established view that complementizers relate clauses to discourse, in the same way as determiners link the referents of nominals to discourse (cf. Szabolcsi 1987, 1994, Stowell 1989, Ogawa 2001, Alexiadou 2001 and many others). In a syntactic approach à la Rizzi, this function of complementizers is carried out by Force. In this sense, it follows from the earlier claim that *ko* occupies Force that it is a complementizer that relates clauses to discourse. However, under the approach I am taking, the Force-related function of the complementizer *ko* is a direct consequence of its verbal origin. In other words, the complementizer *ko* relates clauses to discourse because, like all other instances of the morpheme *ko*, it is a relator. Given this, I propose that the syntax of *ko*-clauses constructions involves a parallel structure to (25b) above, as shown in (26).



⁹The second-person pronoun here has a generic meaning and could have been translated by ‘one.’ Such a generic use of the second-person is frequent in Manding languages (see in Creissels 2013a).

Like for the other instances of the morpheme *ko*, in (26), the *ko*-clause on the right of the complementizer *ko* is related to a discourse context on its left, i.e., in the specifier position. I refer to this particular type of relation as Anchoring, in the spirit of Wiltschko (2014) and Tsoulas (2018).¹⁰ In this sense, we will assume hereafter that the complementizer *ko* anchors a clause to a discourse context, an idea roughly illustrated in (27).

$$(27) \quad \llbracket ko \rrbracket(p)(C_1) = \text{ANCHOR}(p)(C_1)$$

As I will claim next, C_1 is a discourse context different from the actual discourse context that is syntactically present in the structure of *ko*-clauses constructions.

9.5 The discourse context

9.5.1 Backgrounding

There is numerous mention that the CP-domain may be associated with various covert materials responsible for or affecting the syntax and semantics of complementizer-headed clauses.

On a long-standing general view, the presence of these materials is motivated by the semantics of the clause-embedding predicates. For example, in accounting for the semantic and syntactic difference between factive and non-factive *that*-complement clauses, Kiparsky and Kiparsky (1971) have suggested that the former, but not the latter, are associated with the covert noun *fact*. Subsequent works have extended that approach to non-factive complement clauses by proposing additional covert nouns such as *belief*, *claim*, *assertion* and many more. In earlier attempts, the complement clause is taken to be the complement of the covert noun (cf. Esau 1973, Menzel 1975). However, in the more recent ones, complementation is reanalyzed as an instance of relativization (cf. Arsenijević 2009, Kayne 2014).

Quite in line with but different from the covert noun approach is the view that non-factive complements are structurally more complex than factive complements. This claim, which constitutes a direct questioning of Kiparsky and Kiparsky (1971)'s proposal, is defended by Nichols (2001), Grewendorf (2002), Benincà and Poletto (2004), Haegeman (2006b), McCloskey (2006), De Cuba (2007), De Cuba and Urogi (2010). Examples of implementation of this view consist of positing extra discourse-related functional materials that mediate the relation between non-factive verbs and their respective complement clauses: e.g., an assertive operator (Nichols 2001), a functional layer dubbed as *Speaker deixis* (SD), "required to anchor a proposition to a speaker" (Haegeman 2006b, p. 1663), or an extra *cP* above CP, associated with the pragmatic function of "removing the speaker from responsibility for the truth of the embedded clause" (De Cuba 2007, p.15, fn.3). In any way, representing discourse-related information within the syntax of embedded clauses is by no means exceptional.

Independent of the works mentioned above, a long research tradition stresses the special nature of attitude predicates, in the sense that their complement clauses are the hosts of various types of discourse-related information, and accordingly, different functional projections. Thus, depending on the author and object of inquiry, attitude

¹⁰Wiltschko uses the term "anchoring" to describe the function of tense as follows: "Tense introduces the utterance time, which serves to anchor the event to the utterance. I refer to this domain as the anchoring domain.", p. 74

complement clauses have been claimed to host, among others, a Perspective Phrase (PerspP, Sundaresan 2012, Sundaresan and Pearson 2014), a Point of view Phrase (Speas 2004, Nishigauchi 2014), a Speech Act Phrase (SAP, Speas and Tenny 2003, Tenny 2006, Butler 2009, Bağrıaçık 2017). They may also host a Logophoric Centre, i.e., a speech or mental event comprising a speaker/source, an optional addressee (for speech events), a temporal coordinate, and perhaps a spatial coordinate (cf. Bianchi 2003, p. 11). Alternatively, following Safir (2004a) and Landau (2015, 2018), they may also contain a discourse context à la Schlenker (1999), i.e., a “tuple consisting of (at least) four coordinates <author, addressee, time, world>” (Landau 2015, p. 35). In the latter case, the discourse context is conceived merely as an (abstract) non-linguistic material with no morpho-syntactic realization.

The take-home message from the above is that complement clauses may be associated with various covert materials, and a discourse context is just one of many. Whatever type of materials they assume, all works mentioned above motivate them on semantic grounds, crucially, based on the meaning of clause embedding predicates. Against this, my contribution will be to show that Jula *ko*-clauses are associated with a discourse context, syntactically realized as an infinitival FinP. That infinitival FinP does not build an extra layer on top of the *ko*-clause. Instead, it occupies the specifier position of the CP projection headed by *ko*. Finally, as for licensing, I will show that the presence of the FinP discourse context is motivated independently of any clause-embedding predicates. I take as evidence for this the data to be presented next.

9.5.2 First encounter with *kà a fɔ*

Consider the following pair of sentences.

(28) complement clause

- a. Awa be a lɔn ko Adama ye wari sonya
 Awa HAB 3SG know COMP Adama PFV money steal
 ‘Awa knows that Adama has stolen the money.’
- b. [Awa be a lɔn] *kà a fɔ* [ko Adama ye wari sonya]
 Awa HAB 3SG know INF 3SG say COMP Adama PFV money steal
 ‘Awa knows that Adama has stolen the money.’
 Lit: ‘Awa knows it to say it that Adama has stolen the money.’

The sentence in (28a) has the by-now-familiar structure of *ko*-clause complementation. The sentence in (28b), however, is more complex. It contains an additional FinP structure that intervenes between the matrix clause and the complement *ko*-clause. It encompasses the infinitival marker *kà*, the speech verb *fɔ* ‘say’ and its object argument represented by the pronoun *a*. Nevertheless, despite being structurally different, the sentences in (28a) and (28b) are semantically equivalent.¹¹

The same observation holds for causal *ko*-clauses. Here, too, there exists, besides the canonical structure (29a), a semantic equivalent with the intervening FinP *kà a fɔ* (29b).

¹¹The use of either construction is a matter of register. While the less complex variant is common, the complex variant seems to be tied to some special social domains, and it sounds a bit more formal. I am familiar with the latter, mostly from religious contexts. Also, the consultants I regularly worked with were all familiar with that construction. However, they acknowledged not to use it in everyday speech. During my fieldwork in Burkina Faso, I have encountered three older persons who used it even in colloquial conversation. Nevertheless, the construction is well-attested in Bambara. The Corpus Bambara de Référence (see) contains many entries on similar constructions.

(29) causal clause

- a. Awa ye Adama bugɔ ko a ye wari sonya
Awa PFV Adama beat COMP 3SG PFV money steal
'Awa has beaten Adama because he has stolen the money.'
- b. [Awa ye Adama bugɔ] **ka a fɔ** [ko a ye wari sonya]
Awa PFV Adama beat INF 3SG say COMP 3SG PFV money steal
'Awa has beaten Adama because he has stolen the money.'
Lit: 'Awa has beaten Adama to say it that he has stolen the money.'

So as it is, *ko*-clause constructions have a syntactically more complex but semantically equivalent alternative sentence construction. I will assume that the complex construction with the intervening FinP *kà a fɔ* represents the underlying structure of the *ko*-clause construction without *kà a fɔ*. Specifically, be it overt or not, I take *kà a fɔ* to be inherent in any *ko*-clause. Indeed, its distribution is suggestive of this conclusion.

9.5.3 Distributional restrictions

Other than *ko*-clause constructions, an intervening FinP *kà a fɔ* is attested in no other constructions in Jula. To illustrate this point, we can consider, in particular, clause-types that are in complementary distribution with *ko*-clauses.¹²

For instance, in section 8.4.2, we have already evoked the existence of another causal clause introduced by *sabu* 'because'. Note that unlike with causal *ko*-clauses, a causal *sabu*-clause cannot cooccur with the intervening FinP *kà a fɔ*. To see this, compare the sentences in (30a) and (30b).

- (30) a. causal *ko*-clause
[Awa ye Adama bugɔ] **ka a fɔ** [ko a ye wari sonya]
Awa PFV Adama beat INF 3SG say COMP 3SG PFV money steal
'Awa has beaten Adama because he has stolen the money.'
Lit: 'Awa has beaten Adama to say it that he has stolen the money.'
- b. causal *sabu*-clause
[Awa ye Adama bugɔ] (***ka a fɔ**) [**sabu** a ye wari sonya]
Awa PFV Adama beat INF 3SG say COMP 3SG PFV money steal
'Awa has beaten Adama because he has stolen the money.'

The following minimal pair makes the same point for complement clause constructions. Consider the grammatical sentence like (31a) in contrast with the ungrammatical sentence like (31b).

¹²For parsimony, I do not discuss the full range of complex constructions. Nevertheless, the observation made here holds for any other complex construction that does not contain the complementizer *ko*.

- (31) a. complement *ko*-clause
 [Awa be a lɔn] *kà a fɔ* [ko Adama ye wari sonya]
 Awa HAB 3SG know INF 3SG say COMP Adama PFV money steal
 ‘Awa knows that Adama has stolen the money.’
- b. complement *ni*-clause
 [Awa ma a lɔn] (**ka a fɔ*) [*ni* Adama ye wari sonya]
 Awa PFV.NEG 3SG know INF 3SG say COMP Adama PFV money steal
 ‘Awa does not know if Adama has stolen the money.’

The verb *lɔn* ‘know’ takes, either a complement *ko*-clause or a complement *ni*-clause (used for indirect questions). As shown in (31), unlike the former, the latter cannot cooccur with the intervening FinP.

Furthermore, looking within *ko*-clause constructions, we find that the occurrence of *kà a fɔ* is not constrained by the meaning of the matrix clause predicate. While this is per default true for causal *ko*-clauses, the following data in (32) and (33) shows that besides the verb *lɔn* ‘know’, *kà a fɔ* is possible with almost all complement *ko*-clause-taking predicates.¹³

- (32) a. think/believe
 Awa hakili la (*kà a fɔ*) ko ale kelen ka cegu yan
 Awa.POSS mind PostP INF 3SG say COMP 3EMP alone COP clever here
 ‘Awa thinks/believes that only she is clever here.’
- b. suppose
 Awa be a bisigi (*kà a fɔ*) ko ale kelen ka cegu yan
 Awa HAB 3SG suppose INF 3SG say COMP 3EMP alone COP clever here
 ‘Awa supposes that only she is clever here.’
- (33) a. understand
 Awa ye a faamu (*kà a fɔ*) ko ale kelen ka cegu yan
 Awa PFV 3SG understand INF 3SG say COMP 3EMP alone COP clever here
 ‘Awa understood that only she is clever here.’
- b. be certain/sure
 Awa la-nin be a la (*kà a fɔ*) ko ale kelen ka cegu yan
 Awa ly-PTCP COP 3SG PostP INF 3SG say COMP 3EMP alone COP clever here
 ‘Awa is certain/sure that only she is clever here.’
- c. show/demonstrate
 Awa ye a yira (*kà a fɔ*) ko ale kelen ka cegu yan
 Awa PFV 3SG show INF 3SG say COMP 3EMP alone COP clever here
 ‘Awa has shown/demonstrated that only she is clever here.’

In sum, the FinP *kà a fɔ* is only possible within *ko*-clause constructions, and its occurrence therein is not regulated by the nature of the grammatical relation in which the *ko*-clause is involved. I take these facts to suggest a generalization along the following lines.

- (34) On the relation between *kà a fɔ* and *ko*-clauses
 Any *ko*-clause is inherently associated with the FinP *kà a fɔ*, which may be covert or overt.

To the generalization in (34), there exist two exceptions that I briefly discuss below.

¹³I shall discuss the exceptions in 9.5.4

9.5.4 Dealing with exceptions

The two examples below show that an overt *kà a fɔ* is ungrammatical with a complement *ko*-clause to the speech verbs *fɔ* ‘say/tell’ and *ko* ‘say’ (35a - 35b) and with main *ko*-clauses (35c).

- (35) a. complement *ko*-clause of *fɔ* ‘say’
 Awa ye a fɔ (**kà a fɔ*) ko Adama ye wari sonya
 Awa PFV 3SG say INF 3SG say COMP Adama PFV money steal
 ‘Awa said that Adama has stolen the money.’
- b. complement *ko*-clause of *ko* ‘say’
 Awa ko (**kà a fɔ*) ko Adama ye wari sonya
 Awa say INF 3SG say COMP Adama PFV money steal
 ‘Awa said that Adama has stolen the money.’
- c. main *ko*-clause
 (**kà a fɔ*) ko Adama ye wari sonya
 INF 3SG say COMP Adama PFV money steal
 ‘It is said that Adama has stolen the money’

The generalization in (34) readily covers these apparent exceptions, as they constitute cases in which the FinP *kà a fɔ* may not be overtly realized. However, given that the overt realization of *kà a fɔ* is an option in most cases, its obligatory non-realization in (35) needs some explanation. On that, there seem to be two possible independent reasons.

Starting with speech verbs, note that, as pointed out earlier, the overt realization of *kà a fɔ* does not affect the respective *ko*-clause construction semantically. From this perspective, we can see its impossible realization with speech verbs as the expression of an economy constraint (in the spirit of Chomsky 1991, 1993, Rizzi 1997), which prevents redundancy. In this respect, because the FinP *kà a fɔ* contains a speech verb, its realization with speech verbs is redundant since the speech reading is already provided by the latter.

As for the case of main-clauses, the non-realization of *kà a fɔ* is due to the distributional restrictions on infinitival FinPs discussed in section 4.5. Recall, we have seen that in Jula, an infinitival FinP must be either preceded by a matrix clause or be in the scope of the question particle *wa*, in the case of main clause constructions. Thus, in (35c), the infinitival FinP *kà a fɔ* cannot be overtly realized since it fails to be in the scope of the question particle in such a construction. The following set of data confirms this.

- (36) a. **ko** [Adama ye wari sonya **wa** ?]
 COMP Adama PFV money steal PRT
 ‘Has Adama stolen the money?’ (Speaker is reporting what someone else asked)
- b. [**ko** Adama ye wari sonya] **wa** ?
 COMP Adama PFV money steal PRT
 ‘Has it been said that Adama has stolen the money?’ (speaker is asking a question about a report)
- c. **kà a fɔ wa* ko Adama ye wari sonya ?
 INF 3SG say PRT COMP Adama PFV money steal
 Int. ‘Has it been said that Adama has stolen the money ?’

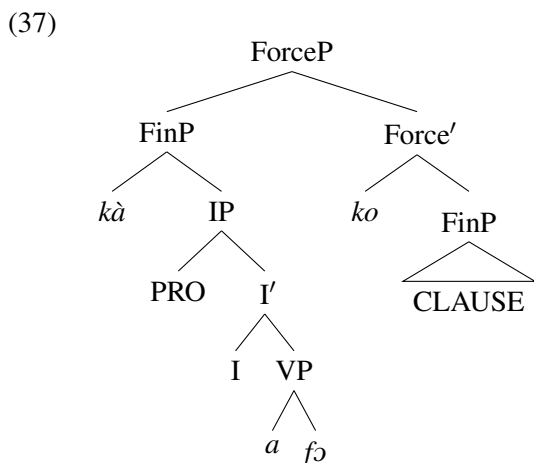
Recall that the particle *wa* always directly follows the constituent over which it takes scope. We have already seen from the discussion in section 9.2.2 (see ex.13) that in

main *ko*-clause constructions, *wa* can have in its scopal domain either the complement of *ko* or the entire *ko*-clause construction. These two readings are repeated above in (36a) and (36b), respectively. The example in (36c), by contrast, shows that *wa* cannot have direct scope over *kà a fɔ*, since the particle cannot be directly placed after the latter. Consequently, *kà a fɔ* must remain covert, in line with the conditions regulating its distribution.

To be sure, the two exceptions discussed above do not challenge the generalization formulated in (34). Any *ko*-clause is associated with the infinitival FinP *kà a fɔ*, which may be overt or covert, depending on the syntactic environments. I now propose a way to capture the relation between *ko*-clause and the infinitival FinP *kà a fɔ*.

9.5.5 The structure

I have suggested above in 9.4.3 that, like other *ko* instances, the complementizer *ko* should be considered a *relator*. Building on that insight, I propose to capture the relation between *ko*-clause and the infinitival FinP syntactically as follows.



The structure in (37) is meant as the internal make-up of any *ko*-clause construction, following the generalization in (34). As it stands, the structure contains two logically interrelated claims. The first is that the infinitival FinP *kà a fɔ* and the *ko*-clause (i.e., the FinP right to the right of *ko*) are part of the same projection, whereby *kà a fɔ* occupies the specifier position, *ko* the head position, and the *ko*-clause is the complement. The second claim is that *kà a fɔ* and the *ko*-clause stand in a relation mediated by *ko*. In this respect, *ko* relates the *ko*-clause to the infinitival FinP.

The first claim finds support from the following ungrammatical sentences involving complement and causal *ko*-clauses constructions (38).

- (38) a. complement clause
 *Awa be a lɔn *kà a fɔ* (kɛ Adama ye wari sɔnya)
 Awa HAB 3SG know INF 3SG say COMP Adama PFV money steal
 Int. 'Awa knows to say.'
- b. causal *ko*-clause
 *Awa ye Adama bugɔ *kà a fɔ* (kɛ a ye wari sɔnya)
 Awa PFV Adama beat INF 3SG say COMP 3SG PFV money steal
 Int. 'Awa has beaten Adama to say.'

These data above illustrate a sentence configuration whereby the constituent formed by the complementizer *ko* and the *ko*-clause is dropped out while leaving the matrix clause and the infinitival FinP *kà a fɔ* in place. That this results in ungrammatical sentences is an indication, on the one hand, that *kà a fɔ* is not licensed by anything within the matrix clause. On the other hand, it also suggests that *kà a fɔ* is indeed in the specifier position of the projection headed by *ko*. Typically, both specifier-head and head-complement relations are phrase-internal (cf. Koopman 1996, Koenenman and Zeijlstra 2017). Therefore, it is impossible to conceive a specifier that is not associated with a projecting head and accordingly with a host projection. Under the claim that *kà a fɔ* is the specifier within the projection headed by *ko*, the sentences in (38) are ungrammatical because *kà a fɔ* is realized without its licensing head, and consequently, without the projection to which it belongs.¹⁴ Reversely, the sentences below in (39) are grammatical because the entire projection, including *kà a fɔ*, is dropped out.

- (39) a. complement clause
 Awa be a lɔn (*kà a fɔ* kɛ Adama ye wari sɔnya)
 Awa HAB 3SG know INF 3SG say COMP Adama PFV money steal
 ‘Awa knows it/him/her.’
- b. causal *ko*-clause
 Awa ye Adama bugɔ (*kà a fɔ* kɛ a ye wari sɔnya)
 Awa PFV Adama beat INF 3SG say COMP 3SG PFV money steal
 ‘Awa has beaten Adama.’

In support of the second claim, we may consider the data in (40). They show that leaving out *ko* between *kà a fɔ* and the *ko*-clause is impossible.

- (40) a. complement clause
 Awa be a lɔn kà a fɔ *(**ko**) Adama ye wari sɔnya
 Awa HAB 3SG know INF 3SG say COMP Adama PFV money steal
 Int. ‘Awa knows that Adama has stolen the money.’
- b. causal *ko*-clause
 Awa ye Adama bugɔ kà a fɔ *(**ko**) a ye wari sɔnya
 Awa PFV Adama beat INF 3SG say COMP 3SG PFV money steal
 Int. ‘Awa has beaten Adama because he has stolen the money.’

I take this as evidence that the relation between *kà a fɔ* and the *ko*-clause is not direct, since it does not hold in the absence of *ko*. Indeed, *ko* is the element relating *kà a fɔ* to the *ko*-clause.

In sum, the structure proposed in (37) appears to correctly account for the relation between *kà a fɔ* and the *ko*-clause. That relation is such that the former functions as the specifier of the latter. As mentioned in Haegeman (2005), the specifier of a phrase typically serves to specify the domain of application of the complement. For instance, just as a subject DP in SpecI specifies what the complement VP is about, a *wh*-constituent in SpecC specifies the scope of the question-denoting IP complement (ibid., pp.325-326). Based on this assumption, in what follows, I propose that the FinP *kà a fɔ* specifies the

¹⁴Note that one could also evoke linearization as evidence for the position of *kà a fɔ*, in line with Kayne (1994) ’s Linear Correspondence Axiom. In Jula, the word order is rigid (cf. 2.3), and specifiers obligatorily appear linearly to the left of their head. Thus, the fact that *kà a fɔ* always precedes *ko* is also an indication of its position in SpecC.

discourse context in which the *ko*-clause must be evaluated. In other words, I will argue that *kà a fɔ* represents the context of evaluation for the *ko*-clause.

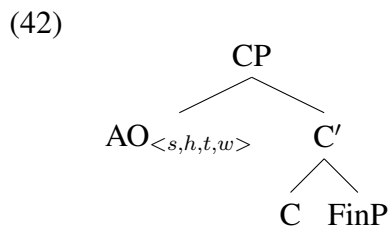
9.5.6 Making a discourse context

The proposal to be made here starts from the premise that complement clauses of attitude predicates are associated with their own discourse context, a view in particular adopted in Schlenker (1999, 2003). According to Schlenker, in attitude complementation, both the matrix clause and the complement clause contain a context variable *C*, which hosts, in turn, four coordinates, as illustrated in (41), based on Schlenker (1999, pp. 12–13).

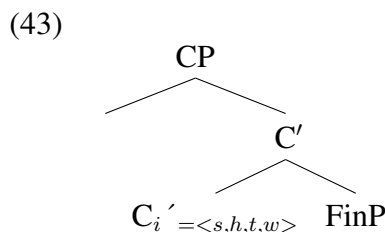
$$(41) \quad [C2_{\langle s,h,t,w \rangle \text{matrix}} \dots [C1_{\langle s,h,t,w \rangle \text{embedded}}]]$$

Thus, according to (41), there exists a matrix context, which I call *C2*, and an embedded discourse context, say *C1*, each consisting of four coordinates: speaker (*s*), addressee (*h*), time (*t*) and world (*w*).¹⁵ The matrix context *C2* represents the actual discourse context, which functions as the evaluation context for the whole complementation construction. The embedded context *C1* is the evaluation context for the complement clause. Pursuing a purely semantic account, Schlenker has remained silent on how and where the context variable associated with attitude complement clauses, i.e., *C1*, is syntactically represented.

Building on Schlenker, Safir (2004a), however, associates *C1* with an attitudinal operator, *AO*, present in the specifier position of attitude complement clauses. The idea is roughly illustrated in (42), in adapting Safir (2004a, ex. 24, p.126).



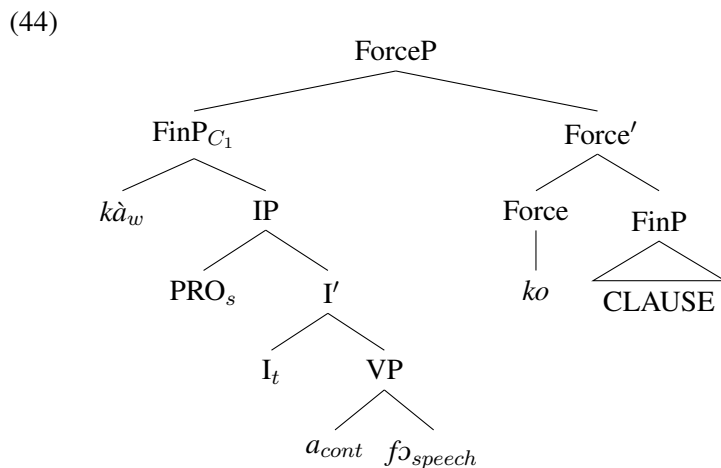
The insight from (42) is that the discourse context within attitude complement clauses is identifiable with an argument of the complementizer. Landau (2015, 2018) pursues a similar idea. In his account, the complementizer head itself hosts the discourse context, which is represented as a variable bundle labeled *i'*. The following illustration is based on the structure in Landau (2018, ex. 18, p.16).



Importantly, Landau notes that “we may think of the coordinates of *i'* (the embedded context) as arguments of *C* (the complementizer). While these arguments are normally not present in the syntax (being implicit, so to speak), they may project syntactically under certain circumstances” (Landau 2015, p. 41).

¹⁵In Schlenker’s version, the discourse role *hearer* is used instead of *addressee*.

Taking these insights seriously, I argue that the FinP in the specifier position of the CP headed by the complementizer *ko* (here ForceP) is the morphosyntactic realization of Schlenker's embedded context. The evidence for this is that from the structure of the FinP *kà a fɔ*, it is possible to retrieve all elements which form a discourse context. More concretely, I proceed as follows (44).



Building on the conclusion of the discussion in Chapter 4 (see section 4.5), the Fin complementizer *kà* is associated with the information about the world, i.e., it hosts the world coordinate. The null subject PRO stands for the discourse participant speaker. The null I-head is associated with the information on time. I further suggest that the speech act meaning associated with the verb *fɔ* ‘say’ indicates that the discourse context involves a speech event. To be more specific, C1 is a speech context. Accordingly, I take the pronominal form *a* in SpecV to be the variable that stands for the speech’s content, i.e., what is said.¹⁶ As predicted, uttering the following sentence out of the blue is puzzling.

- (45) # Adama ye a fɔ
 Adama PFV 3SG say
 ‘Adama said that/it.’

The main reason is that the pronominal *a* stands for, but does not provide, the relevant information required to interpret the sentence. To put it somewhat informally, with (45), one knows that something was said, but one does not know what exactly was said. This is suggestive of the variable nature of *a*.¹⁷

Finally, within the VP headed by *fɔ* ‘say’, we may also retrieve the discourse participant addressee, since inherent to its semantics, the verb may take an optional addressee argument, which, as shown in (46a), takes on the form of an oblique argument.

- (46) a. Adama ye a fɔ *Awa ye* [ko Madu ye bon lɔ]
 Adama PFV 3SG say Awa PostP COMP Madu PFV house build
 ‘Adama told Awa that Madu has built a house.’
 b. Adama be a lɔn [kà a fɔ (**Awa ye*)] ko Madu ye bon lɔ
 Adama HAB 3SG know INF 3SG say Awa PostP COMP Madu PFV house build
 ‘Adama knows that Madu has built a house.’

¹⁶The subscript *cont* above in (44) stands for content, and is adopted from Moulton 2009.

¹⁷For similar facts, see also 3.3.1 and 7.4.1.

Because this addressee argument cannot be syntactically represented within the FinP *kà a fɔ* (46b), I assume it to be implicit.

With the above lines, I have made of *kà a fɔ* a speech context similar to Schlenker’s embedded context C1. In that respect, I propose that *kà a fɔ* represents the evaluation context for the *ko*-clause content, as opposed to the actual discourse context C2. On that basis, the function of the complementizer *ko* is rendered by the following formal lines (47).

- (47) a. $\llbracket ko \rrbracket = \lambda p. \lambda C_2 \langle s_2, h_2, t_2, w_2 \rangle. \lambda C_1 \langle s_1, h_1, t_1, w_1 \rangle [\text{ANCHOR}(C_1 \langle s_1, h_1, t_1, w_1 \rangle)(p)] \ \& \ C_1 \neq C_2$
 b. There is a discourse context C_1 to which a clausal content p pertains, whereby C_1 differs from the actual discourse context C_2 .

In (47), *ko* anchors the *ko*-clause content p to a discourse context C_1 different from the actual discourse context C_2 , which amounts to convey that p pertains to C_1 . Next, I discuss some consequences of the proposal.

9.6 Implications

I have proposed that the function of the complementizer *ko* is to anchor a clause to a discourse context, precisely to a speech context. This function is reflected in the syntax of *ko*-clause constructions in that the CP headed by *ko* contains in its specifier position the relevant discourse context, which is morphosyntactically realizable in the form of the FinP *kà a fɔ*. The proposal has consequences that I discuss in what follows.

9.6.1 Discourse context without attitude

As mentioned above, in the domain of complementation, it is standard to assume the presence of discourse contexts within the complement clauses of attitude predicates. On the premise that the FinP is inherent to *ko*-clause constructions, my proposal predicts that a discourse context may be associated with clausal structures other than attitudinal complement clauses. More importantly, even for attitudinal complement clauses, the proposal suggests that the discourse context’s presence is not necessarily due to the attitude predicate but is an inherent aspect of the complement clause itself. While this appears to be a radical shift from the standard view, the general idea that attitude predicates are not necessarily responsible for the syntax and semantics of their complement clauses has flourished in the literature (cf. Kratzer 2006, 2013, 2016, Moulton 2009, 2015, Uegaki 2015, Bogal-Allbritten 2016). My proposal could just be said to side with these works, but I think it also raises theoretical questions on the specificity of attitude predicates as licensors of embedded discourse contexts.

9.6.2 Reportative reading

In discussing the possibility of treating *ko* on a par with reportative evidentials, we have seen that, like with the latter, *ko*-clauses are associated with an indirect evidence reading that cannot be canceled (see 9.2.2, ex. 4). The data discussed are repeated below in (48).

- (48) a. Main clause
ko Adama_i ye wari sonya, # **ne** **yere ye a_i yee**
 COMP Adama PFV money steal 1EMP self PFV 3SG see
 ‘It is said that Adama_i has stolen the money, # I saw him_i myself.’
- b. Complement clause
 Awa ye a fo [**ko** Adama_i ye wari sonya], # **ne** **yere ye a_i yee**
 Awa PFV 3SG say COMP Adama PFV money steal 1EMP self PFV 3SG see
 ‘Awa said that Adama_i has stolen the money, # I saw him_i myself.’
- c. Clausal clause
 Awa ye Adama_i bugo [**ko** a_i ye wari sonya], # **ne** **yere ye a_i yee**
 Awa PFV Adama say COMP 3SG PFV money steal 1EMP self PFV 3SG
yee
 see
 ‘Awa has beaten Adama_i because he_i has stolen the money, # I saw him_i myself.’

Under the approach adopted here, the indirect evidence reading arises because the *ko*-clause content is not evaluated from the actual discourse context. Thus, by uttering the sentences above, the speaker conveys that the hearer should consider a discourse context different from his/her own. For this reason, s/he cannot simultaneously convey to have direct evidence for the content of the *ko*-clause. That the continuation "I saw him myself" is a contradiction follows naturally. In sum, the complementizer *ko* itself is not responsible for the indirect evidence reading but the discourse context that is part of its syntax. On this basis, we were correct in not treating *ko* on a par with reportative evidentials.

9.6.3 Speech act reading

Another aspect in which the complementizer *ko* resembles reportative evidentials is that *ko*-clauses are associated with "a speech act reading".

First, *p* standing for the *ko*-clause content, we have seen that with a main *ko*-clause construction, a speaker conveys that someone else than he/her uttered *p* (cf. 8.4.1 and 9.2.2). For this reason, the continuation in (15), repeated as (49), is impossible.

- (49) **ko** [Adama ye bon lo]_i # nga mogo ma o_i fo
 COMP Adama PFV house build but person PFV.NEG DEM tell
 ‘It has been said that Adama has built a house, but nobody said that.’

Second, a causal *ko*-clause comes with the implication that the main argument of the matrix clause, typically the subject, has uttered the *ko*-clause content. For this reason, unlike with causal *sabu*-clauses, in causal *ko*-clause constructions, the matrix clause subject cannot be an inanimate nominal. Consider the contrasting pair from 8.4.2 (ex. (21), repeated below.

- (50) a. Adama / yiri ben-na [**sabu** Awa ye a jonti]
 Adama / tree fall-PFV COMP Awa PFV 3SG push
 ‘Adama fell because Awa has pushed him.’
 ‘The tree fell because Awa has pushed it.’
- b. Adama / *yiri ben-na [**ko** Awa ye a jonti]
 Adama / tree fall-PFV COMP Awa PFV 3SG push
 ‘Adama fell because Awa has pushed him.’
 Int.*‘The tree fell because Awa has pushed it.’

Third, within complementation, we have seen in section (9.2.2) that even with a non-speech verb like *lon* ‘know’, the hearer can challenge the implication that the speaker’s report is possibly based on someone else’s saying. Thus, the answer in (51b) taken from (16c) could have the following paraphrase, in which *p* stands for *Adama has stolen the money*: Awa does not know *p* so that she can say that *p*.

(51) complement clause

a. **A:** Awa be a lon [ko Adama ye wari sonya]
 Awa HAB 3SG know COMP Adama PFV money steal
 ‘Awa knows that Adama has stolen the money.’

b. **B:** tiɲɛ tɛ. Awa te o lon. Ni o tɛ a tun
 truth COP.NEG Awa HAB.NEG DEM know if DEM COP.NEG 3SG PAST
 tena fɔ n ye ko Madu le ye wari sonya
 FUT tell 1SG PostP COMP Madu FOC PFV money steal
 ‘That is not true. Awa does not know that. Otherwise, she would not have told me that MADU has stolen the money.’

These facts readily fall within the scope of my proposal. The speech act implication associated with *ko*-clauses arises simply because their evaluation discourse context involves a speech act, a meaning induced by the speech verb *fɔ* ‘say’. Thus, the speech act meaning effect too is not due to the complementizer itself, which, as discussed above, has lost its verbal status via grammaticalization (cf. 8.3.1), but to the discourse context part of its syntax.

9.6.4 The source of *ko*-clauses

Under my proposal, the constraints on the identity of the source of *ko*-clauses discussed in 8.4 can be derived too. The main facts on this point are summarized as follows: “...with main *ko*-clauses, the set of the potential source does not include indexical discourse participants. With causal *ko*-clauses, only speaker sources are excluded. The source of a complement *ko*-clause can be any discourse participant, including indexical and non-indexical ones. In the two latter cases, the matrix clause’s main argument is the default source, thus excluding possible ambiguity” (p. 167).

Following my proposal, starting with the main *ko*-clauses, one could again assume that indexical sources are excluded because the *ko*-clause is related to a discourse context different from the actual discourse context. Since each discourse context has its speaker and addressee, per default, the *ko*-clause is associated with a speaker and an addressee that are not the speaker and addressee of the actual discourse context. That idea is rendered by (52).

(52) $C2_{\langle s_2, h_2, t_2, w_2 \rangle} [[C1_{\langle s_1, h_1, t_1, w_1 \rangle} ko Adama ye wari sonya]]$
 COMP Adama PFV money steal
 $p =$ Adama has stolen the money, uttered by S_1 , reported by S_2

In the case of both causal and complement *ko*-clauses, the identity of the *ko*-clause source can be derived syntactically via control (cf. Chapter 6), as illustrated in (53).

- (53) a. complement clause
 Awa_i be a lɔn [[kà PRO_i a fɔ]_{C₁} ko Adama ye wari sonya]]
 Awa HAB 3SG know INF PRO 3SG say COMP Adama PFV money steal
 ‘Awa knows that Adama has stolen the money.’
- b. causal clause
 Awa_i ye Adama bugɔ [[kà PRO_i a fɔ]_{C₁} ko a ye wari sonya]]
 Awa PFV Adama beat INF PRO 3SG say COMP 3SG PFV money steal
 ‘Awa has beaten Adama because he has stolen the money.’

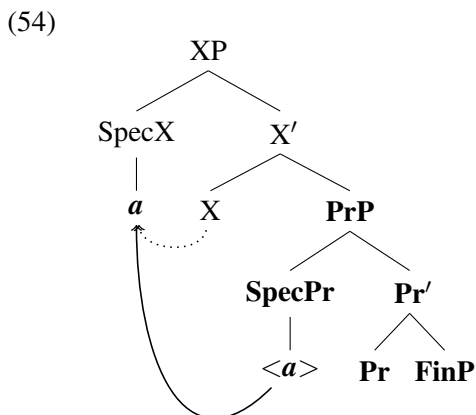
In both (53a) and (53b), as shown by the indexing, the matrix clause’s main argument binds the speaker PRO of the discourse context associated with the *ko*-clause. As a result, the latter becomes the speaker, thereby the source of the *ko*-clause content. This explains why the matrix-clause main argument is, in these cases, the default source of the *ko*-clause. Under the same rationale, the animacy restriction observed with causal *ko*-clauses follows: only animate entities can be identified with the speaker’s role represented by PRO. However, it does not follow that, unlike with complement *ko*-clauses, a first-person argument cannot be the source of a causal *ko*-clause (cf. see ex. 22 in 8.4.2). For now, I have no explanation for this constraint.

9.6.5 The syntax of *ko*-clause complementation

Finally, proposing that *ko*-clauses are associated with a discourse context represented as FinP in the specifier position has a direct consequence on the syntax of *ko*-clause complementation. Given this, I propose in this last section a way of deriving the relationship between the complement *ko*-clauses and the relating matrix clause.

Starting points

As announced previously in section 5.7, we will continue applying the analysis adopted for the syntactic derivation of infinitival complementation. The abstract structure we will assume is again repeated in (54), followed by the core ingredients (55).



(55) The central ingredients of the analysis

- (i) **The complement clause does not move:** The complement clause FinP merges to the right of the matrix clause as the complement of a predication phrase (PrP), headed by a null head, with the correlate in the specifier position.
- (ii) **Predication:** The relation between the correlate and the complement clause is thus established via predication, i.e., the content of the complement clause is predicated of the correlate. The surface position of the correlate within the matrix clause is due to movement.
- (iii) **Case assignment:** Movement of the correlate is motivated by Case assignment. Case is assigned in the specifier position of a head X within the matrix clause. Heads that assign Case are I for nominative Case, V for accusative Case and P for oblique Case.
- (iv) **Condition on overt SpecX:** Only the specifier position of an overt Case assigning head can be realized overtly. Thus, a DP occupying the specifier position of a covert Case assigning head remains unrealized at the surface. The absence of co-occurring correlates with some complement clauses boils down to this condition.

As with infinitival complementation, we will be dealing with two basic types of data: complement *ko*-clauses associated with correlate and complement *ko*-clauses without correlate. For the sake of parsimony, I will consider only one example of each: a *ko*-clause associated with an object correlate (56a) and an oblique *ko*-clause that does not surface with correlate (56b).

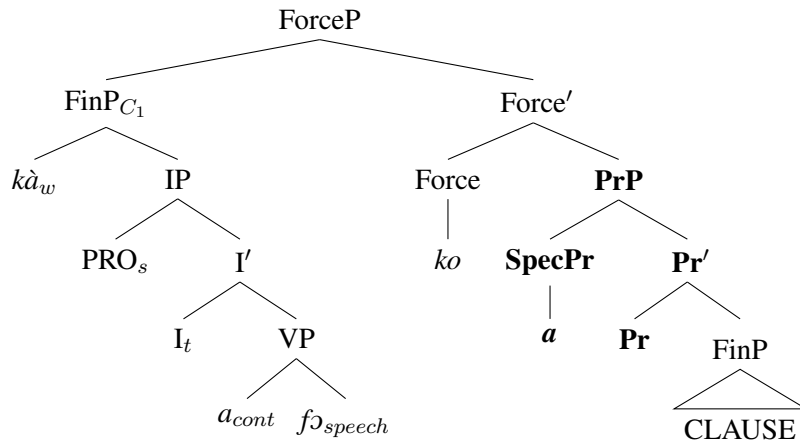
- (56) a. complement *ko*-clause with correlate
Awa be a lɔn ko Adama ye bon lɔ
Awa HAB 3SG know COMP Adama PFV house build
'Awa knows that Adama has built a house.'
- b. complement *ko*-clause without correlate
Awa ɲinɛ-na ko Adama ye bon lɔ
Awa forget-PFV COMP Adama PFV house build
'Awa forgot that Adama has built a house.'

Next, I propose a derivation for the structures of these two sentences.

Examples of derivation

Here, the main task consists of integrating the abstract structure presented above in (54) into the syntax associated with *ko*-clauses. Like with infinitival complement clauses, I will continue to assume that the predication between the correlate and the complement clauses applies at the FinP level. Therefore, in the case of *ko*-clause complementation, that predication will be instantiated inside the ForceP headed by *ko*. This gives the following structure before the movement of the correlate into the matrix clause.

(57)



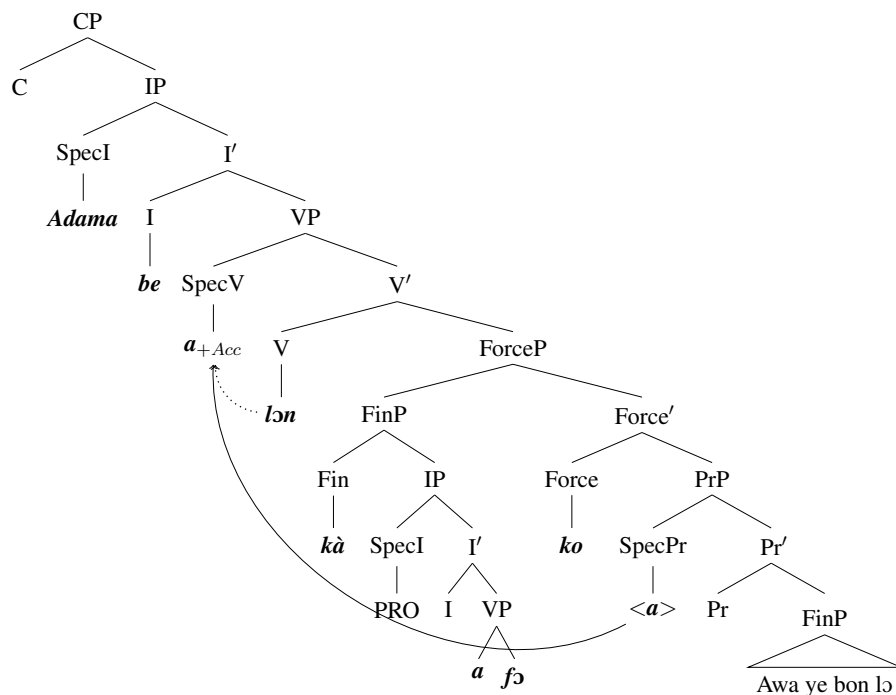
With the structure in (57), the relationship to the matrix clause is established as usual.

Starting with complement *ko*-clauses that associate with a correlate, in (58b) the correlate *a* leaves the specifier position of PrP within the CP hosting the *ko*-clause to be assigned accusative case by the transitive verb *lon* 'know'.¹⁸ The result is the sentence in (58a), where the correlate surfaces in the object position of the matrix clause.

(58) complement *ko*-clause with object correlate

- a. Adama be **a** lon (ka a fɔ) ko Awa ye bon lo
Adama HAB 3SG know INF 3SG say COMP Awa PFV house build
'Awa knows that Awa has built a house.'

b.



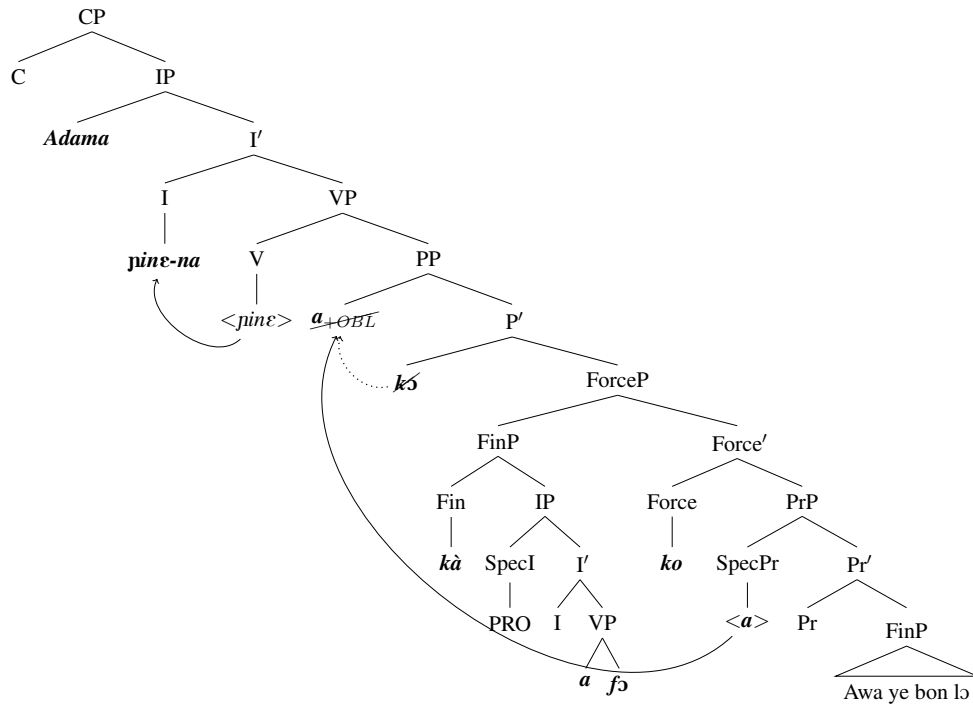
¹⁸As it is, the object argument of *fɔ* 'say/tell' in the FinP *kà a fɔ* does not move, because it has already been assigned accusative Case.

With an intransitive verb, such as *pine* ‘forget’, correlates are typically not realized overtly (59a). In that case, we will assume, as usual, that the correlate and its oblique Case-assigning head, the postpositional head *kɔ*, have been deleted altogether, in line with the constraint in (55-iv). This is rendered by the structure in (59b).

(59) complement *ko*-clause without correlate

- a. Awa *pine*-na (*a *kɔ*) (ka a fɔ) ko Adama ye bon lo
 Awa forget-PFV 3SG PostP INF 3SG say COMP Adama PFV house build
 ‘Awa forgot that Adama has built a house.’

b.



Again, the evidence for the presence of the covert Case-assigning head comes first from the fact that this head is realizable with the nominal counterpart of complement *ko*-clause (60).

- (60) Awa *pine*-na wari *kɔ*
 Awa forget-PFV money PostP
 ‘Awa forgot the money.’

Secondly, in the closely related Manding language Bambara, we find that the complement *ko*-clause, in a similar configuration, may associate with a correlate introduced by *kɔ* (61).

(61) Example from Diallo (1987, ex.7, p.196)

- Musa *pine*-na a *kɔ* ko a terike na-na
 Awa forget-PFV 3SG PostP COMP 3POSS friend come-PFV
 ‘Musa forgot that his friend has come.’

That being said, we now turn to summarize the central insights of the chapter.

9.7 Conclusion

Under the premise that the complementizer *ko* used in main, causal and complement clauses are related (cf. chapter 8), I have attempted, in this chapter, to find a common functional denominator for them. I have started by showing that *ko* is neither a subordinating morpheme nor a morpheme that links a clause to another clause. Then, I have considered and dismissed the possibility of treating *ko* on a par with reportative evidentials, a proposal we find for say-complementizers in the literature. My solution has been to treat the complementizer *ko* as a Relator, building on its verbal origin. In that respect, the function of *ko* in main, causal and complement clause constructions is to relate, i.e., anchor, a clause to a discourse context different from the actual discourse context. I have also shown that the relevant discourse context, which is a speech context, forms part of the syntax of *ko*-clause constructions. Specifically, it is represented by the FinP *kà a fɔ*, which occupies the specifier position of the CP headed by *ko*. Besides its theoretical relevance, it has been shown that the proposal captures essential aspects concerning the interpretation of *ko*-clauses. Finally, I have proposed, relying on chapter 5, a syntactic analysis of *ko*-clause complementation that incorporates the insights of that proposal.

Chapter 10

Logophoric effects in *ko*-clauses

10.1 Introduction

The present chapter parallels with chapter 6 as it is concerned with another type of referential dependency phenomenon that occurs within the domain of complementation: *logophoricity*.

Recall, we have seen from chapter 2 (section 2.5) that Jula has two series of pronouns, including two third-person pronouns: the simple form *a* and its emphatic counterpart *ale*. We show in this chapter that within the *ko*-clause complementation sentence, the third-person emphatic pronoun *ale* exhibits the interpretative properties of so-called *logophoric pronouns* (cf. Hagège 1974), as illustrated in (1).

- (1) a. Adama_i kó (ko) **ale**_{i/*j} hakili ka di.
Adama say COMP 3EMP mind COP good
'Adama_i said that he_{i/*j} is clever.'
- b. Adama_i kó (ko) **a**_{i/j} hakili ka di.
Adama say COMP 3SG mind COP good
'Adama_i said that he_{i/j} is clever.'

As can be seen in (1a), the pronoun refers only to the subject of the matrix clause, *Adama*, the person whose words are being reported. In that respect, *ale* contrasts with its simple form counterpart, which in the same environment may refer or not to the subject of the matrix clause (1b). The primary goal of this chapter is to characterize such an interpretative contrast, that is, account for the logophoric interpretation of *ale* within *ko*-clause complementation, along with explaining why a similar interpretation does not arise with the simple form *a*.

In order to achieve this goal, I start by providing some background on the phenomenon of logophoricity, distilling aspects concerning the typology, the theoretical issues and the dominant ways of analyzing the phenomenon (10.2). Then, capitalizing on this background, section 10.3 describes relevant aspects concerning the logophoric use of *ale* in Jula, thereby placing the system of Jula within the context of previous typological and theoretical insights. Further, on the way to characterizing the logophoric use of *ale*, I discuss and present evidence that logophoricity cannot be treated as an instance of variable binding (10.4). Hence, I take on in 10.5 an approach that puts in perspective the logophoric use of *ale* with its use outside the domain of *ko*-clause complementation. I argue with evidence in sections 10.6 and 10.7 that the latter use involves contrastive focus, and propose considering the logophoric use as a consequence of contrastive focus. In this

vein, I attempt in 10.8 to explain how logophoricity can be derived from contrastive focus. Finally, section 10.9 concludes the chapter.

10.2 Background on logophoricity

10.2.1 Defining

Initially, Hagège used the term *logophoric*, meaning 'referring back to the discourse', to "designate a particular category of anaphoric expressions, personals and possessives, which refer to the author of a discourse or to a participant whose thoughts are reported" (my translation of Hagège, 1974, p. 87). Following this insight, I shall consider logophoricity as the particular type of referential dependency between those special anaphoric expressions, i.e., logophoric pronouns (hence, LPs) and an antecedent DP that represents a person whose speech or mental state is being reported; or broadly, the linguistic phenomenon that involves such a referential dependency. By way of illustration, consider the following minimal pair from Ewe (Niger-Congo, Kwa).

- (2) Ewe (Clements 1975, p. 142)
- a. Kofi be *yè*-dzo
Kofi say LOG-leave
'Kofi_i said that he_{i/*j} left.'
 - b. Kofi be *é*-dzo
Kofi say 3SG-leave
'Kofi_i said that he_{*i/j} left.'

In (2a), the use of the LP *yè* indicates a reference to the reported speaker: it expresses that Kofi said about himself that he left. By contrast, in (2b), the use of the ordinary pronoun *é* indicates a disjoint reference: it expresses that Kofi said that someone else left. Such an interpretative contrast between pronominal forms is typical of languages that possess marking devices for logophoricity, primarily found in Africa.¹

I shall use the term logophoric antecedent for the individual antecedent of an LP (e.g., Kofi in 2a). The term logophoric clause would be used for the clause immediately containing the LP. Thus, on the premise that the Ewe sentence in (2) is an instance of complementation (see Clements 1975), the complement clause "that he left" will constitute the logophoric clause. Accordingly, the term logophoric context will refer to the whole complementation sentence and, more generally, to any linguistic environment or sentence configuration involving an LP. That being specified, I discuss next the typological aspects of logophoricity.

10.2.2 Typological aspects

Works in typology have revealed that logophoricity is not a unified phenomenon (cf. Reuland 2017). That notwithstanding, it is possible, building on previous typological works (see von Roncador 1992, Stirling 1993, Culy 1994b, Huang 2009), to establish the main typological characteristics of logophoricity by considering four aspects: (i) the strategy of marking, (ii) the licensing contexts, (iii) the nature of the logophoric referential

¹See Güldemann (2003) for discussion on the geographical distribution of logophoric marking across Africa.

dependency, and (iv) the properties of the logophoric antecedent. These aspects will be discussed in turn below.

Marking strategy

In terms of marking strategy, logophoric languages fall into two groups. On the one hand, some languages mark logophoricity using a dedicated anaphoric expression. On the other hand, there are languages with non-dedicated LPs, that is, languages that mark logophoricity by extending the functional domain of anaphoric expressions (emphatic, reflexives, possessives...). This implies that the form used for logophoric marking also has non-logophoric uses.

An example for the first group is Ewe. As illustrated in (3), unlike the simple form *e*, the LP *yè* cannot be used within an independent main clause.

- (3) LP outside logophoric context
- a. Data from Pearson (2015, p. 95)
 - *Yè/e dzo.
 - LOG/3SG leave
 - int. ‘He/she left.’
 - b. Data from Bimpeh (pc.)
 - Kofi kpɔ *yè/e-fe dada
 - Kofi see LOG/3SG-POSS father
 - int. ‘Kofi_i saw his_i father.’

Other languages with a dedicated LP are Tuburi, Mundang (cf. Hagège 1974), Donno So (Culy 1994a), Bwamu (von Roncador 1992), among others.²

An example of a language with a non-dedicated LP is Yoruba, where logophoricity is marked using the strong third-person pronoun *òun* as in (4).

- (4) Logophoric use of *òun* (based on Adesola 2006, p. 2070)
- Olu_i sọ pé Adé_j rí bàbá òun_{i/*j}
 Oly say that Adé see father his
 ‘Olu_i said that Adé_j saw his_{i/*j} father.’

Now, unlike *yè* in Ewe, *òun* also has non-logophoric uses. For instance, in (5) its use goes along with an effect of exclusion: it expresses that “its reference (say Ade) is the topic of the discussion out of several possible choices” (Adesola 2006, p. 2072); with the implication that the other possible choices are excluded once the reference of *òun* has been identified. This reminds us of the exhaustive/exclusiveness effect associated with contrastive focus (cf. Chafe 1976, Molnár 2002, Umbach 2004, Repp 2016).

- (5) Non-logophoric use of *òun* (Bamgbose 1966, p. 38, based on Culy 1994b, p. 1058)
- òun lo fa kini yen
 he is he pulled thing that
 ‘It was he that caused that thing.’

²For a list of languages see von Roncador (1992) and Culy (1994b).

What is more, (6) shows that in its non-logophoric use, *òun* never takes a local antecedent.

- (6) Non-logophoric use *òun* (based on Adesola 2006, p. 2074)

Adé_i ti rí bàbá òun_{*i/j}
Ade ASP see father his

‘Adé_i has seen his_{*i/j} father.’

Besides Yoruba, other languages with non-dedicated LPs include Igbo (see von Roncador 1992, Culy 1994b), Abe (Koopman and Sportiche 1989), Ibibio (Newkirk 2019), San Maka (Perekhvalskaya 2020), among others.

To summarize, logophoricity is marked across languages either by dedicated anaphoric expressions or by forms that have other uses distinct from logophoricity.

Logophoric contexts

I consider a *logophoric context* the linguistic environment that favors the logophoric marking, that is, the use of an LP. According to Clements (1975), these are reportative contexts transmitting the words, attitudes and other mental states of an individual or individuals other than the (reporting) speaker. Syntactically, this may correspond to various sentence configurations.

As already pointed out above, a logophoric context may involve complementation (or alike). Here, note that because speech reports constitute the prototypical context in which logophoric markers occur (cf. von Roncador 1992), complementation with speech predicates is cross-linguistically the default logophoric context. From there, languages may extend the use of LPs to complementation with non-speech predicates, and this, along the implicational hierarchy presented in (7).

- (7) Implicational hierarchy of logophoric predicates (cf. Stirling 1993, Culy 1994b, Huang 2000)
speech > thought > psychological > knowledge > perception

(7) incorporates the following insights: if a language marks logophoricity with some predicates higher on the hierarchy, it will also allow logophoric marking with some predicates relatively lower. Thus, logophoric marking with a psychological predicate would imply logophoric marking with a thought and a speech predicate. Nevertheless, there exists no language that does not mark logophoricity with speech predicates, at the very least.

Apart from predicates, other elements that may trigger logophoric marking within complementation constructions are so-called speech-verb complementizers, i.e., complementizers derived from speech verbs (see section 8.3, chapter 8). In many languages, complementizers of such a type have been claimed to license LPs. Thus, Koopman and Sportiche (1989) report that in Abe, all logophoric contexts must contain the speech-verb complementizer *kO*. This explains the contrast between (8a) and (8b).

(8) Based on Koopman and Sportiche (1989, ex.66, p.580)

- a. yap_i ka api [ye n_{*i/j} e sE]
 Yapi tell Api COMP he is handsome
 ‘Yapi_i told that Api he_{*i/j} is handsome.’
- b. yap_i hE api [kO n_{i/*j} e sE]
 Yapi say Api COMP he is handsome
 ‘Yapi_i said that Api he_{i/*j} is handsome.’

Like Yoruba, Abe does not have a dedicated LP, but it extends the use of so-called *n*-pronouns for logophoric marking. The examples above contain two different speech verbs: *ka* ‘tell’ which takes a *ye*-complement clause (8a), and *hE* ‘say’ which takes a *kO*-complement clause (8b). If, as suggested by (7), logophoric marking was licensed only by the meaning of predicates, the *n*-pronoun should have a logophoric reading both in (8a) and (8b). However, only in (8b), i.e., with the speech-verb complementizer *kO*, is the pronoun interpreted logophorically. Koopman and Sportiche (1989) take this to suggest that in Abe there exists a correlation between the presence of the complementizer *kO* and the logophoric interpretation of the *n*-pronoun. The same can be said of Tuburi, where the sole presence of the speech-verb complementizer *gā* may suffice to license logophoric marking. As evidence, a speech predicate co-occurring with the latter can be omitted freely (9).

(9) Based on Hagège (1974, p. 287)

à (rín) gā tí sɛ tʃÍ sɛ
 he say COMP head LOG hurt LOG

‘He_i said that he_{i/*j} had headaches’

Speech-verb complementizers that license logophoric marking are attested in many others languages, including Ewe, Mundani, Lele, Gokana, Akoose, Banda-Linda, Efik, Attié, Mundang, i.a.³

Another type of logophoric context is what I call logophoric discourse context, building on Culy (1994b).⁴ Attested in many logophoric languages, this refers to a more or less long stretch of reported discourse in which the logophoric clause occurs as an independent clause. In this case, logophoric marking operates across sentences boundaries, as the following examples from Yoruba and Donno Sɔ show.⁵

³For references see Stirling (1993), Huang (2000), Huang (2009).

⁴Culy originally used the term "logophoric discourse domain".

⁵According to Huang (2000, p. 183), a similar pattern is attested in the following languages: Angas, Bwamu, Ewe, Fon, Gokana, Babungo and Mundani. To these can be added also Wan (Nikitina 2012), Tchamba-daka (Bornand 2013 and San Maka (Perekhvalskaya 2020).

(10) Logophoric discourse context

a. Yoruba (Adesola 2005, p. 216)

Olú_i so pé ó_{j/i} ki bàba ò_{un}_i nitori pé bàbá ò_{un}_i fún un_j ni owó.
Olu say that he greet father his because that father he gave him PRT money
Ó_{j/i} tún yin bàba ò_{un}_i fún isé tí bàba ò_{un}_i sé fún un_j.
He also praise father his for work that father his do for him
'Olu_i said that he_{j/i} greeted his_i father because his_i father gave him_{j/i} some money.
He_{j/i} also praised his_i father for a job well done.'

b. Donno Sɔ (Culy 1994a, p. 118)

Endyaana_i gamma_j wa: wo_j le ai le sɔ ra aa *indyem*_ɔ_i kundi
rooster cat ADDR 3SG and mouse and word LOC who LOG put
ma? *Indyem*_ɔ_i togu ra yazɛm ai wa bondo ra to kɔ nɛ le
Q LOG shelter LOC spend the night mouse SUBJ hole LOC is it in also
taw *indyem*_i mɔ ye to ma? Giaa paza ti
earth LOG POSS PRT is Q said left AUX
'The rooster_i to the cat_j: "Who put him_i in the middle of the difference between him_j
and the mouse? He_i spends the night in a shelter while the mouse is in a hole. Does
it concern him_i?" Having said this, the rooster left (the cat).'

In the Yoruba example (10a), the third and fourth instances of the LP *òun* occur within an independent clause that directly follows a complementation sentence. Nevertheless, the LP still refers to the main subject of the complementation sentence, i.e., *Olu*, the person whose speech is being reported. The example of Donno Sɔ in (10b), by contrast, shows that the logophoric clause does not need to be associated with any complementation sentence, and that the LP and its antecedent (e.g., *Endyaana* 'the rooster') may be separated from each other by more than one sentence.

As a final note, it is worth pointing out that purpose and causal clause constructions also count as logophoric contexts in some languages. Examples are given below for Donno Sɔ and Ewe, respectively.

(11) a. Logophoric marking in purpose clause (Donno Sɔ, Culy 1994b, p. 1071)

Omar_i ma sɔ gɔ inyemɛ_i le sɔyyɛ giaa yɛle
Omar Isg-SUBJ word the LOG with speak said came
'Omar_i came in order for me to talk with him_i about the problem.'

b. Logophoric marking in causal clause (Ewe, Culy 1994b, p. 1072)

Kofi dzo ela bena Ama kpɔ yè
Kofi left because COMP Ama saw LOG
'Kofi_i left because Ama saw him_i'

Scholars have suggested that the examples in (11) are due to purpose and causal clauses having the semantics suitable for logophoric marking. Hyman and Comrie (1981) propose that a purpose clause is associated with the tacit implication of some individual bearing internally the intention or desire towards an event or action. Accordingly, the logophoric marking serves to report the intention/desire of that very individual: in (11a), the speaker reports that Omar came wishing that the reporting speaker talks with him. Similarly, for Charnavel (2019) causal relations involve a sort of judgment issued by a reasoning individual. In other words, saying that two events A and B are causally related amounts to saying that for some individual(s) it holds true that A causes B or vice versa. Applied to logophoricity, (11b) should thus convey the following: Kofi left, for according to Kofi,

Awa saw Kofi, with the implication that the causal relation is established by Kofi and not by the reporting speaker.

As already pointed out in the introduction, our discussion on logophoricity in Jula will focus on the domain of complementation. Nevertheless, I believe that considering logophoric marking across sentences and within adjunct clause constructions can be insightful in characterizing the nature of logophoricity. In that respect, in section 10.4.3, I will use the existence of logophoric discourse contexts as evidence against treating logophoricity as an instance of variable binding.

Long-distance dependency

Another important hallmark of logophoricity is long-distance dependency, i.e., the relation between the antecedent and the LP necessarily operates across clause boundaries. The effect is that logophoricity always involves the sentence configuration in (12), where the logophoric antecedent and the LP occur in two different clauses, CP₁ and CP₂, respectively.

- (12) The logophoric relation
 [**DP**_{*i*...}_{CP₁} ... [... **LOG**_{*i*} ...]_{CP₂}]

Long-distance dependency is a property that LPs share with so-called long-distance reflexives (hence LDRs), i.e., reflexives that in some Indo-European and Asian languages are allowed to take a clause-external antecedent. In Italian, for example, the reflexive *proprio* in (13a) can be interpreted as referring either to the local subject, Osvaldo, or to the matrix subject, Gianni. The same is true for Chinese, with the reflexive *ziji* in (13b), which refers either to Wangwu or to Zhangsan.

- (13) a. Italian (cf. Sells 1987, p. 476)
Gianni_{*j*} crede [che **Osvaldo**_{*i*} sia innamorato della **propria**_{*i/j*} moglie]
 Gianni believes that Osvaldo is in love with self wife
 ‘Gianni_{*j*} believes that Osvaldo_{*i*} is in love with self_{*i/j*}’s wife.’
 b. Chinese (adapted from Cole et al. 2006, p. 22)
Zhangsan_{*j*} renwei [**Wangwu**_{*i*} xihuan **ziji**_{*i/j*}]
 Zhangsan think Wangwu like self
 ‘Zhangsan_{*i*} thinks that Wangwu likes self_{*i/j*}.’

This parallel has led some authors to propose that LPs are similar to LDRs, or vice versa (Clements 1975, Kuno 1987, Sells 1987 and beyond). By contrast, most of the standard typological works on LPs and LDRs agree on keeping them apart (cf. Reuland 2017). For instance, in discussing the typology of LDRs, Cole et al. (2006, p. 33) concludes: “while the term ‘logophoricity’ appears to be too well established to banish it from discussions of long-distance reflexives, it is important to recognize that there is strong evidence against the hypothesis that long-distance reflexives are covert logophoric pronouns. Furthermore, the system of logophoricity found with ‘classic’ logophoric pronouns is quite different from that found with long-distance reflexives of various types.” Long before, Hagege (1974), Culy (1994b) and Dimmendaal (2001) came to a similar conclusion in their respective discussion of the typology of LPs.

Leaving aside the arguments brought forward within each camp, I think there is a need to keep both LPs and LDRs apart, especially when considering their referential properties.⁶ In this respect, the examples illustrated in (13) incorporate one aspect of

⁶The reader is referred to relevant works for argumentation and evidence.

LDRs attested, to the top of my knowledge, in no logophoric language: in the same environment in which they take clause-external antecedents, LDRs can have a local antecedent. In a similar environment, an LP, by contrast, can never take a local antecedent. As the following examples show, this is a consistent pattern across logophoric languages.

- (14) a. Ewe (Bimpeh pc.)
Kofi_i bu tame [be **Ama_j** kpɔ **yè-fe_{i/*j}** dada]
 Kofi bow head COMP Anne see LOG-POSS father
 ‘Kofi_i thought that Ama has seen his_i /*her_j father.’
- b. Donno So (cf. Culy 1994b, p. 1080)
Oumar_i [**Anta_j** **inyemeñ_{i/*j}** waa be] gi
 Oumar Anta LOG-ACC seen AUX said
 ‘Oumar_i said that Anta_j had seen him_i/*her_j.’
- c. Yoruba (cf. Adesola 2006, p. 2074)
Olu_i sọ pé [**Adé_j** rí bàbá **òun_{i/*j}**]
 Olu say that Adé see father LOG
 ‘Olu_i said that Adé_j saw his_i/*j father.’
- d. Ibibio (Newkirk 2019, p. 312)
Ekpe_i a-ma a-kop [ke **Udo_j** a-ma **í_{i/*j}-kit**]
 Ekpe 3sg-pst 3sg-hear COMP Udo 3sg-pst LOG-see
 ‘Ekpe_i heard that Udo_j saw him_i/*j.’

To the extent that this contrast between LPs and LDRs is revealing, it suggests that the long-distance dependency of LPs is not an else-where case as with LDRs, but an inherent aspect of the logophoric referential dependency. This is an observation with critical importance when explaining or accounting for logophoricity. Indeed, I will show in section 10.4.4 that the ban on local antecedents for the pronoun *ale* bespeaks against treating logophoricity in Jula as an instance of variable binding involving a clause-internal operator.

The logophoric antecedent

What makes a DP qualify as a logophoric antecedent? In the literature on logophoricity, a quasi-general agreement exists that being a logophoric antecedent is firstly and foremostly a semantic-pragmatic property. A logophoric antecedent is typically described as designating any individual other than the actual speaker whose words, attitudes or mental states are being reported (cf. Clements 1975, von Roncador 1992). This predicts first a little constraint on the grammatical function of the logophoric antecedent. Indeed, even though the logophoric antecedent is typically encoded as a subject argument, it does not have to be, as suggested by the following: in (15a), the logophoric antecedent is encoded as a direct object, in (15b) as an oblique argument, and in (15c) as a possessor.

- (15) a. Object logophoric antecedent (Tuburi, cf. Wiesemann 1986, p. 449)

hɛ́ɛ́né jɔŋ Pɔl_i gá sɛ_i lɛ́' cégè
fear has Paul COMP LOG fall sick

‘Paul is afraid of falling sick.’

Lit. Fear grips Paul_i that he_i will fall sick.’

- b. Oblique logophoric antecedent (Ewe, cf. Hagège 1974, p. 303)

e nyo na Ama_i be yè_i a dyi vi
it be.good to Ama COMP LOG SBJV bar child

‘It pleases Ama_i that she_i bore a child.’

- c. Possessor logophoric antecedent (Tuburi, cf. Wiesemann 1986, p. 449)

bil bɛ go fɛh wɛr màngá sɛ ko Jaŋ
stomach his ACCOM happy because LOG see John

‘He was happy because he saw John.’

A second prediction concerns the person category. Because it refers to an individual other than the actual speaker, a logophoric antecedent is not encoded as a first-person DP (cf. Stirling 1993, Nikitina 2012). By contrast, third-person DPs are standard. However, some languages mark logophoricity with second-person DPs, yielding a third/second-person syncretism (cf. von Roncador 1992). This is the case, for example, in Ewe, Wan and Gbaya, as the following data show.

- (16) Third/second-person syncretism in logophoric marking

- a. Ewe

Kofi_i / è_j be yè_{i/j}-dzo
Kofi / 2SG say LOG-leave

‘Kofi_i / You_j said that he_i / you_j left.’

- b. Gbaya

à_i / mɛ_j tɔ yè gè nɛ ɛ_{i/j} hà túrrú há-m
3SG / 2SG say QP AUX LOG give clothes to-1SG

‘He_i / You_j said that he_i / you_j would give clothes to me.’

- c. Wan

yrā-mū_i é / ā_j gé mō súglù é lō
Children DEF / 2PL said LOG.PL manioc DEF ate

‘The children_i / You_j said that they_i / you_j ate the manioc.’

10.2.3 Theoretical issues

Two issues are of significant interest in the analysis of logophoricity. The first and most evident one is concerned with the absence of referential ambiguity. Indeed, as it is well-known, a pronoun within an embedded reported clause can be in the following way ambiguous: either it refers to the reported individual, e.g., Peter (17a) or someone else, say, John (17b).

- (17) Peter_i said that he_{i/j} is clever.

- a. Peter said that Peter is clever.

- b. Peter said that someone else (John) is clever.

The specificity of LPs lies in the fact that they do not exhibit such a referential ambiguity: an LP within an embedded reported clause is unambiguously interpreted as referring to the reported individual (Compare 2a and 2b again). This is also true for contexts involving multi-embedding, as (18) shows.

- (18) Marie be Kofi xɔse be yè na Ana cadeau. (Based on Pearson 2015, p. 96)
 Mary say Kofi believe COMP LOG give Anna gift
- a. ‘Mary_i said that Kofi believed that she_i gave Anna a gift.’
 - b. ‘Mary said that Kofi_j believed that he_j gave Anna a gift.’
 - c. * ‘Mary_i said that Kofi_j believed that he_k gave Anna a gift.’

In the above example from Ewe, the LP *yè* can refer to either the subject of *say* (18a) or the subject of *believe* (18b), since they both equally have the status of a logophoric antecedent. If this seems to be a case of referential ambiguity, it is remarkable that in these cases, too, the LP cannot be interpreted as having a linguistically non-realized antecedent (18c). However, this reading is available for an English pronoun in a similar environment (19).

- (19) John_i said that Peter_j believes that he_{i/j/k} is clever.
- a. John said that Peter believes that John is clever.
 - b. John said that Peter believes that Peter is clever.
 - c. John said that Peter believes that someone else (Bob) is clever.

Thus, the property of LPs not displaying referential ambiguity, instead of the possibility to refer to two potential reported individuals, concerns merely the exclusion of a reading where the LP refers to an individual other than the reported individual. Characterizing this particular interpretative restriction on LPs is an issue that any account of logophoricity must address: where does this restriction come from? How does it arise?

Besides referential ambiguity, there is the so-called *de se/non-de se* ambiguity, known since works by Castañeda (1968) and others (cf. Lewis 1979, Perry 1979). Recall, this type of ambiguity relates to how the reported individual is mentally related to the report’s content, or better, to an individual participating in the reported event.⁷ Thus, in (20), under coreference with the reported individual, Peter, the pronoun *he* is ambiguous between a *de se* and a *non-de se* reading, for it may be used to report either the situation in (20a) or the one in (20b).

- (20) Peter_i said that he_i is clever.
- a. **de se context** (Peter’s perspective)
 Peter is proud of his academic achievement and says: “I am clever.”
 - b. **non de se context** (Speaker’s perspective)
 After reading an old paper of himself, amnesic Peter comes to say: “This guy is clever.”

In (20), the *de se* reading of the pronoun *he* goes along with indicating the perspective of the reported individual, while the *non-de se* reading indicates the perspective of the reporting speaker (cf. Oshima 2006, Corazza 2004, Safir 2004a, i.a.). Accordingly, the *de se/non-de se* ambiguity can be said to reflect a sort of perspective ambiguity.

Now, considering that the function of logophoricity is to convey the mental perspective of the logophoric antecedent towards the content of the report, many authors have

⁷See section 6.4.3, p.111.

suggested that LPs are obligatorily interpreted *de se*, meaning that their use does not exhibit the type of perspective ambiguity observed with the English pronoun *he* and *akin*.⁸ For instance, Safir (2004a), Adesola (2005) and Anand (2006) report that the LP *oun* in Yoruba only has *de se* readings. As such, it can only be used within the report of the situation in (21a), and not in the case of (21b).

(21) Logophoric *oun* in Yoruba (Anand 2006, based on Park 2018, p. 04)

Olú_i so pé **oun**_i rí John [✓ C1, ✗ C2]

Olu say that LOG see John

‘Olú_i said that he_i saw John.’

a. C1: **de se context**

Olu says: "I saw John."

b. C2: **non de se context**

Olu says: "That guy saw John." (Unbeknownst to Olu, that guy is he himself.)

The same observation is found in Kusumoto (1998) for the LP in Bafut (Benue-Congo, Cameroon) and Newkirk (2019) for the LP in Ibibio (Cross-River, Nigeria).

Nevertheless, the generalization that LPs are exclusively read *de se* is not uncontroversial. On that, the case of Ewe is particularly revealing. Although earlier works have claimed that the LP *yè* must be read *de se* (Clements 1975, Schlenker 1999, von Stechow 2003), Pearson (2013, 2015) has observed that the pronoun may also have a *non-de se* reading. First rejected in Bimpeh (2019), Pearson’s observation has recently been confirmed by Bimpeh (2020), who concludes that *yè* may have both a *de se* and a *non-de se* reading.

This variation of judgment across languages and authors indicates that more than explaining the origin of the *de se* reading and the absence thereof, any analysis of logophoricity should answer the questions: To what extent logophoricity is related to the *de se/non-de se* reading? Is the *de se* reading a relevant aspect for the interpretation of LPs? Answering these questions requires broadening the scope of the investigation to more languages than the ones considered thus far. Thus, the upcoming discussion on the *de se* reading of *ale* in Jula can be seen as one step toward achieving this goal (see section 10.3.2).

10.2.4 Analyses

In this section, we discuss one after the other, two prominent analyses of logophoricity: Sells (1987) and the operator-based approach (hereafter, OBA).

Sells (1987)

Sells (1987) has one of the first influential analyses of logophoricity. Couched within the discourse representation theory (DRT, Kamp 1981), his analysis adopts an extended notion of logophoricity that unifies both LPs in African languages and LDRs of European (e.g., Icelandic, Italian) and Asian languages (Japanese, Chinese). For Sells, there is no single route to logophoricity. Instead, the referential dependency between an LP/LDR and

⁸However, Culy 1994b is opposed to the view that logophoric marking involves the notion of perspective or point of view.

its antecedent comes about via three primitive discourse roles, defined and exemplified below with data from Japanese.⁹

- (22) a. **SOURCE**: one who is the intentional agent of the communication
 Takasi wa Taroo ni [baka no Yosiko ga zibun o oikake-mawasiteiruk oto]
 Takasi Top Taroo Dat fool Gen Yosiko Subj self Obj chase-around-be Comp
 o hanasita.
 Obj told
 ‘Takasi_i told Taroo that that fool Yosiko was following him_i.’
- b. **SELF**: one whose mental state or attitude the content of the proposition describes
 [Yosiko ga hukakainimo ato o take-mawasiteir koto ga] Takasi o
 Yosiko Subj mysteriously be-following Comp Subj Takasi Obj
 iradataseteiru.
 bother
 ‘That Yosiko is mysteriously following him_i bothers Takasi_i.’
- c. **PIVOT**: one with respect to whose (space-time) location the content of the proposition is evaluated
 Takasii wa [Yosiko ga zibuni o tazunete-kita/*-itt node] uresigatta.
 Takasi Top Yosiko Subj self Obj visit-came/went because happy
 ‘Takasi_i was happy because Yosiko came/*went to visit him_i.’

In (22a), the antecedent of the LDR *zibun*, Takasi, is the source of the information contained within the embedded clause. As such, he is potentially the one who intentionally ascribes the property "fool" to Yosiko. In (22b), the antecedent, again Takasi, is the SELF since he is the person who judges that "himself being followed by Yosiko" is mysterious. Finally, in (22c), the antecedent of *zibun* has the discourse role PIVOT. Therefore, the causal clause with the LDR cannot contain the motion verb *go*, which indicates deictic orientation away from the (reporting) speaker.

As it appears, in Sells’ approach, it is the semantic-pragmatic property of the antecedent that plays a crucial role in instantiating logophoricity. Aspects of the anaphoric expression itself seem to be less important, suggesting that any form and type of anaphoric expression that refers to a DP with one of the above-mentioned roles could be dubbed as *logophoric*. Put differently, logophoricity arises when an anaphoric expression refers to either a source, a self, or a pivot.

Although, for reasons already evoked in section 10.2.2, I cannot entirely agree with Sells in treating LPs on a par with LDRs, I will adopt from his analysis the insight that discourse roles are crucial in establishing logophoricity. I will show in 10.3.1 and 10.8.2 that in Jula, it is the source of the *ko*-clause that serves as an antecedent for *ale* in its logophoric use.

Operator Based Approach (OBA)

Central to the Operator-Based Approach, hence OBA, is the claim that logophoricity involves binding and that LPs are variables bound by a silent local operator. Going back to Koopman and Sportiche’s (1989) work on Abe, the core insights of that claim can be exemplified as follows (23).

⁹In Stirling’s (1993) version of Sells’ approach, the three discourse roles are reduced to one role, i.e., the EPISTEMIC VALIDATOR: the individual who is responsible for validating the content of what is being reported.

$$(23) \quad \underbrace{\text{DP}_i \dots \text{Pred} \dots}_{1} \text{ } [_{CP} \dots \text{OP}_i \dots \underbrace{[\dots \text{LOG}_i \dots]}_{2}]$$

According to (23), any logophoric clause is associated with a silent operator, which is licensed by the embedding predicate, i.e., Pred (see Speas 2004, Sundaresan 2012, Safir 2004a, Park 2018 Charnavel 2019, i.a.). Logophoricity is established through two distinct but interconnected binding relations: (1) the logophoric antecedent binds or controls the operator, which in turn binds the LP (2). Ultimately, logophoricity no longer involves a long-distance dependency, and the LP and its antecedent are only indirectly related.

As is it, OBA constitutes the standard way of analyzing logophoricity in Generative grammar. Two versions of the approach can be identified, syntactic and semantic. They differ mainly in the function they ascribed to the binding operator and the very aspect of logophoricity they attempt to derive. In many syntactic accounts, the OP is associated with discourse-related functions such as Point of View (cf. Speas 2004, Nishigauchi 2014) or Perspective (cf. Sundaresan 2012, Sundaresan and Pearson 2014, Charnavel 2020, 2019) represented as syntactic projections.¹⁰ Accordingly, being bound by the OP, the reference of LPs is fixed to the person whose Point of view or Perspective is being taken on the reported situation, i.e., the logophoric antecedent. This explains why LPs do not exhibit the type of referential ambiguity observed with "genuine" pronouns, as mentioned in section 10.2.3.

On the semantic side of the OBA, binding by the OP is responsible for the *de se* reading of LPs (cf. Schlenker 1999, Anand 2006, Safir 2004a, i.a.). Here, the OP is conceived as a discourse context operator, hosting four coordinates: speaker (*s*), addressee (*h*), time (*t*) and world (*w*) (see in 9.3). The reference of LPs is thus fixed to the speaker coordinate of the OP (24).

$$(24) \quad \text{DP} \dots \text{Pred} \dots [_{CP} \dots \text{OP}_{\langle s, h, t, w \rangle} \dots \underbrace{[\dots \text{LOG} \dots]}_{\uparrow}]$$

That makes the interpretation of LPs parallel to that of first-person persons (cf. Baker, 2018). By convention, the use of the first-person pronoun in "I am clever" does not only indicate reference to a speaker but also implies that that speaker has cognitive access to himself, i.e., s/he consciously identifies her/himself with the person s/he is saying of to be clever, thus, with him/her /her/himself: this is the substance of the *de se* reading.¹¹ Accordingly, the *de se* reading of LPs arises because, like first-person pronouns, they are identified with the speaker role. Based on this parallel, some authors even go further in suggesting that LPs are shifted versions of first-person pronouns, hence, shifted indexicals (cf. Kuno 1972, Schlenker 1999, 2003, Newkirk 2019), an idea that is rejected by Safir (2004a).

Thus, according to the OBA, the absence of both referential and perspective ambiguity is due to LPs being bound by a local operator. Consequently, logophoricity is no longer conceived as an instance of long-distance dependency. In section 10.4, I discuss the empirical and conceptual motivations for OBA and conclude by rejecting it as an adequate account for logophoricity, particularly for Jula. Before this, the following section distills relevant aspects of logophoricity in Jula.

¹⁰Two notable exceptions here are Koopman and Sportiche (1989) and Adesola (2005), where the OP is not associated with any discourse-related functional projection.

¹¹See Jaszczolt (2013) for discussion and a different view on the issue.

10.3 Logophoricity in Jula

10.3.1 Core aspects

Recall from the section 2.5 that Jula has two morphologically distinct classes of pronouns: simple and emphatic, as is the case in most logophoric languages. The language, however, does not have a dedicated LP. Nevertheless, as the following examples show, the interpretation of the emphatic third-person *ale* (pl. *olu*) within *ko*-clause complementation recalls that of LPs.

(25) Logophoric context

- a. Adama_i kó (ko) **ale**_{i/*j} hakili ka di.
Adama say COMP 3EMP mind COP good
'Adama_i said that he_{i/*j} is clever.'
- b. Adama_i kó (ko) **a**_{i/j} hakili ka di.
Adama say COMP 3SG mind COP good
'Adama_i said that he_{i/j} is clever.'

In (25a), the emphatic pronoun *ale* refers only to the matrix subject *Adama*, the person whose words are being reported. Its simple form counterpart *a*, however, is ambiguous between a logophoric and a non-logophoric interpretation (25b).

The logophoric interpretation of *ale* is not restricted to complement *ko*-clauses of speech predicates, but it is observed also with a wide range of predicates, covering the established hierarchy of logophoric predicate (cf. 17, 26a-26d) and beyond (26e and 26f).

- (26) a. (a bε) **Adama**_i jε na ko Awa bε **ale**_{i/*j} fε
3SG COP Adama.POSS eye PostP COMP Awa COP 3EMP PostP
'Adama_i thinks/believes that Awa likes him_{i/*j}.'
Lit. (It is) in Adama's eye that Awa likes him.
- b. **Awa**_i jine-na ko Adama ye **ale**_{i/*j} wele.
Fanta forget-PFV COMP Awa PFV 3EMP call
'Awa_i forgot that Adama has called her_{i/*j}.'
- c. **Adama**_i be a lɔn ko Awa ye **ale**_{i/*j} nɛni
Peter HAB 3SG know COMP Awa PFV 3EMP insult
'Adama_i knows that Awa insulted him_{i/*j}.'
- d. **Awa**_i ye a yee ko polisi-w **ale**_{i/*j} den mine
Adama PFV 3SG see COMP policeman-PL FUT 3EMP child catch
'Awa_i saw that the policemen were going to catch her_{i/*j} child.'
- e. **Awa**_i sugo-la ko **ale**_{i/*j} ye bara sɔɔ
Awa dream-PFV COMP 3EMP PFV job get
'Awa_i dreamed that he_{i/*j} got a job.'
- f. **Adama**_i ka letiri ye yira ko **ale**_{i/*j} be Awa kanu
Adama POSS letter PFV show COMP 3EMP HAB Awa love
'Adama_i's letter showed that he_{i/*j} loves Awa.'

Typically, the logophoric antecedent corresponds to the source of the complement *ko*-clause, here thus, the logophoric clause. Recall, in this respect, that we have defined in 8.4 the source as "the person who bears responsibility for the truth or reliability of the information in the *ko*-clause. Either because the information originates from her/him or because s/he subscribes to its content." In *ko*-clause complementation, we have identified

the source as the argument of the matrix clause that binds the speaker PRO of the discourse context associated with the *ko*-clause (cf. 9.6.4). In its logophoric use, it is thus that argument that serves as an antecedent for *ale*. Generally, it is encoded as a subject DP (26b-26e), but (26a) and (26f) show that it may also occur as a possessor DP. Object DPs, in contrast, cannot serve as logophoric antecedents. This is shown in (27).

- (27) a. *Awa_i ye a fɔ Adama_j ye ko ale_{i/*j} face na-na*
 Awa PFV 3SG tell Adama PostP COMP 3EMP father come-PFV
 ‘Awa_i told Adama_j that her_i / *his_j father has come.’
- b. *Adama_i ye a lakali Awa_j ye ko Fatu ye ale_{i/*j} neni*
 Adama PFV 3SG report Awa PostP COMP Fatu PFV 3EMP insult
 ‘Adama_i reported to Awa_j that Fatu has insulted him_i / *her_j.’

As for person features, note that the logophoric antecedent cannot be encoded either as a first or as a second-person DP.

- (28) a. *#n_i ye a fɔ ko ale_i face na-na*
 1SG PFV 3SG say COMP 3EMP father come-PFV
 Int. ‘I said that my father has come.’
- b. *#i_i ye a fɔ ko ale_i face na-na*
 2SG PFV 3SG say COMP 3EMP father come-PFV
 Int. ‘You said that your father has come.’

Recall that there is no restriction on the person features of the source DP within *ko*-clause complementation (cf. 8.4.3). Therefore, the infelicity of the sentences in (28) is due to a clash in person-feature between *ale* and the source DP. The former being a third-person pronoun, it cannot take first and second-person DP as antecedents. This indicates that the third/second-person syncretism, which has been observed in some logophoric languages (see ex. 16 in 10.2.2), does not occur in Jula.

We find, nevertheless, a sort of syncretism concerning the number feature. For instance, while *ale*, being a singular form, only takes singular third-person DP antecedents, its plural form *olu* may refer to singular third-person DPs. In the latter case, the pronoun denotes a set of individuals that necessarily includes the logophoric antecedent. Compare (29a) and (29b).

- (29) a. *#Den-w_i ye a fɔ ko ale_i face na-na*
 child-PL PFV 3SG say COMP 3EMP father come-PFV
 Int. ‘The children_i said that their_i father has come.’
- b. *Adama_i ye a fɔ ko olu_{i+} face na-na*
 Adama PFV 3SG say COMP 3EMP father come-PFV
 Int. ‘Adama said that their_i (including Adama) father has come.’

The pattern illustrated by the contrast in (29) is not specific to Jula since it is, according to Sells (1987), a common feature of LPs also attested in Ewe, Gokana and Mapun.

Finally, as for locality, note that the logophoric antecedent cannot be a clause-mate argument of the LP. This property, which is in line with the long-distance requirement of logophoricity, can be illustrated by the following data.

- (30) a. **Adama_i** ye a fɔ ko **Awa_j** ye **ale_{i/*j}** face nɛni
 Adama PFV 3SG say COMP Awa PFV 3EMP father insult
 ‘Adama_i said that Awa_j has insulted his_i/*her_j father.’
- b. # **Adama_i** ye a fɔ ko **ale_i** ye **ale_i** face nɛni
 Adama PFV 3SG say COMP 3EMP PFV 3EMP father insult
 Int. ‘Adama_i said that he_i has insulted his_i father.’

The examples in (30a) show that the antecedent of the possessive *ale* cannot be the subject argument of the logophoric clause, irrespective of whether the latter is a lexical DP, i.e., *Awa* (30a), or a third-person pronoun, including another *ale* (30b). In that respect, *ale* contrasts with its simple form counterpart, as indicated by (31a) and (31b).

- (31) a. **Adama_i** ye a fɔ ko **Awa_j** ye **a_{i/j}** face nɛni
 Adama PFV 3SG say COMP Awa PFV 3SG father insult
 ‘Adama_i said that Awa_j has insulted his_i/her_j father.’
- b. **Adama_i** ye a fɔ ko **ale_i** ye **a_{i/j}** face nɛni
 Adama PFV 3SG say COMP 3EMP PFV 3SG father insult
 ‘Adama_i said that he_i has insulted his_{i/j} father.’

In the same spirit, in the context of multi-embedding, *ale* can take any of the DPs outside the logophoric clause that satisfies the property of the logophoric antecedent, i.e., being singular third-person and the source of the *ko*-clause.

- (32) a. **Adama_i** jɛ na ko **Awa_j** ye a fɔ ko **ale_{i/j}** face
 Adama.POSS eye PostP COMP Awa PFV 3SG say COMP 3EMP father
 na-na
 come-PFV
 ‘Adama_i thinks/believes that Awa_j said that his_i/her_j father has come.’
- b. **Awa_i** ye a fɔ ko **Adama_j** jɛ na ko **ale_{i/j}** face
 Awa PFV 3SG say COMP Adama.POSS eye PostP COMP 3EMP father
 na-na
 come-PFV
 ‘Awa_i said that Adama_j thinks/believes that her_i/his_j father has come.’

Provided that any *ko*-clause is associated with a discourse context where the speaker role is encoded, in (32a) and (32b) any of the third-person DPs, *Adama* and *Awa*, can function as a source (via binding of PRO). They are thus all potential antecedents for *ale*.¹²

10.3.2 The *de se* reading

As mentioned earlier in 10.2.3, the literature appears to contain both evidence that LPs are obligatorily read *de se* and evidence that they need not. What about Jula?

So far as we have been able to observe, the logophoric use of *ale* is not associated with a *non de se* reading: per default, the pronoun is interpreted *de se*. This observation is supported first by the following data.

¹²Some Jula speakers, however, tend to pick the highest DP as antecedent more systematically. I have observed this with three out of eleven consultants.

(33) *non-de se* context

Adama once found under his bed an old box filled with letters. He read one of them and was impressed by the beauty of the writing. However, the letter was not signed, so the author could not be identified. Adama admires the writing skills of the letter's author, but he fails to realize that it is he himself who had written the letter when he was in college. He says: "Whoever wrote this letter is smart."

- a. Adama ko **mɔgɔ min** ye letiri sɛbɛ hakili ka di [✓ (33)]

Adama say person REL PFV letter write mind COP good
'Adama said that whoever wrote that letter is smart.'

Lit: Adama said that the person who wrote the letter is smart.

- b. Adama_i ko **a_i** hakili ka di [✓ (33)]

Adama say 3SG mind COP good
'Adama_i said that he_i is smart.'

- c. Adama_i ko **ale_i** hakili ka di [✗ (33)]

Adama say 3EMP mind COP good
'Adama_i said that he_i is smart.'

In (33) is depicted a situation in which an individual fails to consciously identify himself as the person (individual) about whom he is talking, which is indicated by the use of the expression *whoever*. As reports in Jula tend to be verbatim, i.e., containing the exact words as were used by the reported speaker, the situation in (33) would more likely be reported using a sentence like in (33a). Alternatively, the reference of the expression of *whoever* could be rendered by a third-person pronoun. In that case, only the simple form *a* would be used (33b). A report with the emphatic form *ale* would be infelicitous (33c). If, however, the reported situation was such that one could infer that the logophoric antecedent consciously identifies himself as the person he is talking about, a report sentence containing either *a* or *ale*, referring to the reported speaker, would be felicitous. Consider the data below.

(34) *de se* context

Adama once found under his bed an old box filled with letters. He read one of them and was impressed by the beauty of the writing. Since he knew that he (himself) had written the letter some years before, he felt proud of himself. He said: "I am smart."

- a. Adama_i ko **a_i** hakili ka di [✓ (34)]

Adama say 3SG mind COP good
'Adama_i said that he_i is smart.'

- b. Adama_i ko **ale_i** hakili ka di [✓ (34)]

Adama say 3EMP mind COP good
'Adama_i said that he_i is smart.'

This indicates that while the simple form *a* can have both a *de se* and a *non-de se* reading, the logophoric use of *ale* is associated only with a *de se* reading.

Now, if one considers only the data thus far, one could link the *de se* reading of *ale* to the use of the first person. The data in (35), however, show that is not entirely true. Here, the *de se* requirement of *ale* is fulfilled, even though the logophoric antecedent addresses himself in a second person.

- (35) a. *de se* context
 Proud of his academic achievements, self-obsessed Adama watching himself in a mirror, said to himself: "Dude, you are smart."
 b. Adama_i ko **ale**_i hakili ka di [✓ (35a)]
 Adama say 3EMP mind COP good
 'Adama_i said that he_i is smart.'

In (35), the report sentence containing *ale* is felicitous since it is clear from the context that the reported speaker consciously identifies himself as the person about whom he is talking. Against a similar context in which such information is missing, the use of *ale* becomes infelicitous, while a sentence with *a* is the sole option. This is shown in (36).

- (36) *non-de se* context
 Amnesic retired Adama read an old newspaper article written by himself during his younger days as a journalist. As he used to sign his articles with an alias, Adama failed to recognize that he was the article's author. Nevertheless, he was so amazed by the article that he exclaims, pointing at the signed name Gouama: "You dude, you are smart."
 a. Adama_i ko **ale**_i hakili ka di [✗ (36)]
 Adama say 3EMP mind COP good
 'Adama_i said that he_i is smart.'
 b. Adama_i ko **a**_i hakili ka di [✓ (36)]
 Adama say 3SG mind COP good
 'Adama_i said that he_i is smart.'

Thus, it is the fact that the logophoric antecedent bears self-awareness that is relevant in the logophoric use of *ale*, and less how self-awareness is expressed. Indeed, even in situations in which self-awareness of the logophoric antecedent is not explicitly expressed, logophoric marking is possible. Consider the situations described in (37) and the related report sentences (38 and 39).

- (37) Context: based on a Balumbu tale from Gabon, "Le Fou et l'Homme sensé" (Raponda-Walker 1993)
 Adama was swimming in a river when a nude madman took his clothes on the shore and wore them. Once Adama saw the madman escaping with his clothes, he quickly got out of the river, undressed, and started chasing him. «Stop the thief! Stop the thief!» he shouted as loud as he could. However, people who usually know madmen to be often naked did not understand what was happening. They imagined that the one who was running from behind (Adama) was the madman, wholly undressed and that the one who was escaping in front of him, fully dressed, was somebody sensible. They decided, therefore, to stop Adama and started chasing him. They were shouting: «stop the madman! stop the madman!»
 a. ***non-de se* situation:** What Adama sees in this situation is a crowd chasing the madman, but what he fails to know is that the madman for the crowd is himself.
 b. ***de se* situation:** Suppose now that Adama quickly realizes that it is him the crowd considers to be the madman.

(38) Perception report

- a. Adama_i ye a yee ko jaman be **ale**_i gbɛn-na [✗ (37a); ✓ (37b)]
Adama PFV 3SG see COMP crowd PRS 3EMP chase-PROG
'Adama_i saw that the crowd was chasing him_i.'
- b. Adama_i ye a yee ko jaman be **a**_i gbɛn-na [✓ (37a); ✓ (37b)]
Adama PFV 3SG see COMP crowd PRS 3SG chase-PROG
'Adama_i saw that the crowd was chasing him_i.'

(39) Belief report

- a. Adama_i pɛ na ko jaman be a fɛ kà **ale**_i minɛ [✗ (37a); ✓ (37b)]
Adama eye PostP COMP crowd COP 3SG at INF 3EMP catch
'Adama_i believes that the crowd want to catch him_i.'
- b. Adama_i pɛ na ko jaman be a fɛ kà **a**_i minɛ [✓ (37a); ✓ (37b)]
Adama eye PostP COMP crowd COP 3SG at INF 3SG catch
'Adama_i believes that the crowd want to catch him_i.'

The context in (37) comprises two situations: a *non-de se* and a *de se* situation. They are constructed so that we may report on what Adama sees and on what he may believe – even though his belief may influence his perception. Nevertheless, the crucial point is that in either case, using the pronoun *ale*, we cannot construct a report sentence against a situation whereby Adama's mental state is such that he would not consciously identify himself with the individual about whom the content of perception or belief is. Thus, since in (37a), given his actual mental state, Adama cannot be seeing a crowd chasing himself, (38a) is infelicitous as a report sentence. Similarly, (39a) is infelicitous against (37a) because Adama cannot entertain the belief that the crowd wants to catch him (Adama). Now, as things went on, Adama's mental state has changed, as described in (37b). In that case, both (38a) and (39a) containing the pronoun *ale* become felicitous report sentences. And to reiterate, the use of the pronoun *a* is acceptable against both the *non-de se* and *de se* situation (cf. 38b and 39b).

In conclusion, in its logophoric use, *ale* only has a *de se* reading, while its simple form counterpart *a*, allows both *de se* and *non-de se* readings. Importantly, the *de se* reading of *ale* is not necessarily in correlation with the first-person pronoun. Instead, it arises whenever self-awareness of the logophoric antecedent is at issue.

10.3.3 In a nutshell

The main points concerning logophoric marking in Jula can be summarized as follows.

- (i) In report sentences involving *ko*-clause complementation, the emphatic third-person is interpreted as referring exclusively to the third-person source DP of the *ko*-clause.
⇒ no referential ambiguity
⇒ no first and second-person logophoric antecedents possible
- (ii) In its logophoric use, *ale* is exclusively interpreted *de se*.
⇒ no perspective ambiguity, i.e., no *non de se* reading.

Regarding (i) and (ii), *ale* contrasts with its simple form counterpart *a*: in the same environments, the latter may refer to the third-person source DP or not, it may have a *de se* reading or not.

On the way to accounting for these facts, next, I discuss and challenge the claim that logophoricity is an instance of variable binding.

10.4 Logophoricity and binding

10.4.1 OBA: origins and motivation

The literature agrees that Koopman and Sportiche (1989) (hereafter K&S) are the first to claim that logophoricity can be treated as an instance of binding and, therefore, that LPs are variable bound by a silent operator. They motivate their analysis based on data from the Kwa-language Abe.

Note that Abe has two series of pronouns: *o*-pronouns and *n*-pronouns. In addition, recall that there is no dedicated LP, but logophoricity is marked by extending the use of the *n*-pronoun (see in 10.2.2). In other words, the *n*-pronoun has non-logophoric uses too. K&S' analysis rests on the premise of establishing a parallel between the logophoric and the non-logophoric use of the *n*-pronoun in a way that permits reducing the former to the latter.

In that regard, the significant generalization made by K&S is that: in its non-logophoric use, the *n*-pronoun cannot take as antecedent anything but another *n*-pronoun (40).

- (40) a. *n*-pronoun as antecedent (ex.14b, p.561)

n_i wu [**n_i/*j** wo n]
Yapi saw his dog Det
'He_i saw his_{i/*j} dog.'

- b. no *o*-pronoun as antecedent (ex.11b, p.560)

o_i wu [**n_{*i/j}** wo n]
he saw his dog Det
'He_i saw his_{*i/j} dog.'

- c. no referential DP as antecedent (ex.11b, p.560)

yapi_i wu [**n_{*i/j}** wo n]
Yapi saw his dog Det
'Yapi_i saw his_{*i/j} dog.'

- d. no quantifier as antecedent (ex.53a, p.574)

apOUN_i yo bO yo wu [ye **n_{*i}** mU api]
nobody Neg take Neg see ye he knew Api
'Nobody believes that he knows Yapi.'

- e. no *wh*-phrase as antecedent (cf. fn.13, p.574)

caa_i f mU **n_{*i}** erenyi e
who you know his house wh
'Whose house do you know?'

Notably, the behavior of the *n*-pronoun, as described in (40), contrasts with that of the *o*-pronoun, which can take any antecedent type, except an *n*-pronoun (41).

- (41) a. no *n*-pronoun as antecedent (ex.8a, p.560)
n_i wu [**o_{*i/j}** wo n]
 Yapi saw his dog Det
 ‘He_i saw his_{*i/j} dog.’
- b. *o*-pronoun as antecedent (ex.5a, p.559)
o_i wu [**o_{i/j}** wo n]
 he saw his dog Det
 ‘He_i saw his_{i/j} dog.’
- c. referential DP as antecedent (ex.5a, p.559)
yapi_i wu [**o_{i/j}** wo n]
 Yapi saw his dog Det
 ‘Yapi_i saw his_{i/j} dog.’
- d. quantifier as antecedent (ex.49a, p.573)
apOUN_i yo bO yo wu [ye **o_i** mU api]
 nobody Neg take Neg see ye he knew Api
 ‘Nobody believes that he knows Yapi.’
- e. *wh*-phrase as antecedent (ex.50, p.574)
caa_i f mU **o_i** erenyi e
 who you know his house wh
 ‘Whose house do you know?’

The contrast between the *n*-pronoun and its *o*-counterpart appears puzzling, given that they are both third-person pronouns. In order to resolve that puzzle, K&S propose to treat the *n*-pronoun and the *o*-pronoun as two different types of expressions. Since the *o*-pronoun can take a referential DP as antecedent, including another *o*-pronoun (41b and 41c), it is a referential pronoun. Reversely, the fact that the *n*-pronoun cannot take referential DPs as antecedents indicates that it is not a referential pronoun (cf. 40c). Indeed, K&S propose that the *n*-pronoun is a variable (42).

- (42) The *n*-pronoun is a (LF) variable. (p.567)

Thus, from (42), it follows that the *n*-pronoun cannot take an *o*-pronoun as an antecedent (40b) and vice versa (41a), “since it is only possible for an element to be coreferential with referential elements” (p.567).

Also, being a variable, the *n*-pronoun, K&S assume, is excepted to be associated with an operator that binds it. The data in (40d) and (40e) show, however, that this operator cannot be of the type of quantifier or a *wh*-phrase. Instead, it must be of an *n*-element type, for the *n*-pronoun cannot take as antecedent anything but another *n*-element, and also because binding requires feature matching between binder and bindee. Therefore, K&S propose that

- (43) the *n*-pronoun is bound by an *n*-operator in some Comp. (p.567)

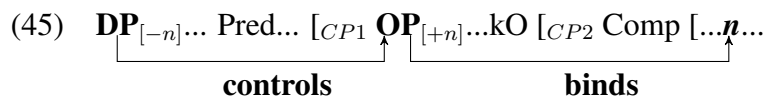
Such is, in substance, the empirical and conceptual basis for K&S’ analysis of logophoricity.

In logophoric contexts, i.e., in *kO*-clause complementation construction, the *n*-pronoun behaves differently than when it is used in non-logophoric contexts. As can be seen below, besides an *n*-pronoun (44a), its antecedent can be a referential DP, including an *o*-pronoun (44b), or a non-referential quantifier (44c).

- (44) a. *n*-pronoun as antecedent (ex.65a, p.579)
n_i hE kO *n_i* e sE
 he said kO he is handsome
 ‘He_{*i*} said that he_{*i*} is handsome.’
- b. referential DP as antecedent (ex.64a, p.579)
 yapi_{*i*} hE kO *n_i* e sE
Yapi said kO he is handsome
 ‘Yapi_{*i*} said that he_{*i*} is handsome.’
- c. quantifier as antecedent (ex.82a, p.584)
 apOUN_{*i*} ye hE kO *n_i* e sE
 nobody Neg said kO he is handsome
 ‘Nobody_{*i*} said that he_{*i*} is handsome.’

From the generalization that the *n*-pronoun takes anything but another *n*-pronoun as antecedent, it is straightforward that the logophoric antecedent in (44a) is an *n*-pronoun. Puzzling, however, are the data in (44b) and (44c): here, the logophoric antecedent is an [-*n*]-element.

The solution proposed by K&S to solve that second puzzle is to implement the insight contained in (43). Thus, they postulate the presence of an *n*-operator within the logophoric clause that serves as an adequate antecedent for the *n*-pronoun. In practice, this gives, for sentences like (44b) and (44c), the following derivation (45).¹³



The derivation proceeds downward from the matrix to the logophoric clause: the logophoric antecedent [-*n*] first controls the operator [+*n*], which, in turn, binds the *n*-pronoun. In that way, the antecedence requirements of the *n*-pronoun are fulfilled: it is directly linked to an [+*n*]-element, and not to an [-*n*]-element. Another advantage seems to be that both the logophoric and non-logophoric use of the *n*-pronoun are treated similarly, avoiding positing two lexical entries for the pronoun.

To summarize, K&S motivate their analysis of logophoricity in Abe based on the properties exhibited by the *n*-pronoun in non-logophoric contexts. The crucial point they make is that in its logophoric uses as well as in its non-logophoric uses, the *n*-pronoun is a variable bound by a clause internal silent operator. Later, Koopman (2003, p. 4) suggests that this analysis “holds up very generally and extends to many African languages with logophoric pronouns.” Indeed, since K&S’ work, it has become commonplace to treat LPs as variables and, accordingly, logophoricity as an instance of binding, both within the syntax and the semantic literature (see in 10.2.4).

Nevertheless, for all its success in explaining the pronominal system of Abe, K&S’ analysis and beyond the resulting OBA generally contains some problematic aspects that undermine it as an adequate account of logophoricity. I discuss them in the lines to follow.

¹³The structure presented here is the slightly modified version of K&S’ original structure, as shown below.

(1) Koopman and Sportiche (1989, p. 585)
 NP*... V... [_{CP1} OP₁ [_{e_[+n]} kO [_{CP2} Comp₂ [...NP*...]]]

For the sake of clarification and parsimony, I have changed the labels and simplified the structure by removing the silent subject associated with complementizer *kO*, i.e., *e_[+n]*. Nevertheless, these changes do not distort the core insight of K&S’ analysis.

10.4.2 Conceptual problems

Let us start with a conceptual issue at the heart of K&S’ original analysis. It is related to the motivation for the presence of the binding operator (hereafter OP). Recall that the presence of OP in K&S’ account permits avoiding a feature mismatch between the *n*-pronoun and a [-*n*] logophoric antecedent. Yet, the relation between the logophoric antecedent and OP, which comes about via control, appears to suffer that same feature mismatch: under the assumption that control is an instance of binding and also on the general premise that binding requires feature matching between binder and bindee, (both ideas shared by K&S), it is difficult to explain how the [-*n*] logophoric antecedent can control the [+*n*] OP. Recognizing this challenge, K&S propose, building on Montalbetti (1984), that the requirement of feature matching associated with binding can be lifted in contexts that trigger a complementary distribution of two competing pronominal forms. Logophoric contexts in Abe are such contexts.

Indeed, while the *n*-pronoun exhibits logophoric properties in logophoric contexts, there its *o*-counterpart exhibits anti-logophoricity: it cannot be co-indexed with the logophoric antecedent, as illustrated in (46).

(46) cf. Koopman and Sportiche (1989, ex.64a, p.579)

yapi_i hE kO **o**_{j/n_i} e sE
Yapi said kO he is handsome
 ‘Yapi_i said that he_j/he_i is handsome.’

I must first mention that K&S’ explanation could hold only for Abe (and akin) since cross-linguistically, LPs tend to be in free variation with non-logophoric forms so that logophoric contexts cannot be said to trigger complementary distribution. We have seen above that this is the case in Jula with *a* and *ale* (see ex. 25), but similar facts also occur in Yoruba, where the simple form *o* may also have a logophoric interpretation (47).

(47) cf. Adesola (2005, ex.34, p.185)

Olú_i ti kéde pé **ó**_{i/j} n’ bò lola
 Olu ASP announce that he PROG come tomorrow
 ‘Olu has announced that he_{i/j} is coming tomorrow.’

Given the existence of data like those in (47), one thus can generally not claim that logophoric contexts trigger complementary distribution of pronominal forms. Even for the case of Abe, if it is true that binding in logophoric contexts does not require feature matching, one may wonder about the necessity of having an intermediate OP between the logophoric antecedent and the *n*-pronoun. The relation between the *n*-pronoun and the [-*n*] logophoric antecedent might well be established directly since feature matching is irrelevant.

Then, there is the case where the logophoric antecedent itself is an *n*-pronoun (cf. 44a). In the spirit of K&S’ analysis, the structure for the derivation in such a case will look like (48).

(48) $n_{[+n]} \dots \text{Pred} \dots [CP_1 \text{OP}_{[+n]} \dots kO [CP_2 \text{Comp} [\dots n \dots$
 controls binds

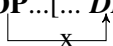
Here, the control relation between the logophoric antecedent and OP obeys the feature matching requirement, and therefore K&S’ explanation that logophoric contexts lift the

feature matching requirement becomes unnecessary. Still, the question remains: if being an *n*-element is all that is needed to satisfy the antecedence requirement of the *n*-pronoun, why in (48) two *n*-pronouns cannot be directly linked? Why is an intermediate OP needed? The only answer that one may have from K&S is that: OP is needed on the assumption that the *n*-pronoun is a variable.

However, does the *n*-pronoun in logophoric contexts effectively behave like a variable? The answer is no. Indeed, as I will show next in 10.4.3, empirical evidence bespeaks against the assumption that the *n*-pronoun particularly, and LPs generally are variables. Before that, let me mention additional conceptual issues raised by the presence of OP. They are about selection and the licensing of OP.

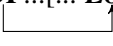
As seen above, the main motivation for K&S to posit the OP that binds LPs was the assumption that the latter are variables and therefore require a local operator to get bound. However, works after K&S assume that the OP is inherent to the syntax of logophoric clauses. Specifically, they opined that the OP is introduced due to selectional properties or requirements of so-called logophoric predicates, which implies that any logophoric clause contains, by default, an OP (Schlenker 1999, Speas 2004, Safir 2004a, Anand 2006, Sundaresan 2012, Nishigauchi 2014, Charnavel 2020, Park 2018). The problem with that view comes from logophoric contexts that do not contain any LP, as in (49).

- (49) a. Awa_i kó [ko **n**_{*i/j} / Adama_{*i/j} te se donkilila la.]
 Awa say COMP 1SG / Adama HAB.NEG can singing PostP
 ‘Awa_i said that I_{*i/j} / Adama_{*i/j} does not sing well.’

- b. DP... Pred... [_{CP} ...OP...[... DP_[-LOG] ...]]


Logophoric marking is always optional. Consequently, a logophoric clause may contain in place of an LP, a non-LP, and even a lexical DP, which do not take the logophoric antecedent as antecedent (49a) and are, according to OBA, not bound by the OP (49b). Now, by making all logophoric clauses hosting an OP due to selection, one faces in these cases a conceptual (theoretical) dilemma: since no variable, LP, is there to be bound, one would be forced to assume that the OP is vacuous (see Safir 2004a). This is problematic, considering that vacuous operators have to be banned from natural languages (e.g., Chomsky 1982, May 1985, Kennedy 1997, Heim and Kratzer 1998, Fox 2000, Collins 2014).

As it appears, a simple way out of this dilemma is to assume two different structures: a structure with OP, whenever the logophoric clause contains an LP (50a) and a second one without OP, whenever there is no LP (50b).

- (50) a. DP... Pred... [_{CP} ...OP...[... LOG ...]]


- b. DP... Pred... [_{CP} ...[... DP_[-LOG] ...]]

Even this solution still raises conceptual questions: (i) if selection introduces the OP in (50a), which other principle of the grammar generates the structure without OP in (50b)? Could it be that selection generates the two structures? If yes, which natural language mechanism makes it possible for the selection requirements of a selecting head, here the logophoric predicate, to produce two distinct structures of the same complement type? If such a mechanism exists, it should be found since, from what we know, selection supposedly regulates the syntactic and the semantic category of complements (e.g., CP, DP, proposition, question.), and not the linguistic components of the complement

(Grimshaw 1979, 1981, Pesetsky 1982, 1992, Moulton 2009). For example, one could say that a predicate such as *say* selects a propositional CP, but there is no restriction imposed on how complex such a propositional CP should be: *That the woman has come* and *That the woman who lost her son has come*, although different in complexity, would equally satisfy the selection requirements of *say*. In that spirit, it does not appear easy to explain why the selection requirements of a given logophoric predicate would regulate the complexity of the logophoric clause, i.e., trigger the absence or presence of the OP therein.

In sum, introducing the OP via selection is not without conceptual difficulties. It generates structure with an unwanted vacuous operator, which can only be avoided at the conceptual cost of attributing selection a function it does not seem to play anywhere else than in logophoric contexts. Therefore, it seems a better choice to motivate the binder OP only by the presence of LPs within the logophoric clause, as initially proposed by K&S. Still, this could work out only if LPs were indeed variables. I show, in what follows, that they are not.

10.4.3 Unpredicted (non-)binding readings

A challenging problem with OBA is that it predicts in connection with LPs variable binding where there is not.

Logophoricity across sentences

The first case to be discussed is the logophoric reference across sentence boundaries, previously mentioned above in 10.2.2. Here, as can be seen from the following Donno So example, the antecedent and the LP are separated from each other by more than one sentence.

(51) Donno So (Culy 1994a, p. 118)

Endyaana_i gamma_j wa: wo_j le ai le so ra aa *indyem*_i kundi ma?
 rooster cat ADDR 3SG and mouse and word LOC who LOG put Q
*Indyem*_i togu ra yazem ai wa bondo ra to ko ne le taw
 LOG shelter LOC spend the night mouse SUBJ hole LOC is it in also earth
indyem'_i mō ye to ma? Giaa paza ti
 LOG POSS PRT is Q said left AUX

'The rooster_i to the cat_j: "Who put him_i in the middle of the difference between him_j and the mouse? He_i spends the night in a shelter while the mouse is in a hole. Does it concern him_i?" Having said this, the rooster left (the cat).'

Insofar as binding relations do not extend over sentence boundaries, the existence of data like the one in (51), also attested in many languages with LPs, is particularly revealing for the nature of LPs: they are not bound variables. Therefore, logophoricity cannot be considered an instance of variable binding. Further data based on binding tests support this conclusion.

Ellipsis test in Abe ambiguous: sloppy and strict readings available

Another piece of evidence that LPs are not variables per se comes from ellipsis test data reported by K&S. They observed that in ellipsis contexts, the *n*-pronoun in its logophoric use exhibits both sloppy and strict readings, as shown in (52).

(52) Based on Koopman and Sportiche (1989, ex.82b, p.584)

yapi_i hE kO n_i e sE, api ese
 Yapi said kO he is handsome Api also

‘Yapi_i said that he_i is handsome, and Api too.’

✓ Api said that Yapi is handsome. (strict)

✓ Api said that Api is handsome. (sloppy)

Under general assumptions, a sloppy reading implies variable binding, while a strict reading indicates coreference.¹⁴ If the *n*-pronoun was by nature a variable, we expect it to exhibit only the sloppy reading, which is not the case in (52). The data, in contrast, suggests that the *n*-pronoun exhibits the properties of both a bound variable and a referential pronoun. To the extent that the ellipsis test is conclusive, these data undermine K&S’ claim about the nature of the *n*-pronoun: when used as LP, the *n*-pronoun does not behave strictly like a bound variable.

Thus, even in Abe, we do not find empirical evidence for the claim that LPs are variables in their nature. Could it be that other languages provide such a piece of evidence? At the actual stand of the literature, the answer here again is no.¹⁵ Rather than this, we find compelling evidence from the logophoric language Ewe against treating LPs as (bound) variables.

Only-DP test in Ewe ambiguous: sloppy and strict reading available

As reported by Culy (1994b), when associated with an *only*-DP antecedent, the Ewe LP *ye* is ambiguous between a sloppy and a strict reading (53).¹⁶

(53) Logophoric pronoun ambiguous between strict and sloppy (cf. Culy 1994b, ex.41a, p.1082)

Kofi_i ko e-hose be Ama lɔ̃ ye_i
 Kofi only 3sg-believes COMP Ama loves LOG

Only Kofi_i believes that Ama loves him_i’

✓ No one else believes that Anna loves Kofi. (strict)

✓ No one else believes that Anna loves them (sloppy)

Like in the case of Abe above, the interpretation of *ye* with *only*-DPs reminds of how a non-logophoric pronoun like the English *he*, is interpreted in similar environments: in ellipsis contexts (54a) and with *only*-DP antecedents (54b), the pronoun *he* has both a sloppy and a strict reading.

(54) a. Ellipsis test

John_i said that he_i is smart, and Peter did too.

✓ Peter said that John is smart (strict)

✓ Peter said that Peter is smart (sloppy)

b. Only-DP test

Only John_i said that he_i is smart.

✓ No one else said that John is smart. (strict)

✓ No one else said that they are smart (sloppy)

¹⁴Recall here the discussion in chapter 6, section 6.4.1.

¹⁵Practically all the works within the OBA I know of do not run any binding tests.

¹⁶These data have been confirmed by Bimpeh and Sode (2019) and Bimpeh (pc).

For the same reason that we cannot conclude from (54) that *he* is by nature a bound variable (cf. Heim and Kratzer 1998), we cannot conclude from the data in (52) and (53) that LPs are bound variables in their nature; since there appears to be no difference between an LP and a non-logophoric pronoun such as *he*, as far as binding is concerned.

Therefore, the only suggestively valid conclusion is that: there is no one-to-one connection between being an LP and being a bound variable, and accordingly, logophoricity does not arise from variable binding. Additional data from Jula confirms that.

The case of Jula: only sloppy reading for both LP and non-LP

Testing the LP *ale* for binding results in the following observation: only a sloppy reading is available in ellipsis contexts (55a) and with an *only*-DP antecedent (55b).

(55) Testing binding with *ale*

a. Ellipsis text

Adama_i jɛ na ko Awa be **ale**_i kanu, Madu fana
 Adama eye PostP COMP Awa HAB 3EMP love Madu also
 ‘Adama_i believes that Awa loves him, and Madu too.’
 ✗ Madu believes that Awa loves Adama. (strict)
 ✓ Madu believes that Awa loves Madu. (sloppy)

b. *only*-DP antecedent

Adama_i dɔrɔn kó (ko) **ale**_i hakili ka di.
 Adama only say COMP 3EMP mind COP good
 ‘Only Adama_i said that he_i is smart.’
 ✗ No one else said that Adama is smart. (strict)
 ✓ No one else said that they are smart. (sloppy)

Are these results conclusive of *ale* being a bound variable, in confirmation of the OBA’s claim? Yes, one might say, given the contrast with previous data from Abe and Ewe. However, consider now (56).¹⁷

(56) Testing binding with *a*

a. Ellipsis text

Adama_i jɛ na ko Awa be **a**_i kanu, Madu fana
 Adama eye PostP COMP Awa HAB 3SG love Madu also
 ‘Adama_i believes that Awa loves him, and Madu too.’
 ✗ Madu believes that Awa loves Adama. (strict)
 ✓ Madu believes that Awa loves Madu. (sloppy)

b. *only*-DP antecedent

Adama_i dɔrɔn kó (ko) **a**_i hakili ka di.
 Adama only say COMP 3SG mind COP good
 ‘Only Adama_i said that he_i is smart.’
 ✗ No one else said that Adama is smart. (strict)
 ✓ No one else said that they are smart. (sloppy)

¹⁷To permit a comparison with *ale*, we explicitly exclude the reading where the pronoun *a* takes a sentence-external antecedent, asking the consulted Jula speakers to focus only on the reading whereby the pronoun refers to the logophoric antecedent.

As can be seen in (56), the pronoun simple form *a* is interpreted the same way as the logophoric *ale*: it has only a sloppy reading both in ellipsis contexts and when associated with the *only*-DP antecedent. Thus, we could say that *a* in logophoric contexts is a bound variable, too. In the spirit of the OBA, both *a* and *ale* could be bound by an operator within the logophoric clause, as in (57).

(57) a. DP... Pred... [_{CP} ...OP...[... *ale* ...]]

b. DP... Pred... [_{CP} ...OP...[... *a* ...]]

Following the syntactic version of OBA, (57a) should result in *ale* being co-indexed only with the logophoric antecedent: absence of referential ambiguity, while according to the semantic camp, the obligatory *de se* reading should follow: absence of perspective ambiguity (cf. 10.2.4). Under the same rationale, we would predict that binding of *a* by the OP, as in (57b), produces the same effects. However, this prediction is not borne out: unlike *ale*, *a* exhibits both referential and perspective (de se and non-de se) ambiguity in logophoric contexts (cf. 10.3.1 and 10.3.2). So, exhibiting the properties of a bound variable in logophoric contexts does not ensure that *a* is interpreted like an LP. Why would the reverse be true for *ale*, i.e., why would exhibiting the properties of a bound variable ensure that *ale* exhibits logophoricity? There is a real challenge in answering these questions if one considers logophoricity arises from variable binding.

So, we have seen: as for variable binding, the non-LP *he* in English behaves just like LPs in Abe and Ewe in not being a bound variable, while the LP *ale* behaves just like the non-LP *a* in Jula in being bound variables. However, as for logophoricity, the non-LP *he* in English differs from the LPs in Abe and Ewe in interpretation, the same way the LP *ale* differs from the non-LP *a* in Jula. This indicates that (i) there exists no one-to-one connection between being an LP and being a bound variable (and vice-versa),¹⁸ and that, consequently, (ii) a variable binding treatment of logophoricity along the lines of OBA does not account for the difference in interpretation that prevails between LPs and non-LPs.

Though this conclusion appears beforehand to dismiss any application of the OBA to Jula, I subsequently show that an analysis of logophoricity along the lines of OBA would be, in any case, against the antecedence requirement of *ale*.

10.4.4 *ale* and the ban of local antecedents

A critical aspect of the OBA is that it imposes a locality restriction on LPs, i.e., the requirement that the relation between the OP and the LP operates within the logophoric clause. As seen above, K&S initially motivate this, partly based on the evidence that the *n*-pronoun can have an *n*-pronoun as a local antecedent (see ex. 40a). Now, by extending the case of Abe to all logophoric languages, works within the OBA overlook an essential point: not all logophoric systems are the same, and therefore not all LPs behave like the Abe *n*-pronoun as for locality. Ignoring this may result in empirically incorrect predictions.

For instance, for Jula, if we derive logophoricity along the lines of the OBA, i.e., positing a local operator that binds *ale*, we would predict that *ale* can have local antecedents. This prediction is, nevertheless, incorrect. We have pointed out this above in

¹⁸That the reverse connection does not hold is self-evident, for variable binding is generally not restricted to logophoric contexts.

10.3.1, observing that *ale* never takes a local antecedent in logophoric contexts. The data below show that this observation also applies to the non-logophoric use of the pronoun. As can be seen, the antecedent of *ale* cannot be any of the clause-internal subject arguments: be it a referential DP (58a), a quantifier (58b), or *wh*-phrase (58c).

- (58) a. Awa_i ye saa yé **ale**_{*i/j} kɔfɛ
 Awa PFV snake see 3EMP behind
 ‘Awa_i saw a snake behind *her_i/him_j.’
- b. Bɛɛ_i ye saa yé **ale**_{*i/j} kɔfɛ
 everyone PFV snake see 3EMP behind
 ‘Everyone_i saw a snake behind *themselves_i/him_j.’
- c. Jɔn_i ye saa yé **ale**_{*i/j} kɔfɛ ?
 who PFV snake see 3EMP behind
 ‘Who_i saw a snake behind *himself_i /him_j?’

Also, two occurrences of *ale* in the same clause produce ungrammatical sentences like the one in (59).

- (59) ***ale** ye saa yé **ale** kɔfɛ
 3EMP PFV snake see 3EMP behind
 Int. ‘S/he saw a snake behind him/her.’

To be sure, the behavior of *ale* outside logophoric contexts is consistent with its use within logophoric contexts: no local antecedents are possible. In this respect, again, *ale* contrasts with the simple form *a*, as shown in (60).

- (60) a. Awa_i ye saa yé **a**_{i/j} kɔfɛ
 Awa PFV snake see 3SG behind
 ‘Awa_i saw a snake behind her_i/him_j.’
- b. Bɛɛ_i ye saa yé **a**_{i/j} kɔfɛ
 everyone PFV snake see 3SG behind
 ‘Everyone_i saw a snake behind themselves_i/him_j.’
- c. Jɔn_i ye saa yé **a**_{i/j} kɔfɛ ?
 who PFV snake see 3SG behind
 ‘Who_i saw a snake behind himself_i /him_j?’

Thus, besides logophoricity (along with referential and perspective ambiguity), locality is another aspect in which *a* and *ale* differ. We capture this with the following generalizations.

- (61) Locality restrictions on *a* and *ale*¹⁹
- a. *a* takes both local and non-local antecedents.
 - b. *ale* never take local antecedents.

In the face of the generalizations in (61), applying an OBA account to logophoricity in Jula would force us to introduce an unnecessary inconsistency within the pronominal system. While the behavior of *a* would be the same outside and within logophoric contexts, that of *ale* would not. The latter would not allow local antecedents outside logophoric context,

¹⁹These generalizations primarily apply to the occurrence of the two pronouns within possessive phrases (as possessor DP) and adpositional phrases (as oblique DP).

though allowing a local antecedent, the OP, in logophoric contexts. For this to work, we need to posit at least two lexical entries for *ale*: one that bans local antecedents and another that allows them. However, I think this solution must be rejected not only because it is less parsimonious than a solution with one lexical entry for *ale*, but mostly because it feels like adapting the system of the language to fit a theoretical assumption, namely the one defended in the OBA: LPs are variables bound by a local operator.

What we have shown, however, is that a pronoun may have the properties of an LP without being required to have a local antecedent, and even more so a local OP. In that sense, the ban of local antecedents constitutes another substantial reason to invalidate the OBA in accounting for logophoricity in Jula.

10.4.5 Wrapping up

In sum, having laid out the empirical and conceptual motivation for the OBA originating in K&S' work on Abe, we have discussed aspects of the approach that suggest rejecting it as an adequate analysis of logophoricity, especially for Jula. The main reasons evoked are: positing OP within logophoric contexts is not only conceptually problematic but also empirically incorrect, since LPs do not inherently behave like "genuine" bound variables. Besides, assuming an operator that locally binds *ale* goes against the empirical observation that the latter never takes local antecedents.

Given this, I will attempt next to derive logophoricity in Jula following a different approach.

10.5 Towards an analysis

We have shown above that K&S' account of logophoricity, and more generally the OBA, faces conceptual and empirical problems. However, one aspect of K&S' analysis that I consider of interest is the assumption that the logophoric use of the *n*-pronoun can be derived from its non-logophoric use. This seems to be a promising approach for treating logophoricity in Jula since, as we have seen, non-LP and LP *ale* exhibit the same type of restriction as for the locality of the antecedent: no local antecedents are possible. The suggestive conclusion from this parallel is that non-LP *ale* and LP *ale* are not two lexically distinct pronouns but two different instances of a single pronominal form. In this view, it is tempting and judicious to motivate a treatment of logophoricity in Jula that aligns with the non-logophoric use of *ale*.

The present section lays the foundations of such a treatment, guided by the following fundamental questions:

1. What characterizes the use of *ale*?
2. By which principle(s) of the grammar is such a use regulated?

Answering these questions will not only permit understanding logophoricity in Jula, but it will also allow us to pin down the origin of the difference between *ale* and its simple form *a*. In this respect, I will present and defend the position that the use of *ale* is associated with the interpretation that its antecedent is the only one of contextually available alternatives that leads to a true proposition, hence *contrastive focus*. Thus, the difference between *a* and *ale* is that the latter implies contrastive focus, while the

former does not. This difference, I argue, carries over to logophoric contexts, in that the logophoric interpretation of *ale* instantiates contrastive focus.

The following two subsections will present the conceptual basis of the approach to be pursued. The empirical evidence based on the distribution and form of the pronouns will be discussed in two separate sections, i.e., in 10.6 and 10.7, respectively.

10.5.1 Masiuk (1994)'s observation

As pointed out in earlier discussions, Bambara is one of the Manding languages closely related to Jula. The similarities between the system of the two languages extend to the pronominal system as well. Like Jula, Bambara has a series of simple pronouns with the corresponding emphatic forms, including two third-person pronouns: *a* and *ale*.

Concerning the use of two forms in Bambara, Masiuk (1994) observes that whenever the pronouns *a* and *ale* are in free variation within a given linguistic environment, the former conveys mere coreference. By contrast, the latter invokes that there exist for its antecedent contextually available alternatives that are excluded. She illustrates this with the following data.

(62) Data based on Masiuk (1994, p. 54)

- a. Musa, **Samba**_i ko i kana taga foro la sini sabu
 Musa Samba say 2SG SBJV.NEG go field PostP tomorrow because
 denkundi be **ale**_i ka so
 name-giving.ceremony COP 3EMP POSS home
 'Musa, Samba_i says that you should not go to the field tomorrow because there will
 be a name-giving ceremony at his_i home.'
- b. **Reference to alternatives**
 The giving-name ceremony could have been at someone else's home.
- c. **Exclusion effects**
 The giving-name ceremony will be at Samba's home, not at someone else's home

According to Masiuk, in (62), *ale* does not just refer to *Samba*, but its presence conveys that of the contextually possible persons at whose home the giving-name ceremony might take place (cf. reference to alternatives, 62a), *Samba* is the only one that makes the proposition "the giving name ceremony will be at X's home" true (cf. exclusion effects, 62b). Here, the pronoun *a* could be used in place of *ale* if the speaker does not wish to convey the exclusion of some alternatives.²⁰ As formulated, the meaning contribution that Masiuk (1994) describes for *ale* in Bambara is reminiscent of the notion of contrastive focus described within the information structure literature.

10.5.2 The notion of contrastive focus

There exists some general agreement on the intuition that while focus generally conveys the presence of alternatives relevant to the interpretation of a linguistic expression, contrastive focus implies the exclusion (or negation) of some alternatives in the set of contextually relevant alternatives (see Halliday 1967, Chafe 1976, Vallduvı and Vilkuņa 1998, Molnár 2002, Umbach 2004, Krifka 2008, Mayol 2010, Kenesei 2011, Vermeulen 2011, Neeleman and Vermeulen 2012, Repp 2016). The substance of that intuition is summarized along the lines in (63).

²⁰In original: "à pourrait être utilisé dans chacuns de exemples précédents lorsque que l'énonciateur ne souhaite pas donner de précision exclusive."

- (63) Focus vs. contrastive focus
 “...whereas focus on an item α indicates that alternatives to the denotation of α are relevant for the interpretation of the sentence containing α – and no more... contrast marking on an element α indicates that there is a salient alternative α in the immediate context for which what is said about α does not hold.” (Repp 2010, pp. 1137 & 1138)

In practice, the meaning effect of focus is generally observed in answers to *wh*-phrases (64a), while contrastive focus is typically associated with corrective sentences (64b).

- (64) Examples based on Zimmermann (2007, p. 10)
- a. Q: What did you eat in Russia?
 A: We ate [*pelmeni*]_F.
 • Possible alternatives: pelmeni, borscht, solyanka
- b. A: Surely, you ate pelmeni!
 B: No, [*caviar*]_F, we ate!
 • Excluded alternative: pelmeni

Besides excluding alternatives, contrastive focus reflects a particular belief state brought about by unexpectedness. In that sense, contrastive focus conveys the speaker’s belief that the selected alternative is unexpected or contrary to the hearer’s presuppositions (cf. Lambrecht 1996, Givón 2001, Steedman 2006, Zimmermann 2007). Thus, paraphrasing Chafe (1976, p. 33), with the use of *ale* in (62a), the speaker wishes to tell the hearer the following: "I believe that you believe that the giving-name ceremony will take place at someone’s house, that you have a limited set of candidates (perhaps one) in mind as that someone, and I am telling you that the someone is Samba rather than one of the others."

With this as a background, I show that the meaning contribution described for Bambara also holds for Jula. I will present evidence in favor of the claim that the use of *ale* in Jula is also associated with contrastive focus.

10.6 Using *ale* involves contrastive focus

In this section, I show, based on their distribution, that unlike with *a*, the use of *ale* involves contrastive focus.

10.6.1 The antecedent needs to be contrasting

The first evidence indicating that the use of *ale* involves contrastive focus comes from the observation that the latter cannot co-refer with non-contrasting individual-denoting DPs. Consider (65).

- (65) a. Awa_i na-na. a_i ye an fo. [Adama_j na-na. #ale_j ye an fo.]
 Awa come-PFV 3SG PFV 1Pl greet Adama come-PFV 3EMP PFV 1Pl greet
 ‘Awa_i came. She_i greeted us. Adama_j came. He_j greeted us.’
- b. Awa_i na-na. a_i ye an fo. [Adama_j na-na. a_j ye an fo.]
 Awa come-PFV 3SG PFV 1Pl greet Adama come-PFV 3SG PFV 1Pl greet
 ‘Awa_i came. She_i greeted us. Adama_j came. He_j greeted us.’

The use of *ale* is associated with the requirement that, in the context, its antecedent is construed as contrasting to some other individuals: it must be the only one of contextually available alternatives that makes the proposition expressed by the sentence containing the pronoun true. Since in (65a), both *Awa* and *Adama* make the proposition *x greeted us* true, the use of *ale* to indicate reference with *Adama* is infelicitous. In that case, only the use of *a* is accepted (65b). To be sure, *ale* could be used if *Adama* were construed as contrasting to *Awa*, as in (66a) and (66b).

- (66) a. Negated predicate
Awa_i na-na. a_i ye an fo. [Adama_j na-na. ale_j ma an
Awa come-PFV 3SG PFV 1Pl greet Adama come-PFV 3EMP PFV.NEG 1Pl
fo.]
greet
 ‘*Awa_i came. She_i greeted us. Adama_j came. He_j did not greet us.*’
- b. Different predicate
Awa_i na-na. a_i ye an fo. [Adama_j na-na. ale_j ye an neni.]
Awa come-PFV 3SG PFV 1Pl greet Adama come-PFV 3EMP PFV 1Pl insult
 ‘*Awa_i came. She_i greeted us. Adama_j came. He_j insulted us.*’

Another context showing that the antecedent cannot be a non-contrasting individual is (67).

- (67) a. Context (built after Abubakari 2019, p. 329)
Awa is playing soccer with his young brother *Adama*. *Adama* gets hit by the ball and starts crying. Their mother, who heard the crying, wants to know what happened. Thus, she asks *Awa*.
- b. Q: I ye mun ke Adama_i la? ‘What did you do to Adama_i?’
 2SG PFV what do *Awa* PostP
- c. A: N ma foyi ke a_i/#ale_i la ‘I did not do anything to her_i.’
 1SG PFV.NEG nothing do 3SG/EMP PostP

Against the context in (67a), the question in (67b) is about a unique individual, *Adama*, who does not stand in contrast to any other individual. Consequently, the answer to the question in (67c) can contain the pronoun *a* referring back to *Awa*, but not *ale*.

This suggests that the use of *ale* is associated with contrastive focus, for it only refers to individuals that are contextually construed as contrasting with other individuals.

10.6.2 If contrastive focus there, then only *ale*

Further support for the relation between the use of *ale* and contrastive focus comes from its distribution within environments that induce meaning effects similar to contrastive focus.

For instance, *foo* ‘except’, is a connective that opposes the denotation of its right-occurring complement to other members of a set of entities by conveying that a specific predicate holds only for the denotation of the complement. Thus, in (68a) it is said that *Adama* is the only person who did not come back, while (68b) can be paraphrased as *Adama* is the only person who came back.

(68) Context: Five young men, including Adama, went lost in a forest for one week.

a. o bε sekɔ-la, foo Adama.
3PL everyone return-PFV PRT Adama
'All of them came back, except Adama.'

b. o si ma sekɔ-la, foo Adama.
3PL INDEF.NEG PFV.NEG return-PFV PRT Adama
'None of them came back, except Adama.'

So as it appears, the meaning effect of *foo* 'except' to its complement is very much the same as the meaning effects associated with contrastive focus as described above. If, unlike *a*, the use of *ale* involves contrastive focus, it does not come as a surprise that only the latter, but not the former, can occupy the complement position of *foo* 'except' and hence referring to *Awa*, the individual being for contrastive focus (69).

(69) Context: Fanta is hosting a birthday party, and she is surprised to not see her best friend *Awa* among the guests that arrived.

Awa_i do? Bεε na-na foo ale_i/*a_i
Awa where everyone come-PFV PRT 3EMP/3SG

'Where is *Awa*? Everyone has come except her.'

Thus, whenever the syntactic environment itself triggers a contrastive focus, only *ale* is used to mark coreference with the constituent marked for contrastive focus. A similar effect arises with left-dislocated animate constituents.

It is well-known that some instances of left-dislocation involve contrastive focus (see Lambrecht 1981, Barnes 1985, Ziv 1994, Anagnostopoulou 1997, Arregi 2003, Delais-Roussarie et al. 2004, De Cat 2007, Halla-Aho 2018). In that case, the dislocated constituent receives the interpretation that its denotation is singled out from a set of contextually (sometimes implicit) available alternatives. In *Jula*, the left-dislocation of constituents that refer to animate entities typically triggers a contrastive focus reading.²¹ As evidence, such constructions cannot occur in answers to *wh*-questions (70), which, as a general assumption, are incompatible with contrastive focus (see Kiss 1998, Zimmermann 2007, Zimmermann and Onea 2011, Repp 2016).²²

²¹For the left-dislocation of inanimate constituents, see the description in 3.3.3 and 7.4.2.

²²Note in this respect that the ban of left-dislocation sentences in answers to *wh*-questions in *Jula* reminds the impossibility to use English cleft sentences in the same environment. Consider the following data from Zimmermann and Onea (2011, p. 1664).

- (1) Q: What did Peter paint?
A1: #It was a Bicycle that he painted.
A2: He painted a Bicycle.

- (70) a. Question
 Jon ye á dɛmɛ
 who PFV 2PL help
 ‘Who helped you?’
- b. Answer
 # Adama_i, #a_i/ale_i ye an dɛmɛ
 Adama 3SG/EMP PFV 1PL help
 ‘Adama_i, he_i helped us.’

However, they can be used to answer a question that triggers contrast. This is the case, for instance, with *what about X* questions, which imply “a contrast between the mentioned entity X and the other members of some implicit set of relevant entities” (Roberts 2011, p. 1912). Consider (71).

- (71) a. Question
 I ko Awa ma á dɛmɛ. Adama do?
 2SG say Awa PFV.NEG 2PL help Adama Q
 ‘You said that Awa did not help you. What about Adama?’
- b. Answer
 Adama_i, #a_i/ale_i ye an dɛmɛ
 Adama 3SG/EMP PFV 1PL help
 ‘Adama_i, he_i helped us.’

In (71a), the question, *what about Adama*, induces a contrast between *Adama* and *Awa*. Accordingly, with the left-dislocation of *Adama* in the answer sentence, it is conveyed that of the two, *Adama* and *Awa*, only *Adama* has helped. Interestingly, as (71b) shows, the left-dislocated constituent marked for contrastive focus can only be resumed by *ale* and not by *a*.²³

This again indicates that only the use of the former is associated with contrastive focus: constituents marked for contrastive focus are referred to with *ale*.

10.6.3 The pronoun *ale* induces a contrastive focus reading

Thus far, we have discussed environments where *ale*, unlike *a*, cannot be used because contrastive focus cannot be realized (cf. 65-67) and environments where *ale*, instead of *a*, must be used because the contrast focus is enforced (cf. 68-71). Now, there exist situations where both *a* and *ale* can occur, yielding two different interpretations. While the latter induces a contrastive focus reading, the former does not.

In that respect, an interesting example to be mentioned are head-internal relative clauses (hence HIRC, cf. Erlewine and Gould 2014 and sources therein). HIRCs in Jula are characterized by an initial relative clause containing the modified noun and the relative

²³There is a similar construction containing the pronoun *a*. Though that construction does not behave like a left-dislocation, mainly because the fronted constituent is interpreted as a vocative expression, i.e., referring to a person being addressed, (see Ziv 1994, p. 643); and it is consequently not resumed by *a* (1).

- (1) Adama_i, a_j ye an dɛmɛ
 Adama 3SG/EMP PFV 1PL help
 ‘Adama_i, he_j helped us.’

particle, followed by the main clause, which contains a resumptive pronoun referring back to the modified noun. However, the examples in (72) show that using *ale* as a resumptive pronoun, in place of *a*, has a different effect on the sentence interpretation.

- (72) a. muso caman na-nan yan. (#nga) [muso_i min ye an fo, a_i ye
 woman man come-PFV here but woman REL PFV 1PL greet 3SG PFV
 fani san]
 clothes buy
 ‘Many women came. (#But), the woman who greeted us has bought clothes.’
 ⇒ Among the woman who came there is (at least) one that greeted us and bought clothes.
- b. muso caman na-nan yan. (nga) [muso_i min ye an fo, ale_i ye fani
 woman man come-PFV here but woman REL PFV 1PL greet 3SG PFV clothes
 san]
 buy
 ‘Many women came. (But), the woman who greeted us has bought clothes.’
 ⇒ Among the woman who came, only the one who greeted us has bought clothes.

In (72a), the use of *a* merely evokes that the woman who has greeted and bought clothes is among the women who came. By contrast, the use of *ale* in (72b) conveys that except the woman who greeted, no one else among the woman who came has bought clothes. The last reading, which is reminiscent of contrastive focus, is compatible with the insertion of the contrastive connector *nga* ‘but’ between the relative clause and the preceding sentence. However, the former is not.

Also interesting to mention is the meaning effect that replacing *ale* by *a*, and vice versa, may have on the interpretation of some ambiguous particles, particularly those ambiguous between a contrastive focus and a non-contrastive focus reading. One prominent example is the particle *dɔnrɔn*, as shown in (73).

- (73) The particle *dɔnrɔn* ‘only, alone’
- Awa *dɔnrɔn* na-na
 Awa PRT come-PFV
- ✓ ‘Only Awa has come (no one else has come).’
 - ✓ ‘Awa has come alone (no one was with her).’

In the contrastive focus reading, *dɔnrɔn* has the meaning effect of the contrastive focus particle ‘only’, while in the non-contrastive focus, its meaning can be rendered by ‘alone’. However, this ambiguity prevails only with nominal DPs. With pronominal DPs, things are different. While, *ale* retains the contrastive focus reading (74a), the use of *a* goes along with the non-contrastive focus reading (74b).

- (74) a. ale *dɔnrɔn* na-na
 3EMP PRT come-PFV
 ‘Only S/HE has come (no one else has come.)’
- b. a *dɔnrɔn* na-na
 3SG PRT come-PFV
 ‘S/he has come alone (no one was with her/him.)’
 #‘Only S/HE has come (no one else has come.)’

Another particle with which similar meaning effects are observed is *kɔni*, ambiguous between a contrastive focus reading, corresponding to *as for* (cf. Roberts 2011), and a

non-contrastive focus reading, equivalent to the meaning of *indeed* in English. The two readings go along with different positions of the particle. This is true only for nominal DPs.

(75) The particle *kɔni* ‘as for, indeed’

- a. Awa *kɔni* na-na
Awa PRT come-PFV
‘As for Awa, she has come.’
- b. Awa na-na *kɔni*
Awa come-PFV PRT
‘Indeed, Awa has come.’

In contrast, we see in (76), that even if *kɔni* directly follows *a* and *ale*, the contrastive focus reading, i.e., *as for*, is obtained only with the latter (76a). The non-contrastive reading, i.e., *indeed*, arises in association with *a* (76b).

- (76) a. *ale kɔni* na-na, (tɔ-w ma na)
3EMP PRT come-PFV other-PL PFV.NEG come
‘As for her, she has come (others haven’t come).’
- b. *a kɔni* na-na (# tɔ-w ma na)
3SG PRT come-PFV other-PL PFV.NEG come
‘Indeed, she has come (# others haven’t come).’

In sum, whenever *a* and *ale* are in free variation in a given environment, the latter induces a contrastive focus reading, while the former does not. This does confirm not only Masiuk (1994)’s observation but also supports our general claim that contrastive focus is what regulates the use of *ale* and is, by extension, responsible for the difference between the latter and the simple form *a*. Next, I show that this difference originates from the forms of the two pronouns. Unlike *a*, the form of *ale* involves the contrastive focus marker *le*.

10.7 The *le* in *ale*: a contrastive focus marker

In the above section, we have used distributional facts to show that the use of *ale*, and beyond, the difference between *a* and *ale*, is regulated by contrastive focus. In this section, I consider another piece of evidence based on the form of the pronouns.

There is a general tacit agreement that a particular interplay exists between the form of a pronoun and its interpretation. For instance, it is well-acknowledged that in many languages, null and overt pronominal forms are very often interpreted differently (Chinese: Jia and Bayley 2002, Bi and Jenks 2019, Italian: Montalbetti 1984, Carminati 2002, Japanese: Ueno and Kehler 2010, Okuma 2015, Spanish: Larson and Luján 1989, Mayol 2010, Korean: Kim and Kaiser 2009, Park 2011, Russian: Livitz 2014, 2016). Similarly, it is well-established that cross-linguistically, reflexive and non-reflexive pronouns tend to differ in their form and their interpretation (cf. Reinhart and Reuland 1993, König 2007, König and Moyse-Faurie 2010). Elaborating on similar observations, Wiltschko (2016) argues that the identity function associated with reflexives in various European languages is due to the latter’s form containing first-person pronouns, which, she considers, function as identity predicates. As evidence, she observed, for example, that *sich* in German is decomposable into *s* + *ich* ‘I’, *sik* in Gothic into *s* + *ik* ‘I’ and *sebja*

in Russian into *seb + ja* ‘I’. Besides, building on data from Kutchi Gujarati and (Austrian) Bavarian, Patel-Grosz (2020), proposes a connection between the internal structure of a pronoun and its possibility to exhibit *de se* readings. Other works highlighting the impact of form on the interpretation of pronouns are found and discussed in Grosz and Patel-Grosz (2016). I contribute to this line of research by showing that the contrastive focus associated with *ale* is rooted in its form.

I argue that the origin of the contrastive focus reading associated with *ale* comes from the morpheme *le* which exhibits the properties of contrastive focus markers attested in many African languages.^{24 25}

10.7.1 The particle *le* is not a (simple) focus marker

When describing the morphology of personal pronouns, we have said that *ale* is composed of the simple form *a* and the focus marker *le* (see Chapter 2.7, section 2.5). This characterization of *le* as a focus marker was following a long tradition within literature on Manding languages (Derive 1976, Tera 1983, Maire 1984, Keita 1990, Sanogo 1992). However, on a closer look, *le* does not exhibit the properties of a genuine focus marker.

As observed by Hartmann and Zimmermann (2008, p. 10), “typical focus markers, as employed in many other African languages, are obligatory”. The particle *le*, by contrast, is always optional, even in the answer to a *wh*-question, which typically involves focus marking (77b).

- (77) a. Question
 Jon taga-ra Bobo ?
 who go-PFV Bobo
 ‘Who went to Bobo ?’
- b. Answer
Adama (le) taga-ra Bobo
 Adama PRT go-PFV Bobo
 ‘ADAMA went to Bobo.’

Even when *le* occurs within the answer to a question like (77a), it triggers a contrastive focus reading on the focus constituent, i.e., it implies the exclusion of alternatives to the focus constituent. As evidence, unlike with focus (78a), a sentence containing *le*, cannot be continued with a sentence introducing an alternative to the focus constituent (78b).

- (78) a. Answer (without *le*)
Adama taga-ra Bobo, **Awa** fana taga-ra Bobo
 Adama go-PFV Bobo Awa also go-PFV Bobo
 ‘ADAMA went to Bobo, and AWA, too, went to Bobo.’
- b. Answer (with *le*)
Adama le taga-ra Bobo, #**Awa** fana **le** taga-ra Bobo
 Adama PRT go-PFV Bobo Awa also PRT go-PFV Bobo
 ‘ADAMA went to Bobo, # and AWA, too, went to Bobo.’

²⁴For references see Abubakari (2019, p. 325)

²⁵Some authors (incl. Hartmann and Zimmermann 2008) use the term exhaustive markers instead, which I do not disagree with, since in involving the exclusion of alternatives, contrastive focus bears an inherent exhaustive character.

Thus, the exclusion of alternatives to the focus constituent and the optional character of its use suggest that *le* is not a typical focus marker. Indeed, I show with further evidence that *le* is a contrastive focus marker.

10.7.2 Where *le* cannot be used

Since, as a contrastive focus marker, *le* involves the exclusion of alternatives to a constituent, it cannot be used whenever the predicate that holds for that constituent also holds for other entities (or individuals). An illustration of this restriction is shown in (79).

- (79) Context: A mother to her son: I have been told that my friends came here this afternoon. Have you seen any of them?

n ye **Awa** (#le) yee, ani fana n ye Biba ni Sali yee.
1.SG PFV Awa PRT see and also 1SG PFV Biba and Sali see

‘I have seen AWA, I have also seen Biba and Sali’

In (79), adjoining *le* to *Awa* would convey that the son has seen nobody other than *Awa*. Because this is not the case, the son, having seen *Biba* and *Sali* too, the use of *le* becomes infelicitous.

Another illustration involves what Hartmann and Zimmermann (2008) call "mention-some environments" (80).

- (80) a. Context: Awa is taking the baccalaureate exam this year. To better prepare herself, she decided to contact one of the many students who passed the baccalaureate exam last year. Awa does not know any of these students. However, she was told that a guy named Adama knew all of them. Thus, she went to ask him in the following way:

I be a ln mɔgɔ min ye baki sɔrɔ salo wa ?
1SG HAB 3SG know people REL PFV baccalaureate obtain last.year Q

‘Do you know who passed the baccalaureate exam last year?’

- b. ɔnhɔn, o cɛma **Madu** (#le) ye baki sɔrɔ
yes, 3PL among Madu PRT PFV baccalaureate obtain

‘Yes, among them, MADU passed the baccalaureate.’

In the context of (80a), *Adama* knows more than one student who passed the exam. However, the answer in (80b) makes mention of just one of them, i.e., *Madu*. Therefore, the use of *le* becomes infelicitous since it would produce the contradiction that except *Madu*, there is no other student who passed the exam such that *Adama* knows him/her.

10.7.3 Where *le* forces a contrastive focus reading

What is more, there are environments where the use of *le* triggers a contrastive focus inference. For example, by reacting to the statement in (81a) with a sentence containing *le* (81b), speaker B does not just convey that *Awa* is the only student who passed the exam, but it also forces one to infer that speaker A’s claim that many students have passed the exam is false.

- (81) a. Speaker A
 N be mɔ̀gɔ́ cama lɔ́n min ye ɛsame sɔ̀rɔ́
 1SG HAB people many know REL PFV exam find
 ‘I know many people who passed the exam.’
- b. Speaker B
Awa le ye ɛsame sɔ̀rɔ́
 Awa PRT PFV exam find
 ‘AWA passed the exam.’
 ⇒ It is not true that many people passed the exam.

A similar inference arises in the context of (82), which is an adaptation of a scenario by Hartmann and Zimmermann (2008, p. 15).

- (82) Context: Adama and his sister Awa, together with fifty other people, took an exam in different examination juries. One member of Adama’s jury, Madu, lives in the same neighborhood as Adama and Awa. Ten days after the exam, Adama, who could no longer bear the long wait for the results, went to see Madu. He asks him: "Can you tell me whether I have passed the exam? Unfortunately, since Madu is a member of Adama’s jury, the law forbids him to tell him his results. However, nothing prevents Madu from communicating the results of a person from another examination jury.
- a. Adama: N ye ɛsame sɔ̀rɔ́ wa ?
 Adama 1SG PFV exam obtain Q
 ‘Did I pass the exam?’
- b. Madu: N kɔ́ni te se ka o fɔ́ i ye, nga Awa (**le**) ma
 Madu 1SG really HAB.NEG can INF DEM tell 2SG PostP but Awa PRT PFV
 ɛsame sɔ̀rɔ́
 exam obtain
 ‘I really can’t tell you that, but AWA (**le**) has not passed the exam.’
 • without *le*: Adama is not informed about his own result.
 • with *le*: Adama can conclude that he has passed the exam.

In (82b), if Madu answers Adama’s question in (82a) without using *le*, he would only inform Adama about his sister’s, i.e., Awa’s, results. From such an answer, Adama cannot make any inference about whether he succeeded or not. By contrast, if Madu’s answer contains *le*, Adama may infer that he passed the exam, given that no other candidate but Awa has failed. This sort of inference comes to support our claim that *le* is a contrastive focus marker.

Below, I propose that the contrastive focus meaning contributed by *le* is a presupposition.

10.7.4 Meaning level of *le*

There is a sort of consensus in the literature that the contrastive focus meaning expressed by *only* differs from the one associated with *it*-clefts (see Horn 1981, Büring 2010, Zimmermann and Onea 2011, Drenhaus et al. 2011, Vercauteren 2016).²⁶ Specifically, with *only*, the contrastive focus meaning is part of the asserted information, while with *it*-clefts, it is more background-information-like, with the characteristics of a presupposition or of an implicature. This difference is reflected, for example, by the scope of negation.

²⁶These sources use the terms *exhaustivity* or *exhaustiveness*, instead.

(83) Buring (2010, pp. 1–2), presented as in Vercauteren (2016, p. 151)

- a. She didn't only invite Fred. She also invited Gord.
- b. #It wasn't Fred she invited. She also invited Gord.

Since with *only*, the contrastive focus meaning is part of the asserted information, it can be affected by negation (83a). Reversely, with *it*-clefts, the contrastive focus meaning cannot be affected by negation since it represents background information (83b).

Taking this primary distinction as a background, I show that *le* in Jula contributes a contrastive focus, similar to an *it*-cleft, i.e., the contrastive focus meaning is not part of the asserted information but represents background information.

To begin with, consider the data in (84b), which illustrates the use of *le* combined with the particle *dɔrɔn* (here, 'only'), as a way of correcting a statement (84a).

- (84) a. Statement
Awa ni Adama na-na yan.
Awa and Adama come-PFV here
'Awa and Adama came here.'
- b. Correction
Awa **dɔrɔn le** na-na yan.
Awa only PRT come-PFV here
'It is only Awa who came here.'

To the extent that *le* and *dɔrɔn* induce a similar meaning effect, i.e., contrastive focus, their felicitous co-occurrence suggests that they operate at different meaning levels. Indeed, this suggestion is borne out, as the contrast between (85a) and (85b) shows.

- (85) a. An ma Adama **dɔrɔn** bugɔ, an ye Awa fana bugɔ.
1PL PFV.NEG Adama PRT beat, 1PL PFV Awa also beat
'It is not only ADAMA that we beat, we beat Awa too.'
- b. An ma Adama **le** bugɔ, #an ye Awa fana bugɔ.
1PL PFV.NEG Adama PRT beat, 1PL PFV Awa also beat
'It is ADAMA that we did not beat, # we beat Awa too.'

Like with *only* in English, the contrastive focus meaning conveyed by *dɔrɔn* can be affected by negation, making the continuation sentence *we beat Awa too* possible. In contrast, the behavior of *le* towards negation is reminiscent of *it*-clefts: here, the contrastive focus meaning cannot be negated. It is, therefore, background information.

Furthermore, note that the contrastive focus meaning cannot be questioned. This is shown in (86).

- (86) Adama **le** ye εsame sɔrɔ wa ?
Adama PRT PFV exam obtain Q
'Is it Adama that passed the exam?'
- a. # ayi, Adama *dɔrɔn* ma εsame sɔrɔ
No, Adama only PFV.NEG exam obtain
'No, Adama is no the only one that passed the exam.'
- b. ayi, Adama ma εsame sɔrɔ
No, Adama PFV.NEG exam obtain
'No, Adama did not pass the exam.'

In (86), the information induced by the contrastive focus meaning of *le*, i.e., that Adama, and no one else, passed the exam, does not fall within the scope of the question particle *wa*. For this reason, an answer that aims at challenging that information is infelicitous (86a). Possible is only an answer that targets the information targeted by the question, i.e., that Adama has passed the exam, as in (86b).

I conclude from these data that *le* contributes a contrastive focus meaning that it is not part of the asserted information. It is instead background information. To be more specific, I will assume that it is a presupposition and propose to capture the meaning contribution of *le* as follows.

(87) Meaning contribution of *le*²⁷

$$\llbracket le \rrbracket = \lambda x. \lambda P : \forall y [y \in \text{ALT}(x)] \ \& \ y \neq x \rightarrow P(y) = 0. \ P(x) = 1$$

Thus, whenever adjoined to a given constituent, *le* conveys that there are alternatives to that constituents (or its denotation) for which the predicate of the sentence containing the constituent does not hold. This amounts to saying that only the constituent (or its denotation) leads to a true proposition.

To finish, I argue that with (87), we have the origin of the contrastive focus meaning associated with the use of *ale*. Specifically, this meaning is part of its morphology, induced by *le*. Reversely, lacking *le* in its morphology, the use of *a* does not involve contrastive focus. This is, in substance, what explains the difference in interpretation between the two forms. It also supports the view that form may impact the interpretation of pronouns. Next, I take this line of thought to another level by attempting to derive logophoricity from contrastive focus.

10.8 Deriving logophoricity from contrastive focus

As a premise, I assume, following Sells (1987), that logophoricity is not an inherent property of the pronoun *ale* per se (cf. 10.2.4). Instead, inherent to the pronoun is the contrastive focus reading. Logophoricity, characterized by the absence of reference and perspective ambiguity, only arises in particular contexts, i.e., when the pronoun takes a third-person source DP as an antecedent.

It is, therefore, my attempt in this section to show how the logophoric use of *ale* derives from contrastive focus. I do this by explaining first how the choice of the logophoric antecedent abides by the unexpectedness effect of contrastive focus (10.8.2). Second, I propose that the absence of referential ambiguity and the obligatory *de se* reading result from the exclusion of alternatives triggered by contrastive focus (10.8.3). But, before that I attempt in 10.8.1 to capture our intuition about the difference between *a* and *ale* capitalizing on the previous discussion in 10.6 and 10.7.

²⁷As it stands, the lexical entry works seamlessly with subject constituents. An LF-movement à la Heim and Kratzer (1998, pp. 178–188) will be required for constituents in other argument positions to avoid multiple lexical entries.

10.8.1 Capturing the difference between *a* and *ale*

That pronouns are associated with features that restrict the range of their possible antecedents is by now uncontroversial. In some semantic works, these features are treated as presupposition-triggering contents (see Cooper 1983, Heim and Kratzer 1998, Heim 2008, Büring 2011, King and Lewis 2018). For example, the gender feature of the English pronoun *her* triggers the presupposition that its antecedent denotes a female individual (88).

- (88) Presupposition triggered by gender feature on *her*²⁸
 $[[her]]^{C,a} = a(i)$, defined if $a(i)$ is female

Simple as it is, this is the main reason why in (89a) *her* can refer to *Mary*, and also why it cannot refer to *John* in (89b).

- (89) a. $Mary_i$ loves her_i mother.
 b. $John_i$ loves her_{*i} mother.

Viewed from that angle, it is, in essence, the presupposition associated with its features that restricts the range of possible antecedents for a pronoun. In other words, saying that the features of a pronoun restrict the set of its possible antecedents amounts to saying that pronouns are associated with presuppositions that restrict the set of their possible antecedents.

Applying this insight to the case of *Jula* at hand, I consider "third-person" to be the (most) relevant feature for the interpretation of both *a* and *ale*. This feature, I suggest capitalizing on Heim (2008, p. 37), comes with the presupposition that the antecedent of *a* and *ale* denotes neither the speaker (s) nor the hearer (h) of the relevant discourse context. This is formalized in (90).

- (90) Presupposition triggered by person feature on *a* and *ale*
 $[[a/ale]]^{C,a} = a(i)$, defined if $a(i)$ denotes neither s_c nor h_c

(90) captures a property common to *a* and *ale*, which has as consequence that in both logophoric and non-logophoric contexts, they cannot refer to first and second-person pronouns.

(91) Logophoric contexts

- a. n_i ko a_{*i}/ale_{*i} hakili ka di
 1SG say 3SG/EMP mind COP good
 ‘ I_i said that he_{*i} is clever.’
 b. i_i ko a_{*i}/ale_{*i} hakili ka di
 1SG say 3SG/EMP mind COP good
 ‘ You_i said that he_{*i} is clever.’

(92) Non-logophoric contexts

- a. n_i ye saa yee a_{*i}/ale_{*i} kofɛ
 1SG PFV snake see 3SG/EMP behind
 ‘I have seen a snake behind him_{*i} .’
 b. i_i ye saa yee a_{*i}/ale_{*i} kofɛ
 2SG PFV snake see 3SG/EMP behind
 ‘You have seen a snake behind him_{*i} .’

²⁸See on Heim (2008) and Büring (2011)

Turning to their difference, we know from the previous discussion that, unlike *a*, *ale* bears not just the third-person feature. Part of its form and also interpretation involves the morpheme *le*, which contributes a contrastive focus meaning as a presupposition. Adding this information to (90) gives the following complete entry for *ale*.

(93) Lexical entry for *ale*

$$\begin{aligned} \llbracket \mathit{ale} \rrbracket^{C,a} &= a(i), \text{ defined if } a(i) \text{ denotes neither } S_e \text{ nor } h_e \text{ \&} \\ \lambda P : \forall y [y \in \text{ALT}(a(i))] \& y \neq a(i) \rightarrow P(y) = 0. P(a(i)) = 1 \end{aligned}$$

According to (93), within a given discourse context, *ale* refers to an individual that satisfies (i) the requirement that s/he denotes neither the speaker nor the hearer of that discourse context, and (ii) the requirement of being the sole of possible alternatives whose denotation when applied to the predicate of the sentence containing *ale*, leads to a true proposition. This captures the contrastive focus meaning associated with the use of *ale*.

Since the use of *a* does not involve contrastive focus, we suggest that its interpretation is guided by (90), amended in (94), which we consider its lexical entry as an anaphoric expression.²⁹

(94) Lexical entry for *a*

$$\llbracket a \rrbracket^{C,a} = a(i), \text{ defined if } a(i) \text{ denotes neither } s_e \text{ nor } h_e$$

With this in place, we can now turn to explain how logophoricity arises.

10.8.2 The choice of the logophoric antecedent

Recall that the logophoric antecedent is a third-person source DP of the complement *ko*-clause, i.e., the logophoric clause. How does this come about? Why is the third-person source of the complement *ko*-clause chosen as the antecedent of *ale*?

The lexical entry proposed above in (93) partly answers these questions: the person feature on *ale* presupposes that only third-person individuals may serve as logophoric antecedents. This is also true for *a* (cf. 94). Nevertheless, what needs to be explained is the contrast in (95), previously mentioned in 10.3.1 (cf. ex 27).

- (95) a. Awa_i ye a fɔ Adama_j ye ko a_{i/j} face na-na
 Awa PFV 3SG tell Adama PostP COMP 3SG father come-PFV
 ‘Awa_i told Adama_j that her_i / his_j father has come.’
- b. Awa_i ye a fɔ Adama_j ye ko ale_{i/*j} face na-na
 Awa PFV 3SG tell Adama PostP COMP 3EMP father come-PFV
 ‘Awa_i told Adama_j that her_i / *his_j father has come.’

We see in (95), that unlike *a*, *ale* only takes the source subject DP of the matrix predicate *fɔ* ‘tell’, i.e., *Awa*, as antecedent, thereby ignoring the intervening addressee-denoting third-person object-DP, i.e., *Adama*. The behavior of *a* directly follows from its lexical entry, since it may refer to any third-person individual. In the face of this, we must explain why *ale* does not take any random third-person DP as antecedent. Why must it be the source of the complement *ko*-clause?

I propose that choosing a source DP as a logophoric antecedent is a consequence of the unexpectedness effect of contrastive focus (see above in 10.5.2). With the use of *ale*,

²⁹It is evident that this entry does not cover the cataphoric use of the pronoun, i.e., when used as a correlate.

the reporting speaker conveys that, unexpectedly, the perspective of a source other than him/her is relevant for the interpretation of the complement *ko*-clause. I elaborate on this in the following lines.

To start with, note that, intuitively, the default perspective one takes for interpreting a sentence is that of the speaker. Now, it is well-acknowledged that the role of logophoric marking within reports sentences is to indicate a perspective different from that of the (reporting) speaker (cf. Huang and Liu 2000, Hole 2002, Corazza 2004, Oshima 2006, Sundaresan and Pearson 2014, Charnavel 2020 i.a.). In that sense, logophoric marking triggers a shift from a default perspective holder to a more specific one. This is where, I argue, the unexpectedness effect of contrastive focus operates. In this respect, recall that logophoric contexts in Jula involve two contrasting sources: (i) the source of the entire complementation sentence (S), which is the reporting speaker, and (ii) the source DP of the complement *ko*-clause (p).

- (96) Speaker_{source} [DP_{source}...predicate... [*ko*-clause]_p]_S
 ⇒ Speaker is the source of S, but DP is the source of p.

As it is, given the fact that the speaker is the source of a sentence that includes the *ko*-clause, it is not excluded that, per default, one interprets the content of the *ko*-clause from the speaker's perspective, instead of the perspective of the *ko*-clause's source DP. Since the use of *ale* is associated with contrastive focus, the speaker would use it to convey: of the two available sources from whose perspective the content of the *ko*-clause may be interpreted, the hearer should consider the perspective of the source of the *ko*-clause. Thus, the speaker's intention behind the use of *ale* in (97a) can be paraphrased as in (97b).

- (97) a. Awa_i ye a fɔ **Adama**_j ye ko **ale**_{i/*j} face na-na
 Awa PFV 3SG tell Adama PostP COMP 3EMP father come-PFV
 'Awa_i told Adama_j that her_i / *his_j father has come.'
 b. Speaker's intention when uttering (97a)
I believe that you consider me responsible for what Awa told Adama since I am the one telling you what she told him, but I am telling you to consider, rather than me, Awa the responsible for what I am telling you that she told Adama.

Supposedly, the speaker's intention, as formulated above, has the effect of directing the hearer's attention toward the source of the *ko*-clause when interpreting the reference of *ale*. Thus, in the presence of a sentence like (97a), a hearer would take the source of the *ko*-clause as the logophoric antecedent, knowing that he is the only one whose perspective towards the *ko*-clause stands in contrast with that of the speaker. This excludes picking the intervening addressee DP as antecedent. By contrast, with (98), the hearer is only instructed to pick third-person individuals.

- (98) Awa_i ye a fɔ **Adama**_j ye ko **a**_{i/j} face na-na
 Awa PFV 3SG tell Adama PostP COMP 3SG father come-PFV
 'Awa_i told Adama_j that her_i / his_j father has come.'

In sum, if the person feature on *ale* is responsible for why the logophoric antecedent is a third-person, the choice of the source of the *ko*-clause as antecedent is due to the unexpectedness effect coming along with contrastive focus. With *ale*, the speaker wants the hearer to consider a source different from him/herself as the perspective holder for the *ko*-clause. Next, I show how the contrastive focus meaning associated with *ale* also accounts for the absence of referential ambiguity and the obligatory *de se* reading.

10.8.3 Absence of ambiguity

Recall that, within a report sentence, logophoric marking contributes to excluding two possible interpretations that generally arise with normal pronouns. The first one bears on whether the reported individual is referentially identical to an individual participating in the reported event (cf. referential ambiguity). The second one bears on how the reported individual mentally represents (to him/herself) an individual participating in the reported event, i.e., whether s/he consciously identifies him/herself with that individual (*de se* vs. *non de se* reading). For instance, in (99), the presence of *ale* excludes the interpretation that Adama said something about someone other than himself (99a), and the interpretation that Adama unconsciously said something about himself (99b). The sole possible interpretation is (99c).

- (99) Adama ko (ko) ale hakili ka di
 Adama say COMP 3EMP mind COP good
- a. ✗ ‘Adama said about Awa that she is clever.’
 - b. ✗ ‘Adama unconsciously said about himself that he is clever.’
 - c. ✓ ‘Adama consciously said about himself that he is clever.’

I propose that the exclusion of these two interpretations can be accounted for by relying on the general lexical entry proposed for *ale* above, repeated below in (100).

(100) Lexical entry for *ale*

$$\llbracket \textit{ale} \rrbracket^{C,a} = a(i), \text{ defined if } a(i) \text{ denotes neither } S_c \text{ nor } h_c \text{ \& } \\ \lambda P : \forall y [y \in \text{ALT}(a(i))] \& y \neq a(i) \rightarrow P(y) = 0. P(a(i)) = 1$$

Specifically, I argue that the absence of referential ambiguity and the obligatory *de se* reading associated with the logophoric use of *ale* is due to contrastive focus involving the exclusion of alternatives. On the premise that alternatives are context-dependent (see Rooth 1992, Krifka 2008, Zimmermann and Hole 2009, Krifka and Musan 2012, Hole 2017), I propose defining the alternatives excluded in logophoric contexts as members of *ELSE*, the set containing any individual with whom the logophoric antecedent does not mentally identify himself/herself. Accordingly, the lexical entry for the logophoric use of *ale* is adapted as follows.

(101) Lexical entry for logophoric *ale*

$$\llbracket \textit{ale} \rrbracket^{C,a} = a(i), \text{ defined if } a(i) \text{ denotes neither } S_c \text{ nor } h_c \text{ \& } \\ \lambda P : \forall y [y \in \text{ELSE}(a(i))] \& y \neq a(i) \rightarrow P(y) = 0. P(a(i)) = 1, \\ \text{where } \text{ELSE}(x) \text{ is the set of alternatives containing third-person} \\ \text{individuals with whom } x \text{ does not mentally identify him/herself} \\ \text{(with regard to } P\text{).}$$

(101) captures the idea that the logophoric use of *ale* is much like its use outside logophoric contexts. In either case, the presence of the pronoun involves contrastive focus meaning. The logophoric use is just unique as for the type of antecedent targeted by the pronoun, and relatedly the nature of alternatives being excluded. Here, the members of *ELSE* are defined based on the property of the logophoric antecedent. They are third-person individuals as usual, but their identification depends on the mental

state of the logophoric antecedent. Being the source of the logophoric clause, the logophoric antecedent intrinsically entertains a mental relation to its content, including any individuals participating in the event it describes (cf. Sells 1987). These participants could be of two types: individuals with whom the logophoric antecedent mentally identifies her/himself, contrasting with those with whom s/he does not mentally identify her/himself. Therefore, we propose that the exclusion effect of contrastive focus targets those individuals with whom the source logophoric antecedent does not mentally identify him/herself.

Now let us see how this predicts the absence of both referential ambiguity and *non de se* readings. Consider (102).

- (102) a. Context 1
 After reviewing a paper of his friend Madu, Adama comes to say to himself: "Madu is smart."
 b. Context 2
 After reading an old paper of himself, amnesic Adama comes to say to himself: "This guy is smart."

In (102a), Adama talks about an individual different from himself, while in (102b), he talks about himself without being aware of that. However, from the mental state of Adama, the two situations are the same: he does not mentally identify himself with the individual about whom he is talking. Since, according to (101), the use of logophoric *ale* presupposes the exclusion of individuals with whom the logophoric antecedent (here Adama) does not mentally identify himself, the sentence in (103) is infelicitous as a report sentence for (102a) and (102b).

- (103) Adama ko (ko) ale hakili ka di [~~×~~ C1, ~~×~~ C2]
 Adama say COMP 3EMP mind COP good
 'Adama said that he is smart.'

Using *ale* in the first case would result in the pronoun referring to someone else than the logophoric antecedent, and in the second case, coreference with the logophoric antecedent would have reflected a *non de se* reading. Thus, the contrastive focus meaning associated with *ale* has the effect that, in logophoric contexts, the pronoun can neither refer to anyone other than the logophoric antecedent nor have a *non de se* reading.

Reversely, since the use of *ale* only excludes reference to a member of ELSE, a report sentence with *ale* is predicted to be felicitous whenever a reference is made to non-members of ELSE, i.e., to individuals with whom the logophoric antecedent mentally identifies himself/herself. On the one hand, this includes contexts where that individual is referred to by other means than first-person pronouns (see 10.3.1). For example, while in (104a) Adama ascribes himself the property "smart" using a first-person, he does so in (104b), using a second person. In any case, it is clear from the context that the person Adama is ascribing the property "smart" is not a member of ELSE, i.e., s/he is not an individual with whom Adama does not mentally identify himself. This explains why (105) is felicitous as a report sentence.

- (104) a. Context 1
Proud of his academic achievements, self-obsessed Adama said to himself: "I am smart."
- b. Context 1
Proud of his academic achievements, self-obsessed Adama watching himself in a mirror, said: "Dude, you are smart."
- (105) Adama_i ko **ale**_i hakili ka di [✓ C1, ✓ C2]
Adama say 3EMP mind COP good
'Adama_i said that he_i is smart.'

On the other hand, there may also be situations where the logophoric antecedent mentally identifies himself/herself with someone s/he is physically not. This is the case, for instance, in dreams.

- (106) a. Context
Amadu and Amade are twin brothers who love the same girl, Fatu. Fatu, however, is Amadu's girlfriend. For this reason, Amade envies his brother. Indeed, he secretly longs to be in his brother's shoes. He wishes it was him Fatu loves instead of his brother Amadu. Obsessed with this wish, Amade sometimes dreams that he is his brother Amadu and hears Fatu saying to him: "Amadu, I love you."
- b. Report
Amade sugo-la ko Fatu be ale kanu
Amade dream-PFV COMP Fatu HAB 3SG love
'Amade_i dreamed that Fatu loves him_i.'

Although not discussed before, the literature has acknowledged that LPs may be used within dream report sentences against situations like (106a), where the dreamer dreams of being someone else (see Anand 2006, Pearson 2013, 2015, 2018). That (106b) is felicitous shows that this observation also applies to the logophoric use of *ale* in Jula. Under our approach, however, the dream situation described in (106a) does not much differ from the situations in (105). Here, too, the felicitous use of *ale* referring to Amade is due to the latter's mental state being such that he identifies himself with the person being loved, i.e., the person whose denotation when applied to the predicate "love" leads to a true proposition. In other words, the individual whose denotation leads to a true proposition is not a member of ELSE, i.e., an individual with whom Amade does not mentally identify himself.

In sum, with the proposal, we predict the logophoric use of *ale*. It is an instance of contrastive focus, whereby the pronoun takes a third-person source DP as antecedent. Here, the contrastive focus meaning associated with *ale* triggers the exclusion of individuals with whom the third-person source DP does not identify himself/herself. On the other side, this implies that using *ale* invokes reference only to individuals with whom the logophoric antecedent mentally identifies him/herself. The consequence is the absence of ambiguity: (i) *ale* cannot refer to anyone else than the logophoric antecedent, (ii) it is interpreted *de se* and does not have a *non de se* reading. In the same vein, it goes without saying that, since it is not associated with contrastive focus along with the exclusion of alternatives, the use of *a* in logophoric contexts "is fated" to exhibit ambiguities: (i) the pronoun can refer either to the logophoric antecedent or not, (ii) it can have a *de se* reading or a *non de se* reading.

Hoping that this correctly explains the logophoric use of *ale*, and beyond the interpretative difference between the latter and the simple form *a*, I now turn to the conclusion of the chapter.

10.9 Conclusion and outlook

In this chapter, we have discussed the phenomenon of logophoricity in Jula, as exemplified below.

(107) a. Speaker_{source} [DP_{source,[3SG]...} Pred... [... **ale** ...]_{ko-clause}]

logophoric reference

b. Adama Ꞥ na [ko ale hakili ka di]
 Adama eye PostP COMP 3EMP mind COP good
 ‘Adama_i thinks that he_{i/dese} is clever.’

c. Excluded interpretations

(i) Adama_i thinks that he_j(Madu) / she_j(Awa) is clever.

(ii) Adama_i thinks that he_{i/nondese} is clever.

Jula does not have a dedicated LP. Instead, within report sentences expressed by *ko*-clause complementation, logophoricity is marked by the third-person emphatic pronoun *ale* (pl. *olu*). In that use, the pronoun exclusively refers to a third-person source DP of the logophoric clause, i.e., the *ko*-clause (cf. absence of referential ambiguity), and it is obligatorily read *de se* (cf. absence of perspective ambiguity). Here, *ale* contrasts with its third-person simple form counterpart, *a*, which is ambiguous between a logophoric and a non-logophoric interpretation.

Now, outside logophoric contexts, the use of *ale* involves contrastive focus: unexpectedness effect and the exclusion of alternatives for the antecedent. Crucially, this meaning effect is part of its form, induced by the contrastive focus particle *le*. Having shown that the logophoric use of *ale* cannot be an instance of binding, we have proposed to relate the latter to the non-logophoric use, i.e., to contrastive focus. Thus, logophoricity arises due to the unexpectedness and exclusion effects associated with contrastive focus. Unexpectedness, along with the third-person feature of *ale*, is responsible for the fact that the logophoric antecedent is a third-person source of the *ko*-clause: with the use of *ale*, the speaker conveys that the hearer should consider a source different from him/herself as the perspective holder for the *ko*-clause. The exclusion of alternatives triggers the absence of referential ambiguity and the obligatory *de se* reading. Here, the excluded alternatives are defined as members of ELSE: the set containing third-person individuals with whom the logophoric antecedent, i.e., the source of the *ko*-clause, does not mentally identify himself/herself. This excludes not only interpretations where *ale* refers to someone other than the logophoric antecedent, but also *non de se* readings. In the same line of thoughts, *a* is ambiguous between a logophoric and a non-logophoric interpretation because its use does not involve contrastive focus, thus the absence of unexpectedness and exclusion effects. So, to take home: in Jula, logophoricity is a natural consequence of the contrastive focus meaning associated with the use of *ale*.

Could the approach adopted for Jula be insightful in explaining logophoricity in other languages? In other words, beyond Jula, how strong is the relation between contrastive

focus and logophoricity? I will leave for future works to answer these questions. For the time being, I want to mention some observations that may be worthy of consideration and reflection in this matter.

In section 10.2.2 (p.201), we have made the observation that the LP in Yoruba has a contrastive focus reading outside logophoric contexts. Added to this, note that Adesola (2005, p. 162) observes that a logophoric construction, such as (108), may “sometimes have a contrastive focus reading.”

- (108) Olú_i ti kéde pé ó_{*i} rí bàbá òun_i
 Olu ASP announced that he see father him
 ‘Olu_i has announced that he_{*i} saw his_i father.’

Adopting an OBA-based analysis, Adesola does not discuss an eventual correlation between the contrastive focus reading and the logophoric interpretation of *òun*. Nevertheless, if it is true that in its logophoric use, *òun* may also have a contrastive focus reading, we may have, with Yoruba, another language than Jula, in which a relation between contrastive focus and logophoricity can be established.

Edo (Benue-Congo, Nigeria) can be considered another language. Here, logophoricity is marked with the pronoun *írɛn* (109).

- (109) Based on Baker (2021)
 Òzó miànmián wèè **írɛn** kié èkhù.
 Ozo forgot that he+F opened door
 ‘Ozo_i forgot that he_{i/*k} opened the door.’

Interestingly, as pointed out by Adesola (2005, p. 220), Baker (1998) considers the logophoric use of *írɛn* a consequence of its [+FOC] feature. However, as it appears, what is called focus marker in Edo, i.e., *ré*, seems to express a meaning similar to it-clefts, that is, contrastive focus, as the English translation below suggests.

- (110) Baker and Stewart (1997, p. 44)
 Àdésúwà òre Ùyì kókò(-rò) mèsèmèsè.
 Adesuwa FOC Uyi raise-RV beautiful(A)
 ‘It’s Adesuwa that Uyi raised to be beautiful.’

This assumption is even more apparent if one considers the morphological make-up of the form. According to Omoruyi (1989), *ré* literally means ‘it be’, as it is composed of the third-pronoun *ò* and the copula *ré*. So, if Baker is correct in that the logophoric interpretation of *írɛn* is due to *ré* being part of its feature specification, we have with Edo a further confirmation for a correlation between contrastive focus and logophoricity.

Another way to illustrate such a correlation is with so-called emphatic pronouns. Typological works by von Roncador (1992) and Güldemann (2003) reveal a consistent tendency for languages to recruit such forms to mark logophoricity. As observed by Zimmermann et al. (2008) and Hartmann (2008), emphasis often appears to be a case of or not distinguishable from contrastive focus. Therefore, it is not surprising that in Jula, the emphatic pronoun *ale* is associated with a contrastive focus reading. On that basis, the choice of language to use emphatic pronouns as a logophoric marker may suggest a general typological tendency to encode logophoricity using the meaning effects of contrastive focus. So far, we are not aware of any work that permits us to confirm

this for the case of logophoric marking in African languages. Nevertheless, the non-African language Catalan exhibits aspects of logophoric marking that may point to fruitful directions concerning this assumption.

(111) Based on Abaitua (1991, p. 1022)

Mirenek_i esan du [bera_i joango dela]
Miren say aux she+LOG go aux-COMP
'Miren_i said that she will go.'

According to Abaitua (1991), Catalan marks logophoricity with the emphatic pronoun *bera(k)*. As she explains, the logophoric reading of *bera(k)* results from the fact that when referring to the subject of the verb *say*, i.e., *Miren*, the interpretation of the pronoun is associated with the meaning *x and not others*; the meaning effect of contrastive focus. Explained differently: the emphatic pronoun *bera(k)* is associated with a contrastive focus, giving rise to a logophoric interpretation when the pronoun refers to the subject of a verb like *say*. This is an exact parallel to how logophoricity arises with *ale* in Jula.

In sum, the above observations appear to point towards extending the approach adopted for Jula to other logophoric languages. Addressing the logophoric use of pronouns in perspective with their non-logophoric uses will undoubtedly shed more light on the true nature of the phenomenon. It is even possible that other factors than contrastive focus are involved and that, at the end of the day, logophoricity is not as "exotic" as it appears.

Chapter 11

Conclusion

This work set out to explore the domain of complementation in Jula, focussing on two types of complements: infinitival clauses and *ko*-clauses. We have discussed topics concerning (i) the relation of the complement clause to the (hosting) matrix clause, (ii) the internal and external syntax of complement clauses, (iii) the function and syntax of complementizers, and (iv) referential dependencies within complementation sentences. From these discussions, we have arrived at the following results.

Chapters 3 and 7 have provided evidence for the existence of infinitival and *ko*-clause complementation, respectively. We have shown that infinitival clauses, as well as finite *ko*-clauses in Jula, may be used as arguments of certain predicates, lexical verbal, but also periphrastic. In this respect, infinitival clauses behave in pairs with nominal arguments: (i) they contribute to the meaning of the predicate with which they occur, (ii) their distribution is dependent on the predicate with which they occur, (iii) fronting them requires a left-dislocation sentence configuration. As for *ko*-clauses, not only do they exhibit the properties of embedded structures, forming a phonological, semantic and pragmatic unit with their hosting matrix clauses, but also, like infinitival clauses, their presence contributes to the meaning of the matrix predicate. Although they semantically function as arguments, both infinitival clauses and *ko*-clauses never occupy the same argument positions as nominal arguments. Thus, whether they function as subjects, direct or oblique objects, they always occur to the right of their hosting matrix clause. In some cases, their argument status within the matrix clause is indicated by the presence of a relating correlate, i.e., the pronoun *a* (see section 3.3.1). In other cases, however, the correlate is absent. This produces for each type of complements two structures. Consider (1) and (2).

(1) Complement clauses with correlates

a. subject infinitival complement clause

a ka di Awa ye [kà bon lɔ]
3SG COP good Awa PostPINF house build
'It pleases Awa to build houses.'

b. object complement *ko*-clause

Awa be **a** lɔn ko Adama ye bon lɔ
Awa HAB 3SG know COMP Adama PFV house build
'Awa knows that Adama has built a house.'

- (2) Complement clauses without correlates
- a. oblique infinitival complement clause

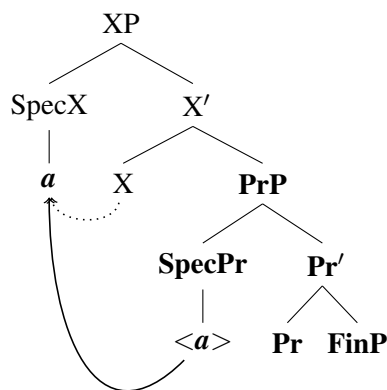
Awa sɔn-na [kà bon lɔ]
 Awa accept-PFV INF house build
 ‘Awa accepted/agreed to build a house.’

- b. oblique complement *ko*-clause

Awa jɪnɛ-na ko Adama ye bon lɔ
 Awa forget-PFV COMP Adama PFV house build
 ‘Awa forgot that Adama has built a house.’

Explaining the positional difference between nominal arguments and complement clauses, on the one hand, and the distribution of correlates within complementation sentences, on the other hand, has been the primary goal of chapter 5. Focussing on infinitival complement clauses, I have proposed that any complementation sentence in Jula results from implementing the following abstract structure.

(3)



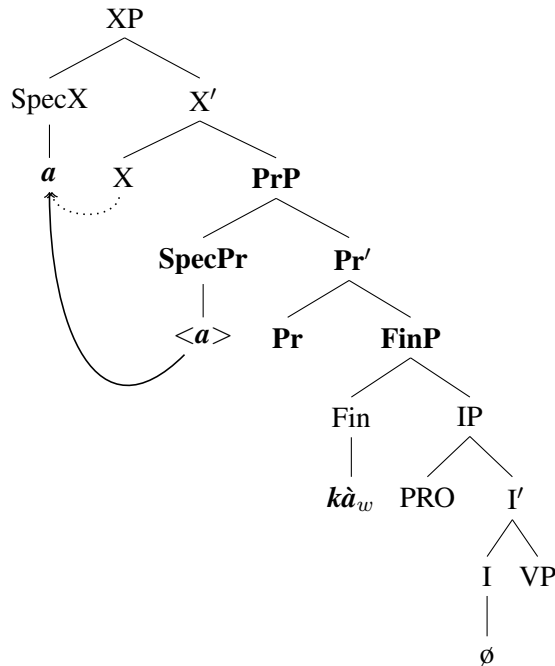
In (3), the position of the complement clause to the right of the hosting matrix-clause is considered a case of base-generation. The complement clause enters the derivation as a part of a predication phrase together with the relating correlate. Later on, due to Case-assigning requirements, the correlate moves within the matrix clause, where it gets nominative, accusative, or oblique Case from a Case-assigning head X, which may be an I-head, a lexical verb, or an adpositional head, respectively. For the same reason, the complement must remain in situ, clauses being Case-less per nature. Thus, although related to each other, the correlate and the complement clause surface at two different positions. The absence of a correlate with some complement clauses is related to the absence of the respective Case-assigning head, and the following principle regulates it.

(4) **Condition on overt SpecX**

Only the specifier position of an overt Case assigning head can be realized overtly. Thus, a DP occupying the specifier position of a covert Case assigning head remains unrealized at the surface.

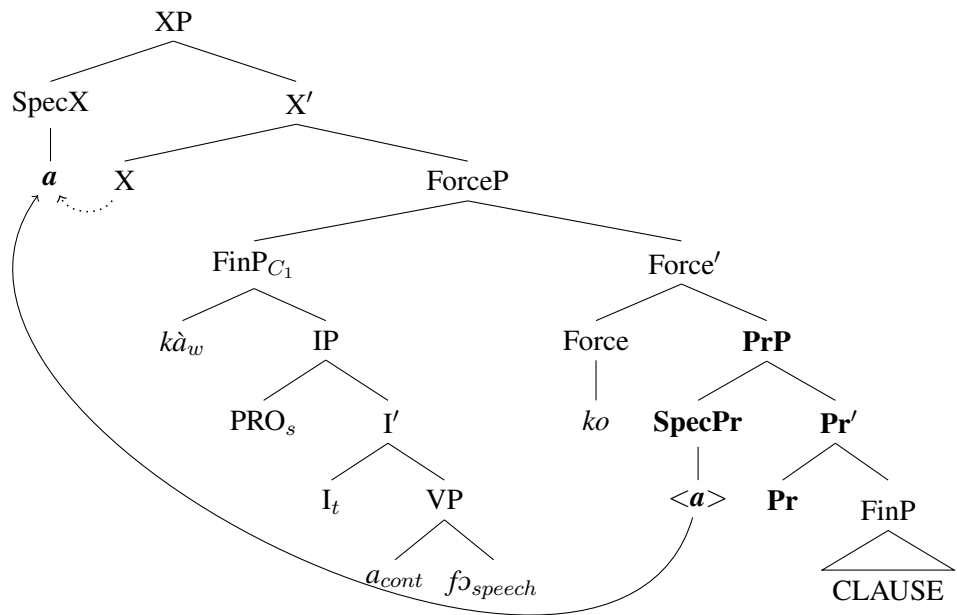
The insights in (3) and (4) apply to complementation sentences involving infinitival clauses and *ko*-clauses. Nevertheless, the structure underlining the derivation of each complement type is different. The derivation of infinitival complementation sentences roughly involves the structure in (5).

(5) Derivation of infinitival complementation



The *ko*-clause complementation, by contrast, is derived based on the structure in (6).

(6) Derivation of *ko*-clause complementation



In both (5) and (6), the predication relation between the correlation and the complement clause operates at the FinP level. In that, the derivation of infinitival complementation and *ko*-clause complementation parallel. The difference lies in that, with *ko*-clauses, unlike with infinitival clauses, the predication phrase does not directly merge with the matrix

clause. Instead, it is embedded within a higher projection, ForceP. This difference is motivated partly by the internal and external syntax of the two complement clauses and partly by the syntax and function of their introducing heads, i.e., the complementizers *kà* and *ko*, respectively.

In this respect, some conclusions from chapter 3 are that Jula infinitival clause contains a VP, but they can neither be inflected nor negated, and they also lack an overt subject (cf. 3.4). Nevertheless, the scope of adverbs within infinitival complementation sentences shows that infinitival clauses in Jula contain an IP projection with a null I-head (cf. 3.5). Similarly, the binding properties of reflexives and reciprocals within infinitival clauses indicate the presence of a null subject, e., PRO., in the specifier position of that IP projection (cf. 3.6). Chapter 4 has proposed that the infinitival marker *kà* is a complementizer with the properties of a Fin head, and accordingly, that infinitival clauses in Jula are FinP projection à la Rizzi (1997). Being a Fin head, the function of *kà* is associated with the absence of finiteness: it bears the information that the clausal content it introduces, i.e., the IP projection, is not related to an evaluation world. This explains why the infinitival clauses in Jula inherently lack both truth-values and illocutionary force. Implementing that idea, we have proposed that the latter *kà* hosts a variable *w*, which takes a (state of) world as its value. Also, we have suggested that the binding of the variable *w* accounts for the distribution and interpretation of infinitival clauses in Jula.

As for complement *ko*-clauses, chapter 7 has made clear that, in addition to a VP domain, they have a separate negation domain and, therefore, a separate IP domain, given that negation in Jula is expressed within the IP domain. Chapter 8 has discussed evidence for treating *ko* as a complementizer, bringing out arguments from the grammaticalization process of complementizers (cf. 8.3.1), their crosslinguistic distribution (cf. 8.3.2), and their syntax (cf. 8.3.3). On this basis, we have established that the *ko* that introduces complement *ko*-clauses is only one instance of the complementizer *ko*, which also introduces main clauses and causal clauses. In any of these instances, *ko* exhibits the properties of a Force head complementizer à la Rizzi (1997), making, therefore, any *ko*-clause a ForceP projection associated with the implication that the source of their content is identifiable. Building on chapter 8, chapter 9 aimed to identify the function of the complementizer *ko* in *ko*-clause complementation. This was done by putting the latter in perspective with its occurrence in main and causal clause sentences and other non-complementizer uses of the morpheme *ko*. Thus, considering its verbal origin, I have proposed that the complementizer *ko* functions as a Relator: it relates or anchors a clause to a discourse context different from the actual discourse context (7); a function that echoes with its Force features.

- (7) a. $\llbracket ko \rrbracket = \lambda p. \lambda C_2 \langle s_2, h_2, t_2, w_2 \rangle. \lambda C_1 \langle s_1, h_1, t_1, w_1 \rangle [\text{ANCHOR}(C_1 \langle s_1, h_1, t_1, w_1 \rangle)(p)] \ \& \ C_1 \neq C_2$
 b. There is a discourse context C_1 to which a clausal content p pertains, whereby C_1 differs from the actual discourse context C_2 .

That the relevant discourse context forms part of the syntax of *ko*-clause complementation has been argued based on data like (8).

- (8) a. Awa hakili la (*kà a fɔ*) ko ale kelen ka cegu yan
 Awa.POSS mind PostP INF 3SG say COMP 3EMP alone COP clever here
 ‘Awa thinks/believes that only she is clever here.’
 b. Awa be a lon (*kà a fɔ*) ko Adama ye wari sonya
 Awa HAB 3SG know INF 3SG say COMP Adama PFV money steal
 ‘Awa knows that Adama has stolen the money.’

Thus, it is a speech context represented by the optionally realizable FinP *kà a fɔ*, which occupies the specifier position of the ForceP projection headed by *ko*. Within that FinP: the Fin complementizer *kà* is associated with the information about the world, the null subject PRO stands for the discourse participant speaker, the null I-head is associated with the information on time, and the pronominal form *a* stands for the speech's content, i.e., what is said. This is the reason for the structure in (6). Not only that: the presence of the speech context within the syntax of *ko*-clause complementation is also the reason why *ko*-clauses are often associated with reportative and speech act readings (cf. 9.6.2 and 9.6.3). It also allows explaining why within *ko*-clause complementation, the main argument of the matrix clause is considered the default source of the *ko*-clause's content. We have argued that this arises from control: the PRO speaker of FinP discourse context is controlled by the main argument of the matrix clause (9.6.4).

Control and logophoricity are two phenomena that concern referential dependencies within complementation sentences. They have been the topic of chapters 6 and 10, respectively. Control takes place within infinitival clause complementation and is defined as the referential dependency relation between the null subject of an infinitival (complement) clause, i.e., PRO (the controllee), and an overt argument of the relating matrix clause, the controller (9).

(9) Typical control constructions in Julia

a. Subject control

Awa_i bɛ a fɛ [kà PRO_i bon lɔ]
 Awa COP 3SG at INF PRO house build
 'Awa_i wants PRO_i to build a house.'

b. Object control

Awa_i ye **Adama_j** karaba [kà PRO_{*i/j} bon lɔ]
 Awa PFV Adama force INF PRO house build
 'Awa_i forced Adama_j PRO_{*i/j} to build a house.'

c. Possessor control

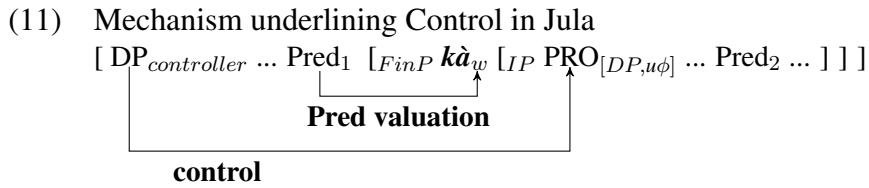
Awa_i **hakili** bɛ a la [kà PRO_i bon lɔ]
 Awa.POSS mind COP 3SG PostP INF PRO house build
 'Awa_i hopes PRO_i to build a house.'

Based on the grammatical function of the controller, three control constructions have been identified in Julia: subject control, where a subject DP controls PRO, object control, where PRO is controlled by an object DP, and possessor control, where the controller of PRO is a possessor DP. In any case, control in Julia exhibits the following properties:

(10) The main properties of control in Julia

- a. PRO is a minimal pronoun, i.e., a pronoun with no feature specification.
- b. PRO is invariably and exhaustively controlled by a unique argument of the matrix clause
- c. The control relation is an instance of obligatory control (OC)
 - (i) Arbitrary control is impossible
 - (ii) Long-distant controllers are impossible
 - (iii) PRO is interpreted as a bound variable

Finally, we have argued that the control relation in Julia comes about via binding, favored by a combination of factors (11).

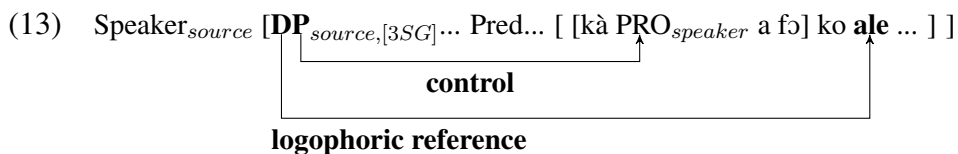


In (11), the binding of PRO by an argument of the matrix clause is triggered by the embedding (matrix) predicate ($Pred_1$) binding the world variable hosted by the complementizer *kà* (cf. predicate valuation in 4.5.5). The choice of the controller is predictable from the meaning of the embedding (matrix) predicate. Nevertheless, for the control relation to succeed, the controller must denote an entity or individual that is semantically capable of participating in the situation depicted by the infinitival predicate ($Pred_2$).

As for logophoricity, it happens within report sentences, which in Julia typically take on the form of a *ko*-clause complementation sentence. Thus, in reference to Julia, logophoricity can be defined as the type of referential dependency between the third-person emphatic pronoun *ale* (pl. *olu*) and a third-person source DP of the complement *ko*-clause (12).

- (12) a. Adama_i kó (ko) **ale**_{i/*j} hakili ka di.
 Adama say COMP 3EMP mind COP good
 ‘Adama_i said that he_{i/*j} is clever.’
- b. (a bɛ) **Adama**_i jɛ na ko Awa bɛ **ale**_{i/*j} fɛ
 3SG COP Adama.POSS eye PostP COMP Awa COP 3EMP PostP
 ‘Adama_i thinks/believes that Awa likes him_{i/*j}.’

Since the source DP of the *ko*-clause is the controller of the PRO speaker argument of the discourse context associated with the *ko*-clause, logophoricity intrinsically goes along with control. However, although the two relations overlap, they are independent of each other. In the logophoric relation, the pronoun directly picks up its antecedent within the matrix clause, resulting in a long-distance referential dependency (13).



That long-distance referential dependency exhibits two main defining properties. The first is the absence of referential ambiguity: the pronoun *ale* exclusively refers to the third-person source DP. The second one is the absence of perspective ambiguity: the pronoun is exclusively interpreted *de se*, indicating that the source DP consciously identifies him/herself with the reference of the pronoun (*ale*), i.e., the person about whom the content of the report is. These properties are intriguing, mainly because they are not attested with the simple form counterpart of *ale*, i.e., *a*.

Nevertheless, from a typological perspective, the logophoric system of Julia is nothing new. For instance, as in many logophoric languages, the marking strategy involves a non-dedicated LP, a pronoun whose use is not confined to logophoric contexts. In this respect, we have shown that outside logophoric contexts, the use of *ale* involves contrastive focus:

unexpectedness effect and the exclusion of alternatives for the antecedent. This meaning effect, which is absent with the simple form *a*, is part of *ale*'s morphology and induced by the contrastive focus particle *le*.

(14) Meaning contribution of *le*

$$\llbracket le \rrbracket = \lambda x. \lambda P : \forall y [y \in \text{ALT}(x)] \ \& \ y \neq x \rightarrow P(y) = 0. \ P(x) = 1$$

(15) Lexical entry for *ale*

$$\begin{aligned} \llbracket ale \rrbracket^{C,a} &= a(i), \text{ defined if } a(i) \text{ denotes neither } S_c \text{ nor } h_c \ \& \\ &\lambda P : \forall y [y \in \text{ALT}(a(i))] \ \& \ y \neq a(i) \rightarrow P(y) = 0. \ P(a(i)) = 1 \end{aligned}$$

Building on (14) and (15), we have proposed to relate the logophoric use of *ale* to contrastive focus. Thus, logophoricity arises due to the unexpectedness and exclusion effects of contrastive focus in terms of contrastive focus. Unexpectedness, along with the third-person feature of *ale*, is responsible for the fact that the logophoric antecedent is a third-person source of the *ko*-clause: with the use of *ale*, the speaker conveys that the hearer should consider a source different from him/herself as the perspective holder for the *ko*-clause. The exclusion of alternatives triggers the absence of referential ambiguity and the obligatory *de se* reading. Here, the excluded alternatives are defined as members of ELSE: the set containing third-person individuals with whom the logophoric antecedent, i.e., the source of the *ko*-clause, does not mentally identify him/herself (16).

(16) Lexical entry for logophoric *ale*

$$\begin{aligned} \llbracket ale \rrbracket^{C,a} &= a(i), \text{ defined if } a(i) \text{ denotes neither } S_c \text{ nor } h_c \ \& \\ &\lambda P : \forall y [y \in \text{ELSE}(a(i))] \ \& \ y \neq a(i) \rightarrow P(y) = 0. \ P(a(i)) = 1, \\ &\text{where } \text{ELSE}(x) \text{ is the set of alternatives containing third-person} \\ &\text{individuals with whom } x \text{ does not mentally identify him/herself} \\ &\text{(with regard to } P\text{)}. \end{aligned}$$

To be sure, in Jula, logophoricity is a natural consequence of the properties associated with the pronoun *ale*. As such, the entry in (16) excludes not only interpretations where *ale* refers to someone other than the logophoric antecedent, but also *non de se* readings. In the same line of thoughts, *a* is ambiguous between a logophoric and a non-logophoric interpretation because its use does not involve contrastive focus.

While contrastive focus is responsible for the choice of the logophoric antecedent and the interpretative effects that come along, logophoricity involves a long-distance referential dependency because of the ban of local antecedents for *ale* (17).

(17) Locality restrictions on *a* and *ale*

- a. *a* takes both local and non-local antecedents
- b. *ale* never take local antecedents.

This locality restriction is one reason why, unlike with control, logophoricity in Jula cannot be treated as an instance of binding. Another is that the cross-linguistic behavior of LPs also appears inconsistent with treatment along the lines of a binding-based approach. In contrast, there is a chance that other language systems use a strategy similar to Jula: marking logophoricity through contrastive focus.

How great such a chance is, is a question that we leave for further work, and this, together with many other open issues in connection with Jula complementation that have not been discussed in the present work. For instance, particularly interesting to further explore is the semantics of complementation sentences, specifically those involving *ko*-clauses. What does it semantically mean for a complement clause to be associated with its "own" discourse context? How can this be implemented formally? What are the theoretical consequences for our understanding of complementation?

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