Size Matters

Clause structure and locality constraints
in Swahili relatives

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Abstract

This thesis investigates the relationship between clause structure and the locality of movement dependencies in Swahili relatives. It is proposed that relative clauses and complement clauses in Swahili some in several structural sizes, with supporting evidence for morphosyntax and the distribution of DPs. Given this proposal, a careful examination of cross-clausal movement forming relative clauses reveals a striking correlation: cross-clausal movement to form smaller relatives is only possible out of smaller complement clauses. The connection between the size of relatives and the locality of movement is taken to a special case of the Williams Cycle, a general syntactic constraint connecting height of movement in the clause to its locality. A novel implementation of the Williams Cycle in terms of the timing and organisation of syntactic structure building is proposed. It is shown that this specific implementation can be made to accommodate successive-cyclic movement through the vP edge. The resulting implementation of the Williams Cycle allows us to resolve certain tensions between different areas of research in the locality of movement.

Acknowledgements

> "To be whole is to be part; true voyage is return."
>
> Ursula K. LeGuin, *The Dispossessed*

I spent almost four years wandering the highways and byways of Swahili grammar, despite a global pandemic. The return leg of this voyage was a frantic three and a bit month thesis-sprint. I ended up scattering intuitions in the nooks and crannies of the thesis. During the revisions I have managed to help these intuitions sit a bit more comfortably and to tilt them toward the light. I hope some of them might grow into something interesting one day. What I was able to do, many people have made possible. I'm now more certain than ever that research is a deeply collaborative and social endeavour. It is my pleasure to thank a legion of deliberate and accidental helpers, who made the journey easier and much more enjoyable.

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TASM
Geneva, July 2024

"To possess a telescope without its other essential half—the microscope—seems to me a symbol of the darkest incomprehension. The task of the right eye is to peer into the telescope, while the left eye peers into the microscope."

Leonora Carrington

Contents

Chapter 1

Introduction

1.1 The key idea

Across natural languages movement dependencies come in variety of types, with a range of interpretative effects and interactions with other morphological or syntactic processes. This is illustrated below in (1) using four familiar kinds of movement from English.

(1) **Four movement dependencies in English**

a. **Tom**$_j$ seems [**t**$_j$ to make the pilav]. Raising

b. **What**$_i$ does Tom seem [to make **t**$_i$]? Wh-movement

c. This is the **pilav**$_i$ that Tom seems [to make **t**$_i$]. Relativisation

d. **The pilav**$_i$, Tom seems [to make **t**$_i$]. Topicalisation

An abiding concern of syntactic theory is the nature of restrictions on movement dependencies. It has been observed since at least Ross (1967) that there are a range of structural configurations - islands - out of which movement is not possible. Since the seminal work of Ross, linguists have attempted to formulate generalisations about island contexts, aiming at a simple and general set of locality constraints that might follow from the very architecture of the grammatical system.

The environments featuring prominently in this research tradition are notable for their complete blocking of movement dependencies, irrespective of the particular kind of movement in question. Certain relative clauses constitute on such environment out of which no

movement is not possible. This is shown below in (2). These inform proposals about locality such as *phases* (or barriers) (Chomsky 1986, 1995, 2000, 2001), in which certain abstract structural properties constitute absolute obstacles to movement. It doesn't matter what is moving or where it is trying to go, it just cannot leave certain structural domains.

(2) **Blanket restriction on movement out of relative clauses**

a. *__Tom__ seems to like [the pilav that **t** made] Raising

b. *__Who__ did you eat [the pilav that **t** made]? Wh-movement

c. *I met __the person__ [who you ate [the pilav that **t** made]] Relativisation

d. *That guy, you ate [the pilav that **t** made] Topicalisation

Not all restrictions on movement have this blanket character. There are environments which allow some syntactic dependencies to cross their boundary relatively freely, whilst stopping other dependencies in their tracks. This can be illustrated by making minimal pairs of the English sentences in (1), substituting their infinitival clausal complement for a finite one as in (3). The major change is that raising, but no other movement dependency, is excluded. This is the ban on hyperraising, i.e. raising out finite complements. To borrow a term from Keine (2016), what seeing here could be described as a kind of *selective opacity effect*. Finite clauses are opaque, but only to raising.

(3) **Movement out of English finite complements**

a. *__Tom__$_j$ seems [**t**$_j$ made pilav]. Raising ✗

b. __What__$_i$ does it seem [Tom made **t**$_i$]? Wh-movement ✓

c. This is the __pilav__$_i$ that it seems [Tom made **t**$_i$]. Relativisation ✓

d. __The pilav__$_i$, it seems [Tom made **t**$_i$]. Topicalisation ✓

There are quite a number of effects like (3) which have fallen under another general locality principle, namely (*relativised*) *minimality* (or minimal search) (Rizzi 1990, Chomsky 1995). Minimality effects reflect a preference in grammars to choose the closest relevant participants for syntactic dependency. Some selective opacity effects are arguably the result of an intervening element which is a closer (and therefore better) participant in the

syntactic dependency. This idea that there is "something in the way" has been applied to restrictions on cross-clausal movement by Abels (2012) and Halpert (2019).

An alternative way of looking at selective opacity effects like (3) was explored under rubric of *improper movement* (e.g. Chomsky, 1973; May, 1979; Chomsky, 1981). The improper movement tradition focuses on the fact that the locality difference in (3) correlates with a difference the final landing site for movement. For raising it is Spec, TP, whereas the other movement types target a more peripheral position, Spec, CP. Very broadly, one could think that these locality effects reflect the grammar's concern with the *pathways* taken to certain destinations. A range of work Williams (e.g. 2003, 2011), Keine (2016, 2019, 2020), and Poole (2023) has identified restrictions with this same general character, transcend the contrast between raising and wh-movement.

The key empirical contribution of this thesis is identifying a novel instance of selective opacity in Swahili (*Kiswahili*), a Bantu language spoken across East Africa. The selective opacity effects in question concern the movement dependencies that form relative clauses (e.g. Barrett-Keach, 1980; Vitale, 1981). The basic puzzle is that relative can be formed with or without a complementiser *amba*. Relatives *amba* can feature long distance movement from the full range of the language's complement clauses. Relatives without *amba*, by contrast, only permit movement out of much more restricted range of complements. The core analytical proposal is that relatives without *amba* are structurally truncated, and feature movement to a lower position in clause (e.g. Spec, TP not Spec, CP).

(4) **Selective opacity effects in Swahili relatives**

a. Relative clauses feature an optional complementiser *amba*.

b. Movement out of certain complement clauses cannot form relatives lacking *amba*.

The selective opacity effects in Swahili reflect restrictions within the improper movement tradition, informally called *the Williams Cycle* Williams (2003, 2011). The basic idea is that one cannot move lower in the functional sequence than any clause boundaries crossed along the way. As a result, movement forming the smaller, *amba*-less relative will be more constrained. The theoretical contribution of thesis is the development of a new implementation of Williams (2003)'s Level Embedding proposal. The present proposal is designed to allow movement lower in functional sequence in very limited but empirically desirable circumstances.

1.2 Language background and methodology

In this section I make some comments concerning data in this thesis, and give a brief introduction to formal properties of Swahili for readers unfamiliar with Bantu languages.

This thesis makes a contribution by drawing on data from Swahili. Some of the data comes from existing grammars and descriptions, especially regarding background facts about the language (Ashton, 1947; Polomé, 1967; Barrett-Keach, 1980; Vitale, 1981; Contini-Morava, 1989; Carstens, 1991; Thompson & Schleicher, 2001; Ngonyani, 2006; Contini-Morava, 2007; Mpiranya, 2014; Gould & Scott, 2019; Scott, 2021). It should be noted that there is currently no descriptive grammar of Swahili suited to needs generative linguists.

Some of the data comes acceptability judgements collected in elicitation sessions over Zoom with two consultants, with some additional email correspondence. My primary consultant, Sylvesta, grew up in Kigoma, Tanzania. Swahili is the language that he uses on a day to day basis, and is most proficient in. My secondary consultant, Lizzie, is Sylvesta's wife and a very proficient L2 speaker of Swahili, with some undergraduate training in linguistics. Elicitation sessions involved discussing Swahili sentences I tried to construct, with an English sentence in mind and a discourse context. All uncited data comes from our elicitation sessions and email/text correspondence. Since there is considerable regional variation in Swahili, it may be that judgements reported here do not apply to all speakers. Naturally there is much that one would want to check with more speakers, since the variation itself may prove illuminating.

Having mentioned that things might vary, at this point it makes sense to give a brief syntactic introduction to Swahili, which will be true in its broad outlines for many varieties of the language. Much of what can be said of Bantu languages syntactically applies to Swahili.[1] Bantuists may be advised to skip this introduction. A few points of difference, concerning issues of agreement, word order and information structure will be pointed out in Chapters 2 and 3.

A Swahili clause is generally composed minimally of an inflected verb. The predominately prefixal verbal morphology relates to tense/mood/aspect, agreement, negation and argument structure. Arguments and adjuncts can be introduced either side of the verb, with S V O being a common word order with simple transitive predicates. The unmarked

1. See van der Wal (2015) for an overview of Bantu syntax.

position for many adjuncts is right of the VP. These properties are illustrated in (5).

(5) **A simple main clause**

Tom a-{na/li/ta}-pika dengu kila siku

1Tom 1-PRS/PST/FUT-cook 10lentil every day

'Tom {is cooking/cooked/will cook} lentils every day.'

A Swahili verb inflected with prefixes and suffixes for argument indexing, tense/modality/aspect and voice. A simplified template for the verbal complex is given below, in (6a), which is largely instantiated in the verb form in (6b). The SM prefix is the leftmost agreement marker in the verbal complex, whereas OM prefix immediate precedes the root following INFL and any relative marking.[2] Following the root there can be several suffixes, traditionally termed *extensions*, which are connected to argument and event structure.[3] All Swahili verbs terminate in a vowel, the *final vowel*, which is sensitive to a number of morphosyntactic factors, such as negation and modality.

(6) **Simplified Swahili verbal template**

a. SM-INFL-(OM)-√-(EXT)-FV

b. Tu- ta- wa- imb -i -a

SM- INFL- OM- √ -EXT -FV

1PL- FUT- 2- sing -APPL -FV

'We will sing for them'

As in other Bantu languages, there is motivation to divide the verbal complex into two distinct morphological/phonological domains: the *macrostem* and the *prefix cluster* (Barrett-Keach, 1986; Myers, 1987; Pietraszko, 2018). This is schematised below in (7).[4] Certain

2. For this reason and to avoid cluttered glossing, I will not explicitly gloss markers as SM or OM.

3. Two common ones are the applicative -i, generally associated with adding an extra argument to the VP, and passive -w, which is associated with an agent demotion process akin to passivisation.

4. In other Bantu languages this grouping is motivated by tone. In the absence of tonal phenomena, Barrett-Keach (1986) motivated the distinction using the placement of the relative marker, which we will cover in due course, and the distribution stress. In essence the INFL-prefix cluster is the domain of secondary stress assignment, whereas the macrostem is the domain of primary stress assignment.

elements can intervene between these two domains. Of recurring interest will be relative markers, pronoun-like elements that have a flexible position within the verbal complex.

(7) **Two (morpho)phonological domains the verbal complex**

$[_{\text{Prefix Cluster}}$NEG- SM- INFL-$]$ $[_{\text{Macrostem}}$OM- $\sqrt{}$ -EXT -FV$]$

Like other Bantu languages, there is a rich noun class system. Classes 1-10 form five pairs, which alternate in number - these are effectively five morphological genders, for different number values (Carstens, 1991). Class 1/2 is the non-personal animate class, used humans and sufficiently animate animals. Classes 11-18 are a mixed bag, 11 and 15 being for abstract nouns and derived nouns respectively, whereas 16-18 are three semantically distinct types of locative.

The paradigm in (8) below shows possible forms of subject and object markers. The first two columns give the forms of personal agreement for singular and plural. The rest of columns give exponents of the traditional noun classes. For glossing purposes, personal marking will always occur with number, e.g. 1SG, 2PLU. The animate classes will be glossed as either 1 or 2. Agreement markers are sensitive to morphosyntactic factors like negation.

(8) **Subject/object markers**

	1st	2nd	1/2	3/4	5/6	7/8	9/10	11	15	16	17	18
SG	ni-	u-/ku-	a-/m-	u-	li-	ki-	i-	u-	ku-	pa-	ku-	m-
PL	tu-	mu-	wa-	i-	ya-	vi-	zi-					

The noun class system is also salient on nominal modifiers. The first generalisations is that almost all nominal modifiers in Swahili, including relative clauses, display some kind of noun class marking, generally at their left edge. Adjectives, numerals, quantifiers, demonstratives, possessive pronouns and PP-like modifiers all display noun class concord.

(9) **Noun class concord**

a. ki-su ki-pya — Adjectives
7-knife 7-new
'new knife'

b. vi-su vi-tatu — Numerals
8-knife 8-three
'three knives'

c. vi-su vi-ngi — Quantifiers
8-knife 8-many
'many knives'

(10) **More noun class concord**

a. ki-su hi-ki — Demonstratives
7-knife PROX.DEM-7
'this knife (proximate to speaker)'

b. ki-su ch-angu — Possessives
7-knife 7-1SG.POSS
'my knife'

c. mpini w-a ki-su ch-a Musa
11handle 11-ASS 7-knife 7-ASS Musa
'the handle of the knife of Musa'

The most important nominal modifiers in this thesis are Swahili's relative clauses. The system of relatives clauses in Standard Swahili can be divided into those with the 'relative complementiser' *amba*, and those which do not.[5] All relative clauses display a morpheme called the relative marker REL, which varies in form with the noun class of the head of the relative. Relative clauses are linearised to the right edge of the noun phrases.[6]

(11) **A relative clause schema for Swahili**

a. $N_{GEN/NUM}$ (Dem/Q/A) [$_{RC}$ (*amba*) ... $REL_{GEN/NUM}$]

b. **The forms of REL depending on gender/person/number of head**

	1st	2nd	1/2	3/4	5/6	7/8	9/10	11	15	16	17	18
SG	ye-	ye-	ye-	o-	lo-	cho-	yo-	o-	ko-	po-	ko-	mo-
PL	o-	o-	o-	yo-	yo-	vyo-	zo-					

5. The distinction between *amba*/*amba*-less RCs appears to be an innovation of the Swahili varieties spoken around Zanzibar Town, which were used as the basis for Standard Swahili (Russell, 1992). Many dialects do not have an *amba*-strategy, but some appear to have something instead of *amba*, e.g the *-enye* strategy reported in Sheng (Shinagawa, 2019).

6. Notice that no person distinctions are made. If personal pronouns are the head of the relative, which is quite natural in certain cleft constructions, they trigger animate (Class 1/2) noun class marker.

1.3 Overview of the thesis

This section is organised into five parts, which summarise the key claims and important facts characterising each contentful chapter of this thesis.

1.3.1 Chapter 2: The clausal spine and complement clauses

This chapter establishes some assumptions about clause structure will prove crucial in later chapters. At the theoretical heart is an maximal clause structure, with three positions for nominals to move to outside of the the thematic domain. Nominals in the lowest position do not surface pre-verbally except in sufficiently small clauses.

(12) **The clause structure of Swahili**
$[_{\text{CP}}$ (DP) $[_{\text{HModP}}$ $[_{\text{TP}}$ (DP) $[_{\text{AspP}}$ $[_{\text{LModP}}$ $[_{\text{AgrSP}}$ (DP) $[_{\text{VoiceP}}$ ...]]]]]]]

The central proposal is that complement clauses come in four different sizes, portions of this maximal clause structure, as shown below (13).

(13) **Four sizes of complement clause**

a. Eric a-li-sema [kwamba Tom a-na-pika dengu] COMP-complements
1Eric 1-PST-say COMP 1Tom 1-PRS-cook 10lentil
'Eric said that Tom is cooking lentils.' $[_{\text{CP}}$ ...]

b. Eric a-li-(mw-)ona [Tom a-ki-pika dengu] *ki*-complements
1Eric 1-PST-1-want 1Tom 1-SIT-cook 10lentil
'Eric saw Tom cooking lentils.' $[_{\text{AspP}}$ ...]

c. Eric a-li-(m-)taka [Tom a-pike dengu] AGR-only complements
1Eric 1-PST-1-want 1Tom 1-cook.SBJN 10lentil
'Eric wants Tom to cook lentils.'$[_{\text{LModP}}$ ...]

d. Eric a-li-jaribu [ku-pika dengu] ku-complements
1Eric 1-PST-try INF-cook 10lentil
'Eric tried to cook lentils.' $[_{\text{VoiceP}}$ ...]

The variation is clause size is partly motivated by considerations of morphosyntax and the internal distribution of nominals. The key points are summarised below in (14). Essentially, as we shrink the complements, the inflectional richness and freedom of word order decreases.

(14) **Empirical summary of complement clauses**

Clause type	Morphosyntax	Pre-verbal Field	Post-verbal subject
COMP	COMP ✓ INFL ✓ SM ✓	Full	✓
ki-	COMP ✗ INFL ✓ SM ✓	Partial	✗
AGR-only	COMP ✗ INFL ✗ SM ✓	Partial	✗
ku-	COMP ✗ INFL ✗ SM ✗	Absent	✗

Having fleshed out some background issues of clause structure, we can turn out attention more firmly to the behaviour of relative clauses. Different aspects of relative clause syntax are discussed in Chapters 3, 4 and 5.

1.3.2 Chapter 3: The size of Swahili relatives

This chapter focuses on internal structure of three descriptive kinds of relative clause identified in previous literature (e.g. Ashton, 1947; Barrett-Keach, 1980; Vitale, 1981; Ngonyani, 2001; Buell, 2002; Ngonyani, 2006). These are shown below in (15), using object relatives.

(15) **Three descriptive kinds of relative clauses in Swahili**

a. Ni-li-nunua [$_{\text{Head}}$ **kisu**] [$_{\text{RC}}$ amba-cho Jini a-li-ki-vunja **t**] *amba* RC
1SG-PST-buy 7knife COMP-7REL 1Jini 1-PST-7-break
'I bought the knife that Jini broke.'

b. Ni-li-nunua [$_{\text{Head}}$ **kisu**] [$_{\text{RC}}$ (*Jini) a-li-cho-ki-vunja Jini **t**] Type 1 *amba*-less
1SG-PST-buy 7knife 1-PST-7REL-7-break 1Jini
'I bought the knife Jini broke.'

c. Ni-li-nunua [$_{\text{Head}}$ **kisu**] [$_{\text{RC}}$ (*Jini) a-ki-vunja-cho Jini **t**] Type 2 *amba*-less
1SG-PST-buy 7knife 1-7-break-7REL 1Jini
'I bought the knife Jini breaks.'

Variation in relative clause size has morphosyntactic consequences, summarised below in (16). *amba* RCs behave like COMP-complements, and can have the full range of tense/modality/aspect marking by virtue of their CP-size. Type 1 *amba*-less RCs fall somewhere between COMP-complements and *ki*-complements in size, and this is reflected in their morphosyntax: they can show tense/aspect prefixes but not modality ones. As a consequence of their very small size, even smaller than AGR-only complements, Type 2 *amba*-less RCs cannot display any INFL prefixes.

(16) **Three morphosyntactic profiles for Swahili RCs**

	amba	Type 1 *amba*-less	Type 2 *amba*-less
INFL prefixes	MOD/TNS/ASP	TNS/ASP	Ø
Negation	Primary/Secondary	Secondary	Ø

The variation in size also has consequences for the distribution of DPs, summarised below in (17). Again, DPs in *amba* RCs behave like those in COMP-complements and main clauses, having the widest degree of freedom. *amba*-less RCs present us with a new kind of word order profile not seen in the smaller complement clauses: although they cannot have pre-verbal subjects or indeed any pre-verbal DPs, they can have post-verbal subjects.

(17) **Three DP-distribution profiles for relative clauses**

Clause size	Pre-verbal subject	Two pre-verbal DPs	Post-verbal subject
$[_{CP} \dots]$	✓	✓	✓
$[_{TP} \dots]$	✗	✗	✓
$[_{AgrSP} \dots]$	✗	✗	✓

Having proposed that Swahili relative clauses come in different sizes, the issue of movement within these different clauses is taken up in the next chapter.

1.3.3 Chapter 4: Clause structure and the locality of movement

This chapter focuses on the possibility of movement dependencies in relative clauses, present in both *amba* RCs and *amba*-less RCs contrary to earlier claims in the literature (Barrett-Keach, 1980) and in line with more recent work by Ngonyani (2001), Gould and Scott (2019), and Scott (2021).

Having established that relatives with gaps can be formed by movement, the second line argument concerns what happens when this movement dependency occurs across a complement clause boundary. I show that our different sizes of relatives differ in according to which sizes of complement clause can contain their base-position. To take a representative example of restructions, the examples below in (18) show that whilst *amba* RCs can have their base position in an COMP-complement, neither type of *amba*-less can.

(18) **Movement out of COMP-complements: only *amba* RC is possible**

a. **Mtu** [$_{CP}$ amba-ye ni-na-amini [$_{CP}$ kwamba **t** a-na-fanya kazi zaidi]] ni Musa.
1person COMP-1REL 1SG-PRS-believe COMP 1-PRS-do work more COP 1Musa
'The person who I believe works the most is Musa.' amba ✓

b.* **Mtu** [$_{TP}$ ni-na-ye-amini [$_{CP}$ kwamba **t** a-na-fanya kazi zaidi]] ni Musa.
1person 1SG-PRS-1REL-believe COMP 1-PRS-do work more COP 1Musa
Intended: 'The person I believe works the most is Musa.' Type 1 amba-less ✗

c.* **Mtu** [$_{AgrSP}$ ni-amini-ye [$_{CP}$ kwamba **t** a-na-fanya kazi zaidi]] ni Musa.
1person 1SG-believe-1REL COMP 1-PRS-do work more COP 1Musa
Intended: 'The person I believe works the most is Musa.' Type 2 amba-less ✗

The wider pattern pattern of movement restrictions, termed the Size-Locality Generalisation, is summarised below. It is argued that apparent exceptions to this pattern involve cross-clausal resumption, i.e. base-generated pronouns which are bound by the relative operator in the higher clause. What I am ultimately proposing is clauses in Swahili come in a *hierarchy of transparency which I implement in terms of a hierarchy of sizes*.

(19) **The Size-Locality Generalisation**
A complement clause C is transparent to extraction forming a relative clause R only if C is smaller or the same size as R.

The Size-Locality Generalisation is the central puzzle that this thesis proposes to solve. The key ingredients, their connection to earlier work and how exactly the restrictions are derived are all outlined in the subsequent chapter.

1.3.4 Chapter 5: Deriving the Williams Cycle

This chapter provides an account of the Size-Locality Generalisation in terms of an implementation of the Williams Cycle, the general idea that movement higher in the functional sequence is more unbounded. In particular, I derive the GBOIM summarised below in (20), very close in spirit to that of Williams (2003, 2011) and Poole (2023).

(20) **Generalised Ban on Improper Movement (GBOIM)**
Movement to [Spec, XP] cannot proceed from [Spec, YP] or across YP, where Y is higher than X in the functional sequence.

The approach taken in this chapter offers a new implementation of the Level Embedding system developed by Williams (2003, 2011) and Poole (2023). The Size-Locality effects arise from the interaction between a featural cyclicity condition (21) and a requirement that clause structure be built in parallel (22).

(21) **The Featural Extension Requirement**
Featural triggers (e.g. [uREL]) on a clausal F can only be representationally altered (valued, checked, satisfied etc.) at the cycle at which they are introduced. Each clausal F is introduced in its own cycle.

(22) **Parallel Derivation and Adjunction**
The Merge of component of clausal sequence applies in parallel across workspaces. Big clauses are embedded low via adjunction (feature-free external Merge).

The basic effect of (22) is to connect the size of a clause to the stage in the derivation in which it is embedded. Bigger clauses are embedded later. This constrains movement by interaction with (21), which essential ensures a short derivational window to for featural triggers of movement to apply. Movement out of big clauses to low positions is ruled out because the relevant featural triggers have been forced to wait around for too long.

The GBOIM that (22) and (21) jointly derive is potentially quite strong, ruling out kinds of movement that may in fact be possible. A sensitivity to featural-triggers offers a way in which to think about movement that seems to be exempt from the GBOIM. This line of reasoning is explored in the final chapter.

1.3.5 Chapter 6: Weakening the Williams Cycle

The movements that are problematic for the GBOIM, and thus most implementations of the Williams Cycle, all seem to involve movement lower in the functional sequence. This movement might merely involve an intermediate step, e.g. out a CP-sized clause through matrix Spec, vP and ending up in matrix Spec, CP (23a). This is the situation argued to exist in languages like Dinka and Koryak. It might instead involve problematic final step of movement, to Spec, TP (23b) or Spec, vP (23c). These kinds of movements characterise hyperraising to subject, and hyperraising to object.

(23) **Problematic movement types for the GBOIM**

a. $[_{CP}$ **DP** $[_{vP}$ **t** $[_{CP} \ldots \mathbf{t} \ldots]]]$ Low intermediate movement

b. $[_{CP} [_{TP}$ **DP** $[_{CP} \ldots \mathbf{t} \ldots]]]$ Low final movement

c. $[_{CP} [_{vP}$ **DP** $[_{CP} \ldots \mathbf{t} \ldots]]]$ Low final movement

The idea in a nutshell is to leverage the specific sensitivity that the present version of the Extension Requirement has to featural triggers. If a movement is not driven by featural triggers, merging at a projection in a later cycle than when it was introduced will induce no representational changes relevant to the FER. In other words, we should think of all GBOIM-violating movement as being driven by something other than featural triggers.

(24) **How to weaken the Williams Cycle**
Only movement driven by featural triggers conforms to the GBOIM.

Instead, I suggest that the movements in question are driven purely by the need to make syntactic structure legible to the interfaces. In the case of intermediate movement, a combination of Cyclic Linearisation (Fox & Pesetsky 2005) and Distinctness (Richards 2010), is suggested to be generally sufficient to account for the problematic patterns in Dinka. More tentatively, instances of hyperraising are suggested to be the result of purely LF-driven - the result of how complements semantically compose with embedding predicates in certain languages.

To have the right empirical fit, the Williams Cycle may need to pay attention to the distinction between feature-driven and interface-driven movement. Size is therefore not the only thing that matters.

Chapter 2

The clausal spine and complement clauses

2.1 Introduction

This chapter introduces assumptions about the internal structure of clauses in Swahili, and how embedded clauses differ in structure from their main clause counterparts. The basic idea is that complement clauses vary in structural richness, or size. These assumptions undergird subsequent claims made about the structure of relative clauses and the locality of movement.

Swahili displays a number of kinds of embedded clauses, discussed in some detail by Vitale (1981). In this chapter we are primarily concerning with clausal complements to verbs. Our focus will be the four types displayed below: COMP-complements (25a), *ki*-complements (25b), AGR-only complements (25c) and *ku*-complements (25d). The English translations are suggestive of suitable comparisons in other languages.

(25) **Four kinds of complement clause**

a. Eric a-li-sema [kwamba Tom a-na-pika dengu] COMP-complements
1Eric 1-PST-say COMP 1Tom 1-PRS-cook 10lentil
'Eric said that Tom is cooking lentils.'

b. Eric a-li-(mw-)ona [Tom a-ki-pika dengu] *ki*-complements
1Eric 1-PST-1-want 1Tom 1-SIT-cook 10lentil
'Eric saw Tom cooking lentils.'

c. Eric a-li-(m-)taka [Tom a-pike dengu] AGR-only complements
1Eric 1-PST-1-want 1Tom 1-cook.SBJN 10lentil
'Eric wants Tom to cook lentils.'

d. Eric a-li-jaribu [ku-pika dengu] ku-complements
1Eric 1-PST-try INF-cook 10lentil
'Eric tried to cook lentils.'

These complements differ in their internal properties in two main respects: i) the richness of inflectional categories that can be expressed ii) positional freedom afforded to arguments and adjuncts. The major empirical differences are summarised below. Reading down the table, the richness in morphosyntax and word order possibilities decreases.

(26) **Empirical summary of complement clauses**

Clause type	Morphosyntax	Pre-verbal Field	Post-verbal subject
COMP	COMP ✓ INFL ✓ SM ✓	Full	✓
ki-	COMP ✗ INFL ✓ SM ✓	Partial	✗
AGR-only	COMP ✗ INFL ✗ SM ✓	Partial	✗
ku-	COMP ✗ INFL ✗ SM ✗	Absent	✗

The distinctions between complement clauses are handled with four sizes of clausal spine, each monotonically increasing the amount of structure. Abstracting away from certain details, the key aspects of the spine are presented below in (27).

(27) **Four sizes of complement clause**

a. $[_{\text{CP}} [_{\text{HMod}} [_{\text{TP}} \mathbf{V} [_{\text{AspP}} [_{\text{LModP}} [_{\text{AgrSP}} [_{\text{VoiceP}} \dots]]]]]]]$ COMP-complement

b. $[_{\text{AspP}} [_{\text{LModP}} [_{\text{AgrSP}} \mathbf{V} [_{\text{VoiceP}} \dots]]]]$ *ki*-complement

c. $[_{\text{LModP}} [_{\text{AgrSP}} \mathbf{V} [_{\text{VoiceP}} \dots]]]$ AGR-only complement

d. $[_{\text{VoiceP}} \mathbf{V} \dots]$ ku-complement

These proposals about complement clause structure have an impact on the analysis of clausal word order and the structural location of DPs. A variable degree of verb movement is assumed, depending on the size of the clause. This impacts the analysis of DP placement, as summarised in (28). In short, the post-verbal subjects of big clauses are the pre-verbal subjects of smaller clauses. The lowest position for DPs will be exploited in the analysis of relatives in the subsequent chapter.

(28) **Analytical consequences for the Swahili clause**

a. There are three positions in which DPs can move to outside of VoiceP.

b. Two of those positions, Spec, CP and Spec, TP are consistently pre-verbal.

c. Spec CP, and Spec, CP are only available in the largest complement clauses.

d. The lower position, Spec, AgrSP is linearised pre or post-verbally depending on clause size.

The rest of the chapter is structured as follows. I start in §(2.2) by introducing the idea of clause size variation and its general motivation. In §(2.3) I introduce the core distributional and morphosyntactic facts about matrix clauses. In §(2.4) I examine the morphosyntactic and distributional diagnostics that motivate several sizes of complement clause. Finally in §(2.5) I sketch the consequences for the analysis of subjects.

2.2 Clause size: a theoretical and methodological primer

A central theme of this thesis is that clauses come in different sizes, and such variation in size has effects on the locality of movement. In this section I outline what precisely in means for clauses to vary in size, and the methodology for identifying different sizes.[1]

2.2.1 The clause as a variably-sized object

Clauses are in effect the maximal syntactic object. They are the constituent that contains the classical subject and the predicate. Over the history of generative grammar the clause has become a richer syntactic object: from the S/$\bar{\text{S}}$ distinction of the Revised Extended Standard Model, to the CP/IP/VP of Classic GB Theory (Chomsky 1981), to the Split IP and CP hypotheses (e.g. Pollock 1989, Rizzi 1997, Cinque 1999), to the increasingly Split VP (e.g. Kratzer 1996, Pylkännen 2002). A few different kinds of models are presented below in (29).

(29) **Models of clause structure**

a. Three degrees (early)
$[_{\bar{\text{S}}}$ (WH/COMP) $[_{\text{S}}$ Subj (AUX/INFL) $[_{\text{VP}}$ V Obj]]]

b. Three degrees (late)
$[_{\text{CP}}$ (WH/COMP) $[_{\text{IP}}$ Subj (AUX/INFL) $[_{\text{VP}}$ V Obj]]]

c. N-degrees (early):
$[_{\text{ForceP}} \ldots [_{\text{FinP}} [_{\text{TP}}$ Subj $\ldots [_{\text{AspP}} [_{\text{VP}}$ (Subj) V Obj]]]]]

d. N-degrees (current):
$[_{\text{ForceP}} \ldots [_{\text{FinP}} [_{\text{TP}}$ Subj $\ldots [_{\text{AspP}} [_{\text{VoiceP}}$ (Subj) $[_{\text{ApplP}} [_{\text{vP}}$ V Obj]]]]]]]

By richness, I specifically mean increasing the number of distinction projections which are arranged in a fixed order - the extended projection of the verb (Grimshaw 1990) or the clausal functional sequence (Starke 2001). Despite the increasing richness of some clause structure models, there is still an intuition that clause can be usefully divided up into three or four zones for syntactic, semantic and morphological purposes (e.g. Grohmann 2003, Wiltschko 2014, Ramchand & Svenonius 2014). The motivation for increasing richness is

1. Thanks to Ad Neeleman for pushing me to be more explicit here.

more careful attention the behaviour of elements inside clauses. Certain theoretical concerns also encourage analysing phenomena in ways that increase or decrease the richness of the clause.

(30) **Typical motivations for richer clause structure**

a. The distribution of arguments/modifiers

b. The distribution of verbs/auxiliaries/complementisers

c. The morphosyntax of verbs/auxiliaries

d. Desire for compositional semantics of tense/aspect/modality

The construction of clauses is regulated by an uniform and ordered sequence of steps. If the full sequence of steps is followed, what you build is a matrix-like (embedded) clause. However, so long as the order of sequence is respected, it is possible to stop before one builds a full clause. Depending on where one can stop in the sequence, a system of clause sizes emerges that still conforms to something uniform.

(31) **What do all clauses have in common?**
They are built by merging functional projections in a uniform order.

The basic motivation for conceiving of clauses as something with a unified plan of construction, with more or less complete execution, comes from comparing the behaviour of matrix clauses and certain embedded clauses. Some embedded clauses very closely resemble the behaviour of matrix clauses, apart from appearance of certain material at their edge that we descriptively term complementizers. This resemblance is not suprising on a view in which clauses have an entirely uniform structure, regardless of how rich it is.

(32) **Matrix-like Embedded Clauses in English**

a. I think [that Eric took the photograph].

b. I wonder [which photograph Eric took].

c. I arrived [before Eric took the photograph].

d. I love the photograph [that Eric took]

e. The rumour [that Eric took the photograph] attracted the collector.

Particular puzzles emerge when we compared embedded clauses like those above to a range of other types. English has a few of these, which I present below. What they all have in common is that they obligatorily lack elements we can find matrix-like environments. They lack tense/agreement marking, display a reduced range of auxiliaries, different or absent complementisers and in certain cases absent or unusually case-marked subjects. We have already briefly seen that these kinds of complements behave differently for the purposes of cross-clausal movement. The puzzle is how to square the richness of clause structure we find in some cases, with its apparent absence in other cases.

(33) **Non-Matrix-like Embedded Clauses in English**

a. I saw [Tom making soup].

b. [Arriving in the kitchen] I found Tom.

c. I want [Tom to make soup].

d. I want/seem [to make tasty soup].

e. I made [him eat the tasty soup].

f. A man [(for him) to love] is what Tom wants.

The view taken in this thesis is what one could call the Clausal Hetergeneity Move. It amounts to saying that, in the face of embedded clauses lacking properties found in matrix clauses, we should model that lack as an absence of structure.[2] The theoretical appeal of this approach is a kind of What-You-See-What-You-Get view of syntactic structure. If something is not clearly present, we model that as the absence of structure rather than the presence of a silent/defective piece of structure.[3]

(34) **The Clausal Heterogeneity Move**

Impoverished properties of embedded clauses, by comparison to matrix clauses, reflects the absence of structure.

2. There is a question about how such lacks are achieved derivationally. For Pesetsky (2021) certain asymmetries are achieved over the course of the derivation the deletion/removal of structure.

3. This keeps the fundamental ontology of syntactic primitives fairly simple, since we do not need to entertain featurally-empty or defective versions of familiar projections.

The origin of Clausal Heterogeneity goes back at least to the analysis of small clauses in Williams (1973). Prior to that point, differences between main and embedded clauses had largely be handled by deletion transformations. Distinctions in clause size are now increasingly widely applied to handle peculiarities, particular absences and transparencies, of certain embedded clauses (CITATIONS).

A couple of clarifications need to be added about the scope and ultimate motivation for Clausal Heterogeneity. Clearly, not every property that distinguishes an embedded clause from a matrix one is an straightforward absence. The edge-marking elements, complementizers, are generally found in embedded clauses and not at the edge of matrix clauses. Particularly problematic are complementisers which only appear in the context embedded clauses which otherwise lacking in properties found in matrix clauses. The elements *for* and *to* in English naturally come to mind. There several directions to analyse such elements, suggested below.[4] We will generally not have cause to worry about such elements in the context of Swahili.

(35) **Ways to think about complementizers under Clausal Heterogeneity**

a. Elsewhere forms of structure silent/otherwise realised in matrix clauses.

b. Non-clausal structure (e.g. nominal, adpositional)

c. Part of the clausal functional sequence that is available only to embedded clauses.

Underlying the Heterogeneity view is an assumption that matrix clauses are standard that richness is assessed against. That is, matrix clauses are always big. This assumption is not obviously true, in the face of e.g. imperatives, which despite impoverished morphosyntax and restricted word order, have been proposed to have rich structure (CITATIONS). From a different angle, one might imagine that although matrix clauses might have to be a certain minimum size that is bigger than the minimum size of embedded clauses, but embedded clauses can in principle be richer (e.g. Williams 2011). This could be used to account for the appearance of complementisers in embedded clauses. Even setting aside these kinds of objections of an empirical nature, there is a theory-internal question of what would force matrix clauses to be bigger. The assumption made in this thesis, elaborated on

4. The last option amounts to suggesting that functional sequence is not a single pathway of operations, but at certain points can 'branch'.

in §(5.3.1.2), is that clauses will always continue to grow in size unless they are embedded.

(36) **Why are smaller clauses embedded and not matrix?**
Assumption: Embedding prevents further growth of a clause.

Having set out some theoretical preliminaries, in the next subsection I outline more concretely the kinds of diagnostics that will be used to identify smaller clauses.

2.2.2 Diagnostics for identifying smaller clauses

In this thesis I explore three kinds of properties that can be used to diagnose smaller clause structure (37). These seem to me to exhaust the strategies that do not involve making detailed assumptions about how the interfaces work.[5] The focus of this chapter and the next is primarily on morphosyntactic absences and internal distributional constraints. The interpretation of transparency effects depends on the theory of locality that one assumes, something left to the subsequent chapters of the thesis.

(37) **Three diagnostics for smaller clause sizes**

a. Morphosyntactic absences: the lack of certain morphemes or distinctions in exponence found in main or main-like clauses.

b. Internal distributional constraints: elements internal to the clause like DP or PPs have a more constrained distribution compared to counterparts in main or main-like clauses.

c. Transparency effects: syntactic dependencies (e.g. movement, agreement, binding) are, in some sense, easier to establish between material inside these clauses and material outside them, compared to material in main-like embedded embedded clauses.

To say a little more about morphosyntactic absences. This diagnostic concerns the exponence of clause structure, e.g. tense, aspect, agreement and potentially complementizers. The assumed logic is that when certain morphosyntactic distinctions cannot be made

5. For example, the presence or absence of certain projections might be motivated by the needs of building a compositional semantics, or the needs of breaking words into morphemes ordered according to the Mirror Principle. Such considerations also apply to the connection size might have to the external distribution of clauses, e.g. whether they can be extraposed or serve as clausal subjects.

in an embedded clause, this reflects an absence of structure relevant to those distinctions. That is, certain features or heads are not visible to PF and its rules of vocabulary insertion.

Ascribing every morphosyntactic absence encountered to an absence in structure is not necessarily desirable. For example, in English and Swahili both complement clauses and relative clauses display optionality in complementisers. We will see in Chapter Three that there are motivations for ascribing structural differences to the complementiser alternation in relatives in both languages. It is much less obvious whether those structural differences extend to from relatives to complements. Thus we should take morphosyntactic absences to be plausibly indicative, but not conclusive in the absence of internal distributional constraints.

In terms of the distributional constraints, I will primarily be concern with word order possibilities of arguments and adjuncts, and the very possibility of (overt) arguments. In principle the constraints would cover instances of case marking, and potential interactions between the position of arguments and processes like agreement. These latter issues will generally not be relevant for Swahili.

With the general rationale of clause size variation under our belts, we can now proceed to looking at the behaviour of matrix clauses. This will give us the context to appreciate simililarities and differences in their complement clause counterparts.

2.3 Introducing the Swahili matrix clause

In this section I introduce distributional and morphosyntactic facts about matrix clauses, sketching out the basic clause structure that they motivate.

2.3.1 Basic distributional features of nominals

The linear order of the Swahili clause is represented below in (). We can see that it is broadly divided into two fields, preceding and following the verb and potential auxiliaries. The verb and auxiliaries are separably by certain adverbs, but arguments cannot seem to occupy this position. As a language with null subjects and objects, well-formed clauses can just be a verb with suitable subject and object marking.

(38) **Dividing up the Swahili clause**

[Pre-verbal Field ...] (Aux) (Adv) V [Post-verbal Field ...]

Before examining the contents of these fields more closely, a brief note about agreement. As noted in the introduced, what is called subject marking (SM) is the left most agreement prefix on the verb, which may also be found on auxiliaries. The DP that controls this agreement prefix is the thematic subject (i.e. agents by default), and it may do this from a pre-verbal or post-verbal position. Adding certain verbal suffixes, like the Passive marker -w, force a thematic subject (e.g. patient, theme) to control subject marking.[6] Swahili thus does not display the left edge agreement of some Bantu languages, like Kinande or Kilega (Baker, 2003; Carstens, 2005; Schnieder-Zioga, 2007), where surface structural position is tied very close subject marking control.

(39) **Subject marking control**

a. **Eric** **a**-li-(zi)-nunua tiketi hizi jana

Eric 1-PST-10-buy 10ticket 10DEM yesterday

'Eric bought these tickets yesterday.'

6. Like many other Bantu languages, Swahili displays patterns of locative inversion, in which locative elements control subject marking. See Marten and Van der Wal, 2014 for further discussion of inversion patterns in Bantu. I will set aside the no doubt important implications they might have for the syntax of subject marking.

b. **Tiketi hizi zi**-li-nunuliwa (na Eric) jana
10ticket 10DEM 1-PST-buy.PASS by Eric yesterday
'These tickets were bought (by Eric) yesterday.'

Let's now consider the contents of the pre-verbal field. There are two basic observations to make, which are also relevant from cross-Bantu perspective. Swahili permits multiple arguments/adjuncts to occupy the pre-verbal field, although it is clearly marked in some information structure way.[7] [8] The languages with left-edge agreement, by contrast, generally have something like a V2 requirement (Schnieder-Zioga, 2007). Furthermore, Swahili optionally allows focal elements, like as wh-words, to appear in the pre-verbal fields. Swahili is thus distinct from those Bantu languages which restrict focal elements to the post-verbal field (CITATIONS).

(40) **Subjects, objects and adjuncts in the pre-verbal field**

a. Tiketi hizi **Eric a**-li-*(zi)-nunua jana — Object **Subject** V Adjunct
10ticket 10DEM Eric 1-PST-10-buy yesterday
'These tickets, Eric bought yesterday.' — Object marking preferred

b. Tiketi zipi **Eric a**-li-*(zi)-nunua jana? — Wh-Object **Subject** V Adjunct
10ticket 10WHICH Eric 1-PST-10-buy yesterday
'Which tickets did Eric buy yesterday?' — Object marking preferred

c. Jana **Eric a**-li-(zi)-nunua Tiketi hizi — Adjunct **Subject** V Object
yesterday Eric 1-PST-10-buy 10ticket 10DEM
'Yesterday, Eric bought these tickets yesterday.'

We have already had a preview of the contents of the post-verbal fields. Objects and adjuncts in a discourse-neutral position, typically TP and VP level ones, are common occupants of this field. Of particular interest is that Swahili allows subjects to occupy this

7. When subjects and objects precede the verb, most often the object precedes the subject. It may be possible for the subject to precede the object, but I don't have enough data on this point to be certain. This may have implications for how certain positions for DPs are accessed.
8. Pre-verbal objects force the appearance of object marking, which is otherwise optional and connected to definiteness/topicality (CITATIONS).

field in with transitive and intransitive predicates.[9] [10] Post-verbal subjects with transitives are most acceptable when the object is not post-verbal.

(41) **Post-verbal subject with matrix intransitive and transitive predicate**

a. Wa-li-fika **watu** **wote** jioni hii — Protypical Unaccusative
2-PST-arrive 2person 2all evening DEM
'Everybody arrived this evening.'

b. Wa-na-fanya bidii **wauguzi** leo — Protypical Unergative
2-PRS-do hard 2nurse today
'The nurses are working hard today.'

c. Tiketi hizi a-li-nunua **Eric** jana — Transitive
10ticket 10these 1-PST-buy Eric yesterday
'These tickets, Eric bought.' (Theme = Contrastive Topic)

The position of subjects, pre-verbally or post-verbally, affects their scopal possibilities with respect to sentential negation. In the examples below negation is marked on the verb using the prefix *ha-*. We can see in (42a) that a pre-verbal quantificational subject can optionally scope over or under negation, giving rise to an ambiguity. When the same subject is placed post-verbally, in (42b), this is unambigously interpreted under the scope of negation. On the assumption that negation occupies a fixed position in the clausal spine, and scope is partly determined by c-command, we could interpret this contrast as evidence in favour of structural distinction in height for pre-verbal and post-verbal subjects.[11]

9. There are consequences for information structure which I have not investigated in great detail. Marten (2011) observes that post-verbal subjects in matrix intransitives generally involve a thetic/'all new' interpretation. This may not be true of all non-afterthought post-verbal subjects.
10. Not all post-verbal subjects are likely to receive the same analysis. I am setting aside the issue of right peripheral, 'after thought topic'-type subjects which receive some attention from Marten (2011). These are most likely high in the clause, or potentially in a bi-clausal structure. To control for this analytic possibility, especially in matrix contexts, the post-verbal subjects of interest precede VP/TP modifiers.
11. The optionality could reflect optional reconstruction in certain kinds of movement (CITATIONS).

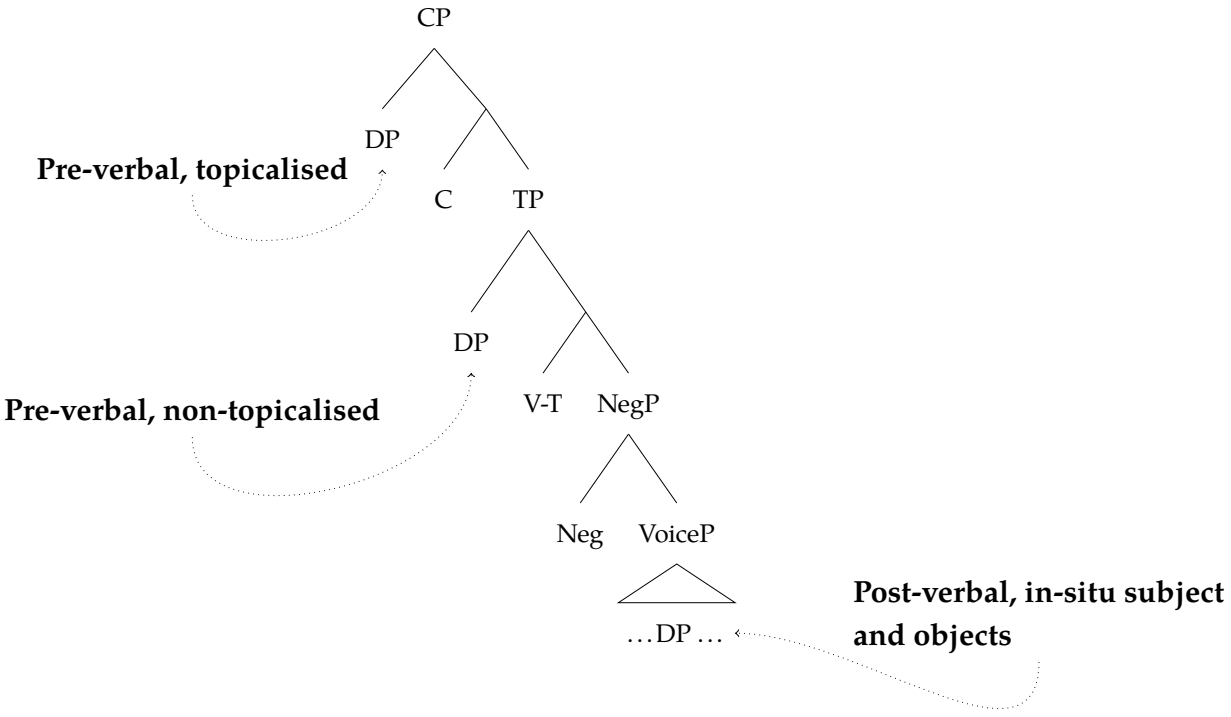
(42) **Subject inversion and the scope of negation in matrix contexts**

a. Watu wote ha-wa-li-fika jioni hii
2person 2all NEG-2-PST-arrive evening this
'Everybody didn't arrive this evening.' (all > not)
'Not everybody arrived this evening' (not > all)

b. Ha-wa-li-fika watu wote jioni hii
NEG-2-PST-arrive 2person 2all evening this
*'Everybody didn't arrive this evening.' (*all > not)
'Not everybody arrived this evening' (not > all)

In light of these data, I will make some preliminary assumptions about the clause structure of Swahili. There is a degree of verb movement, however this is implemented, to T. Above the verb-movement side there are positions for arguments/adjuncts having moved outside of the thematic domain. Below the verb movement and semantic locus of negation, is where post-verbal subjects are located. We will now, in the next subsection, enrich this structure through morphosyntactic considerations.

(43)



2.3.2 The clausal spine and the INFL-system

We have seen that Swahili verbs bear a prefix, following the subject marker, which is intuitively related to expressions of tense, aspect and modality. In this subsection I review some basic facts about their distribution, which partly inform a structural enrichment to what was labeled above as TP.

The prefixes of interest are shown in (44) below. They mark distinctions in modality, tense and aspect.[12] The distinction between tense and aspect is understood to be in the relations applied to a *topic time*, the time which loosely speak an utterance is 'about' (Klein, 1994). Aspect is relationship between the time (i.e. interval) at which at event takes place (event time) and topic time. By contrast tense is the relationship between topic time and the time at which the utterance in question is made (utterance time).

(44) **An incomplete selection of INFL prefixes**

Modality	Tense	Aspect
Irrealis *nge-*	Past *li-*	Imperfective *na-*
Counterfactual *ngali-*	Present *na-*	Perfect *me-*
	Future *ta-*	Situative *ki-*

A clause can generally only have multiple INFL morphemes, as shown below in (45), if there is an auxiliary *-kuwa* present in the clause (Pietraszko 2023). This auxiliary, like a lexical verb, displays subject marking.[13] Certain phrases, all adverbial elements as far as I can tell, can intervene between an auxiliary and the lexical verb. The intervening element in (45b) below is *mara nyingi* 'many times/often'.

(45) **Auxiliary constructions**

a. *Tom a-li-na-pika dengu kila siku.
1Tom 1-PST-IMPF-cook 10lentil every day

b. Tom **a-li-kuwa** a-na-pika dengu kila siku.
1Tom 1-PST-AUX 1-IMPF-cook 10lentil every day
'Tom was cooking/used to cook lentils every day.'

12. There is no formal semantic work on Swahili's INFL system. I will therefore be assuming a very simplistic relation between clause structure, semantics and the prefixes of interest.
13. See Ud Deen (2002) for further instances in Swahili where subject marking appears to be optional.

c. **Ni-li-kuwa** [mara nyingi] na-ji-uliza kwa nini wa-na-ngombana.
1SG-PST-AUX time many IMPF-REFL-ask for what 2-PRS-argue
'I often used to ask myself why they were arguing.'

The only marker here which might have an unclear function by virtue of its name is Situative (a.k.a frequentative) *ki-*. This prefix appears complements to perception verbs, as we have seen already. It also appears in certain kinds of conditional and temporal adjunct clauses, and in certain compound tenses.

(46) **Other uses of the situative marker**

a. A-ki-anguka a-ta-umia Probable Conditional Clause
1-SIY-fall 1-FUT-get.hurt
'If he falls down, he will get hurt.' (Mpiranya, 2014, p.128)

b. Abdalla a-li-pita a-ki-imba Simultaneous Temporal Clause
Abdalla 1-PST-pass.by 1-SIT-sing
'Abdalla passed by singing.' (Mpiranya, 2014, p.131)

c. Mwaka u-ja-o tu-ta-kuwa tu-ki-kaa katika nyumba yetu mpya
year 11-come-11.REL 1.PL-FUT-AUX 1.PL-SIT-live in house our new
'Next year, we will be living in our new house.' (Ashton, 1947, p.251)

In the presence of auxiliaries, we can observed robust ordering asymmetries between the different INFL prefixes. The basic patterns were already observed by Ashton (1947). Modality prefixes precede aspect prefixes, and tense prefixes precede aspect prefixes. The semantics of irrealis and counterfactual modality makes it difficult form compound tenses with tense markers.

(47) **Modality, Tense and Aspect Ordering**
In clause where an AUX and a lexical verb each host an INFL prefix, the following orders of coarse-grained categories are possible: Modality $>$ Aspect, Tense $>$ Aspect.

(48) **Tense precedes Aspect**

a. ni-li-kuwa ni-na-soma
1SG-PST-AUX 1SG-IMPF-read
'I was reading.'

b. ni-ta-kuwa ni-na-soma
1SG-FUT-AUX 1SG-IMPF-read
'I will be reading.'

c. ni-li-kuwa ni-me-soma
1SG-PST-AUX 1SG-PFT-read
'I had read.'

d. ni-ta-kuwa ni-me-soma
1SG-FUT-AUX 1SG-PFT-read
'I will have read.'

(49) **Modality precedes Aspect**

a. ni-nge-kuwa ni-na-soma
1SG-IRR-AUX 1SG-IMPF-read
'I would be reading.'

b. ni-ngali-kuwa ni-na-soma
1SG-CTF-AUX 1SG-IMPF-read
'I would have been reading.'

Not all parts of the clausal spine are realised by INFL-prefixes. I assume that the final vowel form *-e*, traditionally called subjunctive, is a realisation of lower modality-related projection (Julien 2001). When the final -e occurs in matrix environments of different kinds with a low modal flavour, e.g. deontic modality. We can even find the modal *-e* in certain kinds of compound tense. The auxiliary *kuwa* can host past tense *li-*, with a lexical verb remaining in the subjunctive form. Here again we find a kind of low modal flavour, in terms of obligation. The appearance of -e is lexically specific, and the meaning in question may occur for certain roots by the omission of INFL prefixes.

(50) **Subjunctive verbs in main clauses**

a. Henry a-na-pika/a-pike mchele
Henry 1-PRS-cook/1-cook.SBJN rice
Henry is cooking/can/should cook rice.

b. Jini a-li-kuwa a-ki-tengeneze kisu
Henry 1-PST-AUX 1-7-repair.SBJN 7knife
'Jini was expected to repair the knife.' (Mpiranya, 2014, p.102)

c. Jini a-ki-haribu kisu — No *-e* for some roots

Jini 1-7-damage 7knife

'Jini can/should damage the knife.'

I believe it useful to treat *nge-* and *ngali-* as realising a distinct and higher functional projection, call it HModP, from a lower functional projection LModP that is realised by final vowel *-e*. I assume that HMoD and LMod different parts of a realis/irrealis distinction, in the sense of e.g. Von Prince et al. (2022).

The basic distinction I want to draw is between *ngali-*, which expresses counterfactual irrealis, and *nge-* and *-e*, which express different varieties of possible irrealis.[14] As discussed by Von Prince et al. (2022), languages might have markers that specifically indicate possibility in the past, as distinct from something being possible in the future, or possibility compatible with our desires or with our obligations. I believe that some kind of distinction along these lines is relevant to characterising the different semantic import of *nge-* and *-e*. Here I will simply assume that there are four features, which encode different options with respect to (ir)realis. This is summarised below. Three of the features appear on HMod, only one appears on LMod.

(51) **Varieties of (ir)realis marking**

a. [REAL] ⇔ Ø — HMod, Realis

b. [IRRC] ⇔ *ngali-* — HMod, Counterfactual Irrealis

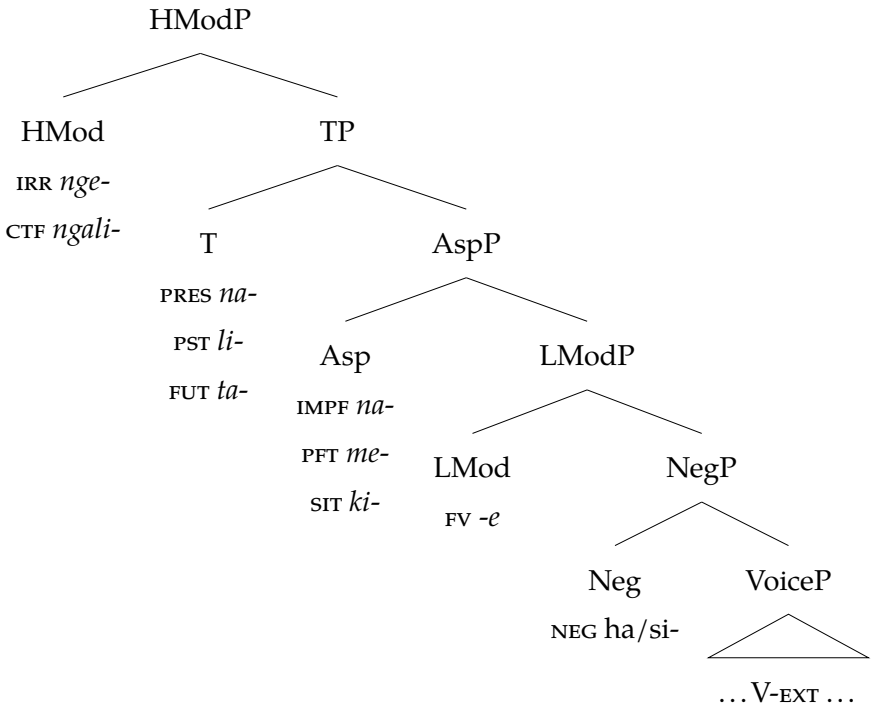
c. [IRRPI] ⇔ *nge-* — HMod, Possible Irrealis I

d. [IRRPII] ⇔ *-e* — LMod, Possible Irrealis II

In light of the ordering of prefixes in compound tenses, and in line with assumptions about the hierarchical organisation of tense/modality/aspect, the enriched TP/IP layer is assumed below. The semantic locus of negation, NegP is assumed to be located at the lower part of this layer. For concreteness it assumed to be between LModP and the thematic domain.

14. The semantic distinction between possible and counterfactual irrealis is clearly tracks the distinction between *nge-* and *ngali-* as conditional antecedents. *nge-* is used with antecedents which are possible but unlikely, whereas *ngali-* is used in counterfactual conditionals (Mpiranya, 2014).

(52) **The structure of the IP layer**



In the next subsection I propose a simple connection between the form of negation and the contents of the clausal spine.

2.3.3 Negation and modality

Broadly speaking negation is marked two types of pre-verbal morphemes, which I will follow previous Bantuist literature in terming primary and secondary negation (e.g. Nurse & Philippson, 2006; Nurse, 2008). Primary negation precedes subject marking, whereas secondary negation immediately follows subject marking. The forms of primary and secondary negation are also clearly distinct, generally *h(a)*- vs. *si-*. [15]

(53) **Two varieties of negation**

a. Tom **h**-a-ta-pika dengu kila siku **Primary**
1Tom NEG-1-FUT-cook 10lentil every day
'Tom will not cook lentils every day.'

15. Primary negation, but not secondary negation affects the form of subject marking and INFL prefixes. For a more detailed review of the facts see e.g. Ngonyani (2001).

b. Tom a-**si**-nge-pika dengu kila siku **Secondary**
1Tom 1-NEG-IRR-cook 10lentil every day
'Tom would not cook lentils every day.'

The choice of negation type is clearly connected morphosyntactic context. Primary negation is found in main clauses and embedded clauses which can have the complementisers *kwamba/kuwa*. In these clausal environments it cannot appear in the context of the irrealis and counterfactual prefixes. It can otherwise co-occur with past, future and perfect marking. This generalisation holds of primary negation in amba relatives. In other embedded environments, such as subjunctive complements to *taka-* 'want' and amba-less relatives, primary negation is impossible.

(54) **Illustrating the distribution of primary negation**

a. **ha**-tu-{ku/tu/ja}-ki-soma Matrix Clauses
NEG-1PL-PST/FUT/PFT-7-read
'(that) we {didn't/will not/haven't} read it.' w/ TNS/ASP marking ✓

b. *__ha__-tu-{nge/ngali}-ki-soma Matrix Clauses
NEG-1PL-IRR/CTF-7-read
'(that) we {would not/would have not} read it.' w/ MOD marking ✗

c. kitabu amba-cho **ha**-tu-{ku/tu/ja}-ki-soma *amba* RCs
7book COMP-7REL NEG-1PL-PST/FUT/PFT-7-read
'the book that we {didn't/will not/haven't} read.' w/ TNS/ASP marking ✓

d. *kitabu amba-cho **ha**-tu-{nge/ngali}-ki-soma *amba* RCs
7book COMP-7REL NEG-1PL-IRR/CTF-7-read
'the book that we {wouldn't/would have not} read.' w/ MOD marking ✗

e. *kitabu **ha**-tu-{ku/tu}-cho-ki-soma
7book NEG-1PL-PST/FUT-7REL-7-read
'the book that we {didn't/will not/haven't} read.' amba-less RCs ✗

f. *a-na-taka **ha**-tu-ki-some

1-PRS-want NEG-1PL-7-read.SBJN

'She wants us not to read it!' AGR-only complements ✗

Secondary negation generally occurs where primary negation cannot appear. Whenever we want to use the irrealis and counterfactual prefixes alongside negation, we have to use secondary negation. In the other embedded environments where primary negation is not possible, amba-less RCs and AGR-only complements, we also find secondary negation.

(55) **Illustrating the distribution of secondary negation**

a. *tu-**si**-{ku/tu/ja}-ki-soma Matrix clauses

1PL-NEG-PST/FUT/PFT-7-read

'(that) we {didn't/will not/haven't} read it.' W/ TNS/ASP marking ✗

b. tu-**si**-{nge/ngali}-ki-soma Matrix clauses

1PL-NEG-IRR/CTF-7-read

'(that) we {would not/would have not} read it.' W/ MOD marking ✓

c. *kitabu amba-cho tu-**si**-{ku/tu/ja}-ki-soma *amba* RCs

7book COMP-7REL 1PL-NEG-PST/FUT/PFT-7-read

'the book that we {didn't/will not/haven't} read.' W/ TNS/ASP marking ✗

d. kitabu amba-cho tu-**si**-{nge/ngali}-ki-soma *amba* RCs

7book COMP-7REL 1PL-NEG-IRR/CTF-7-read

'the book that we {wouldn't/would have not} read.' W/ MOD marking ✓

e. kitabu tu-**si**-cho-ki-soma

7book NEG-1PL-7REL-7-read

'the book that we don't read.' amba-less RCs ✓

f. a-na-taka tu-**si**-ki-some!

1-PRS-want 1PL-NEG-7-read.SBJN

'She wants us not to read it!' AGR-only complements ✓

To account for the distribution of primary and secondary negation, I suggest the following intuition, which I leave to future work to flesh out in detail. Negation takes the primary

form in the presence of a HMod with [REAL].[16] The secondary form is the elsewhere case, appearing whenever there isn't a Mod with [REAL]. Crucially there are two ways a clause can not have [REAL]. Either a clause has a HMod with a different feature, [IRRP] or [IRRC], or a clause is small enough that it lacks HModP entirely. In this way clauses with potentially radically different clause structure can pattern together with respect to negation.

(56) **Modelling the negation, modality and clause structure connection**

a. Two vocabulary entries: [Neg] ⇔ ha / [REAL], [Neg] ⇔ si

b. Clauses without [REAL] display si-.

c. Clauses may lack [REAL] by having an absent or differently specified HMod.

There is a further open question concerning the linear placement of the primary and secondary markers, and their interacts with other INFL categories and subject marking. One possibility is that there are two possible positions reflect two structural positions related to negation, perhaps only one of them with semantic content. I leave a finer grained analysis of the TAM and Negation system to future work.

We have now review the basic properties of main clauses at the level of nominal distribution and clausal morphosyntax. We are now in a position to turn our attention the properties of complement clauses.

16. For other approaches to handling the primary/secondary distinction related languages, see Buell (2005) and Pietraszko (2017).

2.4 Complement clause structures

In this section I outline more detail the properties of the complement clauses previewed in the introduction, and how morphosyntactic and other distributional informatiom motivates several sizes of clause.

2.4.1 Reintroducing four types of complement clause

COMP-complements are distinguished by the optional complementisers *kwamba* and *kuwa*. Some examples are repeated in (**??**). COMP-complements co-occur attitude report predicates such as *-sema* 'say', *tangaza* 'announce', *-dhani* 'think' and *-amini* 'believe'.[17]

(57) **COMP complements**

a. Eric a-li-sema [(kwamba/kuwa) Tom a-na-pika dengu]
1Eric 1-PST-say COMP 1Tom 1-PRS-cook 10lentil
'Eric said that Tom is cooking lentils.'

b. Eric a-na-dhani [(kwamba/kuwa) Tom a-na-pika dengu]
1Eric 1-PRS-think COMP 1Tom 1-PRS-cook 10lentil
'Eric thinks that Tom is cooking lentils.'

c. Eric a-na-amini [(kwamba/kuwa) Tom a-na-pika dengu]
1Eric 1-PRS-believe COMP 1Tom 1-PRS-cook 10lentil
'Eric believes that Tom is cooking lentils.'

As in a number of languages (e.g. Major 2021), there is a connection between complementisers and say-verbs. The root *-amb* used to be productive as a *say*-verb, now since replaced by *-sema* 'say', and it still productive with the applicative marker in *-ambia* 'tell'. *Kuwa* itself has a verbal connection, since it also the form of the auxiliary used in compound tenses. See Barrett-Keach (1980) for arguments that we should treat such complementisers as lexical verbs. The embedding predicates I have investigated so far can take either complementiser, and it not clear at present what difference the choice makes. Their

17. I have not carefully examined the behaviour of predicates that take embedded questions, like *-uliza* 'ask'. These might constitute a further descriptive class of complements, depending on whether complementisers are compatible embedded questions.

presence (or absence) generally doesn't affect the cross-clausal movement dependencies in our ultimate line of sight.

The next complement to view are the *ki*-complements, which are complements to perception verbs. The verbs taking these complements may optionally display object marking which tracks the noun class of the embedded subject. These kinds of complements has not received much attention in generative work on Swahili, e.g. Barrett-Keach (1980) and Vitale (1981), but they have been noticed in more generally descriptive/typological work like Ashton (1947), Nurse (2008, pp.148) and Mpiranya (2014).

(58) ***ki*-complements**

a. Eric a-li-(mw)-ona [Tom a-ki-pika dengu]
1Eric 1-PST-1-saw 1Tom 1-SIT-cook 10lentil
'Eric saw Tom cooking lentils.'

b. A-li-wa-sikia [wa-ki-ngombana]
1-PST-2-hear 2-SIT-argue
'He heard them arguing.' (Mpiranya, 2014, p.131, ex. 25)

We should note that verbs like *-ona* 'see' and *-sikia* 'hear' can take COMP-complements as well. There is a semantic contrast between *ki*-complements and COMP-complements to these verbs, which essentially replicates the contrast that has been observed in other languages between direct and indirect perception complements (Declerk 1982, Dik & Hengeveld 1991, Safir 1993, Felser 1999, Pearson 2018). That is, *ki*-complements are only compatible with an interpretation in which an event is directly perceived, whereas COMP-complements are compatible with a scenario where an event is perceived via indirect evidence.

Somewhat similar in their morphosyntax are AGR-only complements. They are typically the complements of causative verbs like *lazimisha* 'force' and verbs of desire like *-taka* 'want'. They also seem to occur with prohibitive verbs like *kataza* 'forbid', if negation of part of the complement. As with verbs taking *ki*-complements, matrix verbs in these contexts may optionally display object marking tracking the noun class of the embedded subject.[18] An important contrast with the complements that follow is that AGR-only complements

18. My consultants remarked, with respect to (59b), that presence/absence of object marking has an interpretative effect.

seem require distinct subjects from the local embedding predicate.

(59) **AGR-only complements**

a. Eric a-li-(m)-taka [Tom a-pike dengu]
1Eric 1-PST-1-want 1Tom 1-cook.SBJN 10lentil
'Eric wants Tom to cook lentils.'

b. U-li-(m)-lazimisha [pake a-vi-le vidonge]
2SG-PST-1-force 1cat 1-8-eat.SBJN 8tablet
'You forced the cat to eat the tablets.'

c. A-li-wa-kataza wanawe wa-si-toke nje
1-PST-2-forbid 2son 2-NEG-go.out.SBJN outside
'He forbade his sons to go outside.' (Ashton, 1947, p.280)

d. Baba a-me-ni-kataza ni-si-some
1father 1-PST-1SG-forbid 1SG-NEG-read.SBJN
'Father has forbidden me to read.' (Ashton, 1947, p.280)

Finally we come to the *ku*-complements. Verbs in these complements lack subject marking and display the prefix *ku-*. These clauses are complements to raising and control predicates, such as *-onekana* 'seem', *-taka* 'want' and *-jaribu* 'try'. With certain predicates, particularly those like *-taka* there seems to be variation in whether speakers allow a *ku*-complement alongside a DP, essentially a version of AGR-only complement different verbal morphology Vitale (1981).

(60) ***ku*-complements**

a. Eric a-na-taka [ku-pika dengu]
1Eric 1-PRS-want INF-cook 10lentil
'Eric wants to cook lentils.'

b. Eric a-li-jaribu [ku-pika dengu]
1Eric 1-PST-try INF-cook 10lentil
'Eric tried to cook lentils.'

c. Tom a-na-onekana [ku-penda dengu]
1Tom 1-PRS-seem INF-like 10lentil
'Tom seems to like lentils.'

The infinitive *ku-* prefix is involved in the formation of derived nominals. A verbal stem, without object marking, and bearing *ku-* can behave like a nominal, controlling class 15 noun class marking. Lots of Bantu languages have something similar to *ku-* (Nurse, 2008), and some of these complements have been analysed as nominalised (e.g. Halpert 2015 on Zulu, Pietraszko 2019 on Ndebele). It will not ultimately affect the claims made here if ku- realises some kind of low clausal structure, or is in fact an exponent of nominal structure.[19]

Now that the cast of complement clauses has been reintroduced, we can look at their morphosyntax in more detail.

2.4.2 Four morphosyntactic profiles

Our four complements display four profiles of morphosyntactic behaviour covering the presence/absence of complementiser, INFL prefixes, choice of negation, and the presence of subject marking. These are summarised in the table in (61). The motivation for these profiles, in some cases already fairly obvious, is then reviewed below.

(61) **Four morphosyntactic profiles for Swahili complement clauses**

	COMP	*ki-*	AGR-only	*ku-*
COMP	kwamba/kuwa	Ø	Ø	Ø
INFL-prefixes	MOD/TNS/ASP	*ki-*	Ø	Ø
Primary Negation	✓	✗	✗	✗
Subject-marking	✓	✓	✓	✗

To start with complementisers, kwamba and amba cannot appear at the edge of ki-, AGR-only or ku-complements.

19. If ku-complements are nominalised in Swahili, they behave different from those in Zulu and Ndebele. In those Nguni languages, ku-complements may trigger object marking on the embedded predicate, and raising out of such complements is quite restricted (Halpert, 2019). Neither of these properties applies to ku-complements in Swahili.

(62) a. Eric a-li-sema [(kwamba/kuwa) Tom a-na-pika dengu]
1Eric 1-PST-say COMP 1Tom 1-PRS-cook 10lentil
'Eric said that Tom is cooking lentils.'

b. *Eric a-li-(mw)-ona [(kwamba/kuwa) Tom a-ki-pika dengu]
1Eric 1-PST-1-saw COMP 1Tom 1-SIT-cook 10lentil
Intended: 'Eric saw Tom cooking lentils.'

c. *U-li-(m)-lazimisha [(kwamba/kuwa) pake a-vi-le vidonge]
2SG-PST-1-force COMP 1cat 1-8-eat.SBJN 8tablet
Intended: 'You forced the cat to eat the tablets.'

d. *Tom a-na-onekana [(kwamba/kuwa) ku-penda dengu]
1Tom 1-PRS-seem COMP INF-like 10lentil
Intended: 'Tom seems to like lentils.'

In terms of INFL-prefixes, COMP-complements can bear basically the full range of INFL prefixes, as illustrated with the data below.[20] By contrast, the other complements display severe restrictions on the INFL system. *ki*-complements are distinguished by the presence of the Situative INFL prefix *ki-*. AGR-only complements they cannot display any INFL prefixes, though they do display the subjunctive *-e*. Ku-complements, as already evidence, cannot display any prefixes either or the subjunctive *-e* for that matter.

(63) **Prefix selection for COMP-complements**

a.

Modality	Tense	Aspect
Irrealis *nge-* ✓	Past *li-* ✓	Imperfective *na-* ✓
Counterfactual *ngali-* ✓	Present *na-* ✓	Perfect *me-* ✓
	Future *ta-* ✓	

20. Swahili does not seem to display sequence of tense effects. When an embedded verb is marked with the present/imperfective prefix, the embedded event is interpreted as co-temporaneous with matrix e.g. reporting event. The presence of past tense prefix indicates that the embedded event temporally precedes the matrix event.

b. Lizzie a-na-sema [kwamba Jini a-li-ki-vunja kisu chake]
Lizzie 1-PRS-say COMP Jini 1-PST-7-break 7knife 7POSS
'Lizzie says that Jini broke her knife.'

c. Lizzie a-na-sema [kwamba Jini a-na-ki-vunja kisu chake]
Lizzie 1-PRS-say COMP Jini 1-PRS-7-break 7knife 7POSS
'Lizzie says that Jini is breaking her knife.'

d. Lizzie a-na-sema [kwamba Jini a-ta-ki-vunja kisu chake]
Lizzie 1-PRS-say COMP Jini 1-FUT-7-break 7knife 7POSS
'Lizzie says that Jini will break her knife.'

e. Lizzie a-na-sema [kwamba Jini a-me-ki-vunja kisu chake]
Lizzie 1-PRS-say COMP Jini 1-PFT-7-break 7knife 7POSS
'Lizzie says that Jini has broken her knife.'

f. Lizzie a-na-sema [kwamba Jini a-nge-ki-vunja kisu chake]
Lizzie 1-PRS-say COMP Jini 1-IRR-7-break 7knife 7POSS
'Lizzie says that Jini has broken her knife.'

g. Lizzie a-na-sema [kwamba Jini a-ngali-ki-vunja kisu chake]
Lizzie 1-PRS-say COMP Jini 1-CTF-7-break 7knife 7POSS
'Lizzie says that Jini would have broken her knife.'

In terms of negation, COMP-complements behave exactly like matrix clauses. We find primary negation *ha-*, except when the irrealis and counterfactual prefixes are used, where secondary negation *si-* occurs instead (64). The major distinction is that other complements clearly cannot display primary negation. Ki- and AGR-only complements display regular secondary negation (65), whereas *ku*-complements display a unique prefix to- which only occurs in this context (). In the context of secondary negation, ki- takes the form po-.[21]

21. This is looks like amba-less locative relative, using the locative noun class also used to form temporal adjuncts. This may indicate that ki- complements are actually totally incompatible with negation, and what we are seeing with po- is a different construction. The key pattern, as emphasized the main text, is simply that only COMP-complements display primary negation.

(64) **Negation in COMP-complements**

a. (kwamba) **ha**-tu-{ku/tu/ja}-ki-soma
COMP NEG-1PL-PST/FUT/PFT-7-read
'(that) we {didn't/will not/haven't} read it.' Clauses with TNS/ASP marking ✓

b. *(kwamba) **ha**-tu-{nge/ngali}-ki-soma
COMP NEG-1PL-IRR/CTF-7-read
'(that) we {would not/would have not} read it.' Clauses with MOD marking ✗

c. *(kwamba) tu-**si**-{ku/tu/ja}-ki-soma
COMP 1PL-NEG-PST/FUT/PFT-7-read
'(that) we {didn't/will not/haven't} read it.' Clauses with TNS/ASP marking ✗

d. (kwamba) tu-**si**-{nge/ngali}-ki-soma
COMP 1PL-NEG-IRR/CTF-7-read
'(that) we {would not/would have not} read it.' Clauses with MOD marking ✓

(65) **Negation in *ki*-complements**

a. *Eric a-li-(mw)-ona [Tom h-a-ki-pika dengu]
1Eric 1-PST-1-saw 1Tom NEG-1-SIT-cook 10lentil
Intended: 'Eric saw Tom not cooking lentils.'

b. Eric a-li-(mw)-ona [Tom a-si-po-pika dengu]
1Eric 1-PST-1-saw 1Tom NEG-1-SIT.NEG-cook 10lentil
'Eric saw Tom not cooking lentils.'

(66) **Negation in AGR-only complements**

a. *U-li-(m)-lazimisha [pake ha-a-vi-le vidonge]
2SG-PST-1-force 1cat NEG-1-8-eat.SBJN 8tablet
Intended: 'You forced the cat to not eat the tablets.'

b. U-li-(m)-lazimisha [pake a-si-vi-le vidonge]
2SG-PST-1-force 1cat 1-NEG-8-eat.SBJN 8tablet
'You forced the cat to not eat the tablets.'

(67) **Negation in *ku*-complements**

a. *Tom a-na-onekana [ha-ku-penda dengu]
1Tom 1-PRS-seem NEG-INF-like 10lentil
Intended: 'Tom seems to not like lentils.'

b. Tom a-na-onekana [ku-to-penda dengu]
1Tom 1-PRS-seem INF-NEG-like 10lentil
'Tom seems to not like lentils.'

Finally, all our complements but *ku*-complements can display subject marking. This conclusion depends on the precise analysis of ku-, because in other contexts this morph is unambiguously a subject marking for Class 15, the noun class for derived nominals bearing the ku- prefix (68). One could imagine, in line with comments above about the potentially nominalised status of ku-complements, that the ku- reflects agreement with a covert nominal element. I will not develop this possibility here. ultimately it could be compatible with subsequent claims about structure of ku-complements relative to locality.

(68) Ku-soma riwaya ku-na-m-furahisha Tom
INF-reading 10novel 15-PRS-1-be.happy.CAUS Tom
'Reading novels makes Tom happy.'

Having taken a closer look at the morphosyntactic behaviour of our complements, we can now examine the behaviour of nominals in these clauses.

2.4.3 Three nominal distribution profiles

The distributions under focus here are simply the possible placement of nominals, arguments and adjuncts, in the pre-verbal and post-verbal fields. The basic patterns are summarised in the table in (69). The facts are discussed in more detail below.

(69) **Nominal profiles for Swahili complement clauses**

	COMP	*ki-*	AGR-only	*ku-*
One pre-verbal arg/adjunct	✓	✓	✓	✗
Two pre-verbal args/adjuncts	✓	✗	✗	✗
Post-verbal subject	✓	✗	✗	✗

The word order of COMP-complements clauses resembles main clauses. The data in (**??**) show them with pre-verbal subjects and post-verbal objects. It's possible for topicalised objects to appear at the left edge these complements, following the complementiser. Subject inversion is also possible in these clauses, subject to suitable information-structural conditions. In other words they allow filling both the pre-verbal and post-verbal field.

(70) **Post-verbal subjects and topicalisation in COMP-complements**

a. Lizzie a-li-sema kwamba Eric a-li-fika jana
Lizzie 1-PST-say COMP Eric 1-PST-arrive yesterday
'Lizzie said that Eric arrived yesterday.'

b. Lizzie a-li-sema kwamba a-li-fika Eric jana
Lizzie 1-PST-say COMP 1-PST-arrive Eric yesterday
'Lizzie said that Eric arrived yesterday.'

c. Lizzie a-li-sema kwamba tiketi hizi Eric a-li-zi-nunua jana
Lizzie 1-PST-say COMP 10ticket 10DEM Eric 1-PST-buy yesterday
'Lizzie said that {these/many} tickets Eric bought yesterday.'

d. Lizzie a-li-sema kwamba tiketi hizi a-li-zi-nunua Eric jana
Lizzie 1-PST-say COMP 10ticket 10DEM 1-PST-buy Eric yesterday
'Lizzie said that these tickets ERIC bought yesterday.'

ki-complements and AGR-only complements display a relatively, but not entirely, impoverished range of word order possibilities. Like COMP-complements they permit an overt pre-verbal subject. However this is the only pre-verbal DP that is permitted. A theme can only occupy a pre-verbal position if passive structure is used, making it a subject. Further more no post-verbal subjects seem to be permitted in these clauses.

(71) **Word order restrictions in AGR-only complements**

a. Lizzie a-li-(m-)taka [Jini a-(ki-)tengeneze kisu chake haraka]
Lizzie 1-PST-1-want Jini 1-7repair.SBJN 7knife 7sc poss quickly
'Lizzie wanted Jini to repair her knife quickly.'

b. Lizzie h-a-ku-taka [yeyote a-(ki-)tengeneze kisu chake haraka]
Lizzie NEG-1-PST-want 1anybody 1-7repair.SBJN 7knife 7SC poss quickly
'Lizzie didn't want anybody to repair her knife quickly.'

c. *Lizzie a-li-taka [a-(ki-)tengeneze Jini haraka]
Lizzie 1-PST-want 1-7-repair.SBJN Jini quickly
Intended: 'Lizzie wanted Jini to repair it quickly.'

d. *Lizzie a-li-(m-)taka [kisu chake Jini a-ki-tengeneze haraka]
Lizzie 1-PST-1-want 7knife 7SC poss Jini 1-7-repair.SBJN quickly
Intended: 'Lizzie wanted Jini to repair HER KNIFE quickly.'

e. Lizzie a-li-(ki-)taka [kisu chake ki-tengeneze na Jini haraka]
Lizzie 1-PST-1-want 7knife 7SC poss 1-7-repair.SBJN by Jini quickly
'Lizzie wanted her knife to be repaired by Jini.'

(72) **Word order restrictions in *ki*-complements**

a. Eric a-li-(mw)-ona [Tom a-ki-pika (dengu)]
Eric 1-PST-1-see Tom 1-SIT-cook 10lentil
'Eric saw Tom cooking (lentils).'

b. *Eric a-li-(mw)-ona [dengu hizi Tom a-ki-zi-pika]
Eric 1-PST-1-see 10lentil 10DEM Tom 1-SIT-10-cook
Intended: 'Eric saw Tom cooking lentils.'

c. *Eric a-li-(mw)-ona [dengu hizi a-ki-zi-pika Tom]
Eric 1-PST-1-see 10lentil 10DEM 1-SIT-10-cook Tom
Intended: 'Eric saw Tom cooking lentils.'

d. *Eric a-li-(mw)-ona [a-ki-pika Tom]
Eric 1-PST-1-see 1-SIT-cook Tom
Intended: 'Eric saw Tom cooking.'

e. Eric a-li-(zi)-ona [dengu zi-ki-pikwa na Tom]
Eric 1-PST-10-see 10lentil 1-SIT-cook.PASS by Tom
'Eric saw the lentils being cooked by Tom.'

Infinitive complements display the most restricted word order. If the complement has an internal argument, it cannot appear at the left edge of the complement. Inversion is likewise not possible in these complements, although this is a more trivial observation given the possibility of overt external arguments in general.

(73) **Word order restrictions in infinitive complements**

a. Lizzie a-li-taka [ku-(ki-)tengeneza kisu chake haraka]
Lizzie 1-PST-want INF-7-repair 7knife 7.POSS
'Lizzie wanted to repair her knife quickly.'

b. *Lizzie a-li-taka [kisu chake ku-ki-tengeneza]
Lizzie 1-PST-want 7knife 7.POSS INF-repair
'Her knife, Lizzie wanted to repair.'

c. *a-li-taka [ku-ki-tengeneza Lizzie haraka]
1-PST-want INF-7-repair Lizzie quickly
Intended: 'Lizzie wanted to repair it quickly.'

With the morphosyntactic and word order patterns now reviewed, we can turn to complement clause structures proposed to account for them.

2.4.4 Four sizes of complement clause

The structure of these clauses is illustrated alongside examples below in (74). COMP-complements have the richest structure, a full CP's worth. For simplicity's sake the complementisers are represented below as the head of C. The next largest are *ki*-complements which are truncated midway through the IP layer at AspP, in line with proposals for perception-verb complements in other languages (CITATIONS). Somewhat smaller are AGR-only complements which are built only up to LModP. The very smallest clauses are *ku*-complements,

which for simplicity are assumed to just consist of a thematic domain. It may be that ku-complements have a range of different internal structures depending on the embedding predicate, connected to issues of raising and control.

(74) **Complement clause structures**

a. $[_{\text{CP}}$ *kwamba/kuwa* $[_{\text{HMod}}$ $[_{\text{TP}}$ $[_{\text{AspP}}$ $[_{\text{LModP}}$ $[_{\text{AgrSP}}$ $[_{\text{VoiceP}}$ $\dots]]]]]]]$ COMP

b. $[_{\text{AspP}}$ *ki-* $[_{\text{LModP}}$ $[_{\text{AgrSP}}$ $[_{\text{VoiceP}}$ $\dots]]]]]]]$ *ki-*

c. $[_{\text{LModP}}$*-e* $[_{\text{AgrSP}}$ $[_{\text{VoiceP}}$ $\dots]]]]]]]$ AGR-only

d. $[_{\text{VoiceP}}$ *ku-* $\dots]$ *ku-*

In terms of morphosyntax there are a couple of important transitions in the truncation of the clause. To be built below TP highly limits the availability of INFL prefixes, on the assumptions outlined so far. The absence of HMod, the locus of realis, is crucial for absence of primary negation - assuming that primary/negation is analysed along the lines suggested in §2.3.3. Another transition concerns the nature of subject marking, somewhat set aside so far. I assume that there is a projection very low in the IP layer which host the [uφ] realised by subject marking. It is low enough that only the smallest clauses lack it.[22]

The relationship between the four clause structures and the morphosyntactic profiles is straightfoward in its basic aspects, with some crucial details clarified in the final section. The biggest clause has enough structure for a left periphery and a pre-verbal subject position. The smallest clause has essentially no structure outside of the thematic domain, giving no left periphery or pre-verbal subject position. What it isn't obvious yet is how the word order profiles of *ki-* and AGR-only complements follow from their middling size. Whilst it follows that they do not have a left periphery, that they have pre-verbal subjects is suprising if Spec, TP is the only other landing site for DPs outside of thematic domain. This issue is taken up presently in the next and final section.

22. Another possibility is that, along the lines proposed by Carstens, 2005, a number of functional projections in the IP layer bear [uφ]. This would help account for the fact that subject marking appears on lexical verbs and auxiliaries.

2.5 The structural location of subjects

In this section I pursue a loose end concerning the structural location of subject DPs that follows from proposing radically truncated clause structures.

2.5.1 DP positions and variable verb-movement

I propose that there is a third, low, position that certain DPs - the controllers of subject marking, can occupy. This is Spec, AgrSP. This is the pre-verbal position of subject DPs in *ki-* and AGR-only complements. This position outside of thematic domain is masked by presence of verb movement - the verb typically "moves over" DPs in this position. The masking comes undone on the assumption that the height of verb movement in Swahili, however implemented, but it crucially depends on the size of the clause in question, as stated below in (75).

(75) **Variable verb-movement**
In clauses TP-sized or larger clause, [@] is on T. Clauses smaller than TP have [@] on AgrS. Clauses without AgrS have [@] on the highest F in thematic domain.

Consider now the consequences of this variable verb movement for the linearisation of DPs in our different clause structures. Note in particular how DPs at Spec AgrSP are affected. In clauses which are TP-sized or larger, a DP at Spec AgrSP will be linearised in the post-verbal field. Only in smaller clauses which still have AgrSP will a DP at Spec AgrSP be linearised pre-verbally. Outside of these limited contexts, I propose that the availability of Spec AgrSP is a source for prevalent patterns of post-verbal subjects.

(76) **DP positions and linearisation in different clauses** Post-verbal field

a. [CP _ [HModP [TP _ [AspP [LModP [AgrSP _ [VoiceP ⋯]]]]]]]

b. [AspP [LModP [AgrSP _ [VoiceP ⋯]]]]

c. [LModP [AgrSP _ [VoiceP ⋯]]]

d. [VoiceP ⋯] DP Position outside of VoiceP: _

A further assumption is needed to explain the restrictions we observed in *ki-* and AGR-only complements. While only a single DP could occupy a pre-verbal position, there was

a restriction connected agreement and thematic role. A theme could only access that position, if passive morphology was presented (and it thus controlled subject marking). This issue is the last one to be clarified.

2.5.2 Agreement and low subjects

The obvious strategy is to have Agree regulate access to Spec, AgrSP. That is, the most local goal for [uφ] on AgrS is the preferred occupier of Spec, AgrSP. This is largely in line with Carstens (2005)'s proposal that [uφ] in Bantu languages has an obligatory EPP property, forcing moving of the goal DP to the specifier of the probe-bearing head.

(77) **Agree-driven movement to Spec, AgrSP**
The most local goal for [uφ] on AgrS preferably occupies Spec, AgrSP.

The language here is deliberately weaker that Carstens' proposal for important reasons. To look ahead to the next chapter, I will be proposing that in certain kinds of the relative clauses, the relativised DPs, both subjects and non-subjects, can land in Spec AgrSP. In other words, although being a local goal is normally important enough to get access to this position, bearing the feature associated with relativisation ranks as more important, even if the DP is question is not otherwise a suitable goal. I leave this issue of competition relatively unformalised in (78).

(78) **Access-condition for Spec, AgrSP**
If there is more than one featural trigger on AgrS, and those triggers favour different DPs, the [uφ] has lowest priority.

We have now reviewed crucial facts and assumptions being made about clause structure and complements in Swahili. In the next section these concerns are extended to the internal structure of relatives.

Chapter 3

The size of Swahili relatives

3.1 Introduction

In this chapter I focus on the internal structure of restrictive relative clauses, applying some of the diagnostics used in the last chapter on complement clauses. It is proposed that there are three sizes of relative clause. The existence of smaller relatives has consequences for the distribution of nominals, verbal morphosyntax and behaviour of resumptive pronouns. Before we get into the details of the proposal, let's first review the key paradigm of facts that inform this chapter.

In *amba*-bearing relatives, REL is affixed to *amba*. The word order is such clauses is about as 'free' as in main clauses. The head of the relative can relate to a subject (79a) or a non-subject gap (79b).[1] We will see that in certain syntactic environments, a resumptive pronoun is possible instead of a gap. In (79a) REL takes the form *-ye*, because the head of the relative is a Class 1 *mtu* 'person'. By contrast, REL takes the form *-cho* in (79b) because the head of the relative is a Class 7 *kisu* 'knife'.

(79) **Introducing *amba* RCs**

a. Ni-li-mw-ona [$_{\text{Head}}$ **mtu**] [$_{\text{RC}}$ amba-ye **t** a-li-ki-vunja kisu] Subject
1SG-PST-1-see 1person COMP-1REL 1-PST-7-break 7knife
'I saw the person who broke the knife.'

1. See B. M. Henderson (2006), Van der Wal (2010), and B. Henderson (2011) for contrasting patterns of relativisation in other Bantu languages.

b. Ni-li-nunua [$_{\text{Head}}$ **kisu**] [$_{\text{RC}}$ amba-cho Jini a-li-ki-vunja **t**] Non-subject
1SG-PST-buy 7knife COMP-7REL 1Jini 1-PST-7-break
'I bought the knife that Jini broke.'

Consider now the contrasting behaviour of *amba*-less RCs, with one type displayed below in (80). Principally this involves REL appearing after the INFL prefix that marks tense/aspect, and before any object marking.[2] The word order of these clauses is also more restricted, which is clearest when relativising a theme/object. Despite these differences, the data below show us that *amba*-less RCs can have subject or non-subject heads. We will see that the availability of resumptive pronouns is more restricted with *amba*-less RCs.

(80) **Introducing Type 1 *amba*-less RCs**

a. Ni-li-mw-ona [$_{\text{Head}}$ **mtu**] [$_{\text{RC}}$ **t** a-li-ye-vunja kisu] Subject
1SG-PST-1-see 1person 1-PST-1REL-break 7knife
'I saw the person who broke the knife.'

b. Ni-li-nunua [$_{\text{Head}}$ **kisu**] [$_{\text{RC}}$ (*Jini) a-li-cho-ki-vunja Jini **t**] Non-subject
1SG-PST-buy 7knife 1-PST-7REL-7-break 1Jini
'I bought the knife Jini broke.'

Previous literature (Ashton, 1947; Barrett-Keach, 1980; Vitale, 1981; Schadeberg, 1989; Buell, 2002; Ngonyani, 2006), has tended to distinguish two types of *amba*-less RCs. The further type, which I simply term Type 2, is shown below. The key differences appear Type 1 and 2 to be morphosyntactic. In Type 2 RCs the relative marker is placed after the final vowel, and no prefixes other subject and object marking are permitted.

(81) **Introducing Type 2 *amba*-less RCs**

a. Ni-li-mw-ona [$_{\text{Head}}$ **mtu**] [$_{\text{RC}}$ **t** a-vunja-ye kisu] Subject RC
1SG-PST-1-see 1person 1-break-1REL 7knife
'I saw the person who breaks knives.'

2. This is another place where there is considerable dialectal variation. Swahili varieties vary both in the form and placement of the relative marker, and also whether it is even required. See Miyazaki and Takemura (2019), Shinagawa (2019), and Furumoto and Gibson (2022) for some discussion.

b. Ni-li-nunua [$_{\text{Head}}$ **kisu**] [$_{\text{RC}}$ (*Jini) a-ki-vunja-cho Jini **t**] Non-subject RC
1SG-PST-buy 7knife 1-7-break-7REL 1Jini
'I bought the knife Jini breaks.'

I propose that these three kinds of relative clauses differ from each other in clause size. These are presented below in (82) for comparison with maximal clausal spine. The source of these three sizes are three possible locations in the clausal spine for [Λ], a feature which encodes the core semantics of relativisation.

(82) **Three sizes of relative clause**

[$_{\text{CP}}$ C$_{[\Lambda]}$ [$_{\text{HMod}}$ [$_{\text{TP}}$ [$_{\text{AspP}}$ [$_{\text{LModP}}$ [$_{\text{AgrSP}}$ [$_{\text{VoiceP}}$ ⋯]]]]]]] ***amba* RC**

[$_{\text{TP}}$ T$_{[\Lambda]}$ [$_{\text{AspP}}$ [$_{\text{LModP}}$ [$_{\text{AgrSP}}$ [$_{\text{VoiceP}}$ ⋯]]]]] **Type 1 *amba*-less RC**

[$_{\text{AgrSP}}$ AgrS$_{[\Lambda]}$ [$_{\text{VoiceP}}$ ⋯]] **Type 2 *amba*-less RC**

Based on assumptions about how clause structure relates to morphosyntax discussed in the last chapter, we expect the smaller relative clauses ought to display a more limited range of NEG and INFL morphology and a more restricted range of positions for nominals.

The remaining structure of the chapter is as follows. In §(3.2) I outline the core proposal for the source of relativisation and the variable size of relatives in Swahili. In §(3.3) I explore the consequences for word order, morphosyntax and resumption of proposing smaller than CP-relatives. In §(3.5) I examine a recent for proposal a system of relative clause sizes in English.

3.2 A variable locus for relativisation

In this section I outline the core proposal for how relative clauses are formed in Swahili. I then sketch out three possible sizes of clause, determined by the distribution of a predicate abstraction-trigger feature [Λ]. I conclude by discussing how the locality of predicational relationships enforces smaller clause sizes when [Λ] is present lower in the clausal spine.

3.2.1 The predicate abstraction feature [Λ]

A defining feature of relative clauses is that they are clauses which denote a set of individuals. It is generally assumed that this interpretation is achieved at LF by *predicate abstraction* (PA) (Heim & Kratzer, 1998). PA is a function which takes any semantic type under a variable assignment as its input, and returns a denotation of type <e,t>. Following Rizzi (1990) and Adger and Ramchand (2005), I propose that predicate abstraction is triggered at LF by reading off a dedicated feature in the syntax. In Heim and Kratzer (1998) a similar role was played by relative pronouns and *such*. I call this feature [Λ]. This feature is optionally present on certain functional heads in the clausal spine. Abstracting away from their identity for a moment, let us just call them F_{REL}.

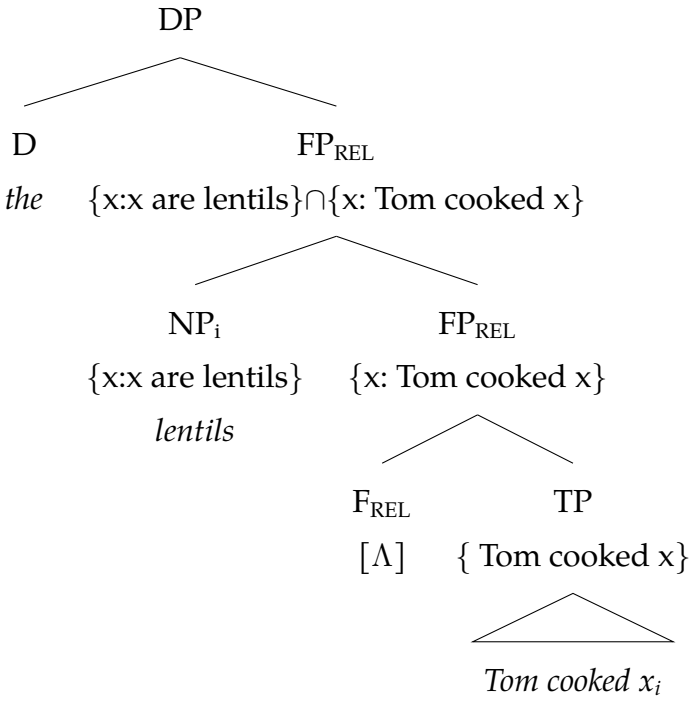
When [Λ] is present in the syntax, the branching node immediately dominating F_{REL} containing [Λ] will have the denotation of a set of individuals characterised by the denotation of F_{REL}'s sister according to a variable assignment. Predicate abstraction can only apply if there is a suitable syntactic object within the sister to F_{REL} that can be interpreted as a variable. This can either be a pronoun or a trace/lower copy. Varying position of this variable in the argument structure varies the interpretation of the relative clause: {x:x cooked the lentils} vs. {x: that Tom cooked x}. This predicate abstraction is illustrated in the schematic clause below, in which an NP moves to Spec F_{REL}. This NP restricts the set of individuals denoted by FP$_{REL}$. This is illustrated below in a simple Kayne (1994)-type raising derivation.

(83) **Key features of [Λ]**

a. Branching node dominating [Λ] is interpreted as predicate of individuals.

b. Requires a variable in c-command domain.

(84) **Application in a schematic analysis of *the lentils that Tom cooked***



Swahili has complementary strategies for satisfying [Λ]'s semantic requirements. I couch both strategies in terms of a matching derivation of relatives (Sauerland, 1998; Cresti, 2000; Citko, 2001; Sauerland, 2003; Salzmann, 2006, 2017). The key difference that matching derivation introduces to the structure sketched above is that FP_{REL} is adjoined to an NP. The DP structure external to the relative clause is identical to one internal to the relative clause which moves or first merges with FP_{REL}. This internal DP is deleted under identity. I discuss the motivation for a matching derivation in more detail in the next chapter.

(85) **The matching derivation in a nutshell**

$[_{DP}\ [_{NP}\ [NP]\ [_{FP_{REL}}\ [\cancel{DP}]_i \ldots \mathbf{t}_i\ ]]]$

The *movement strategy* satisfies the need for a restriction and a variable at once. The head of the relative, the restrictor, is the top component of the movement dependency, whereas the lower copy/trace is interpreted as a variable. Some LF-process akin to the Trace Conversion of Fox (2002) will naturally be required.

(86) **The movement strategy (under a matching derivation)**

$[_{DP}\ [_{NP}\ [_{NP}\ \textit{kisu}]\ [_{FP_{REL}}\ [\sout{DP}]_i\ [F_{REL}\ \Lambda]\ [\ldots V \ldots \mathbf{t}_i\ ]]]]$

The other strategy is to base-generate a suitable phrase as the restrictor of predicate abstraction. This pharse will still be deleted under identity with the external nominal structure of the matching derivation. Instead of a lower copy/trace, a resumptive pronoun is merged downstrairs and interpreted as a bound variable. We shall see that Swahili has several kinds of base-generated resumption pronouns, which generally appear when movement dependencies are not possible.

(87) **The resumption strategy (under a matching derivation)**

$[_{DP}\ [_{NP}\ [_{NP}\ \textit{kisu}]\ [_{FP_{REL}}\ [\sout{DP}]_i\ [F_{REL}\ \Lambda]\ [\ldots V \ldots \mathbf{t}_i\ ]]]]$

Having seen the basic logic of how relative clauses are built in Swahili, I now want to focus in more detail on variation in their internal structure.

3.2.2 Three locations for [Λ], three sizes of relative clause

A crucial property of Swahili relatives is that [Λ] does not have a single fixed location in the clausal spine. It can appear on one of three clausal functional heads: C, T or AgrS. Recall that only these three FPs provide the specifier positions for DPs outside of the thematic domain. These define three possible sizes of relative clause.

The largest kind of relative clause in Swahili has [Λ] on C, shown below in (88). This is the clause structure for *amba* RCs. By virtue of their size, these relative clauses have a morphosyntactic profile very similar to that of COMP-complements. Their size also afford them two positions for DPs outside of the thematic demain, Spec TP and Spec AgrSP.

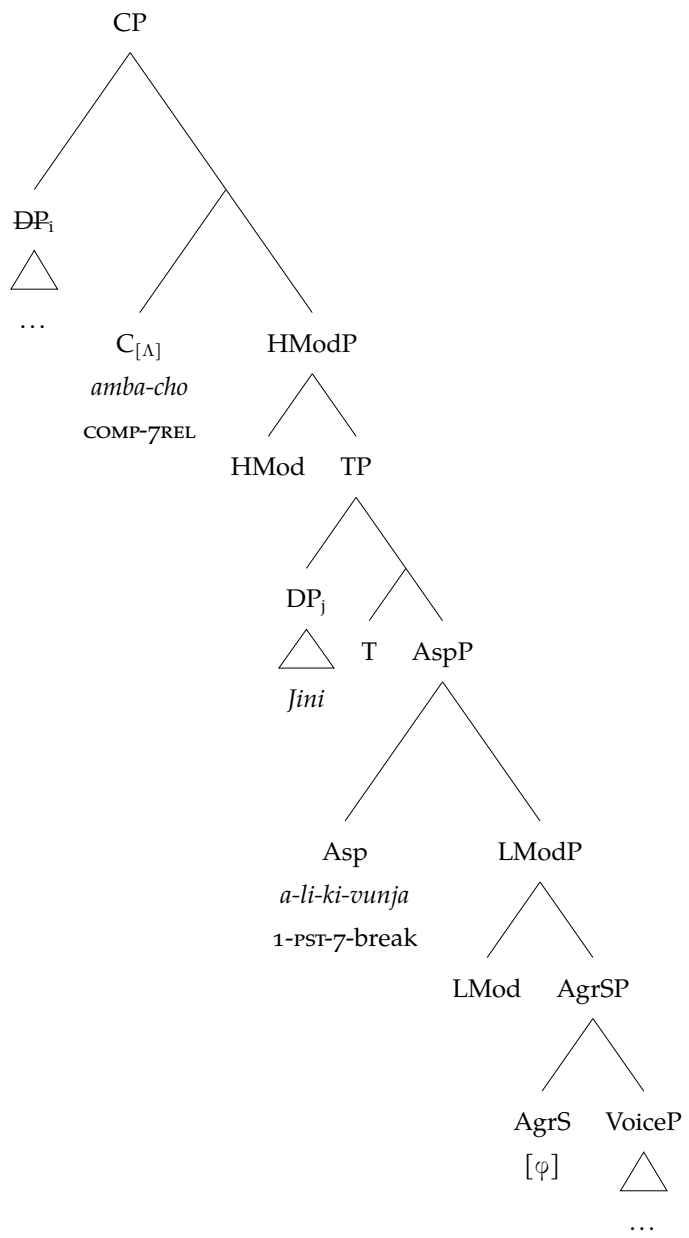
(88) ***amba* RC**

a. Ni-li-nunua $[_{Head}$ **kisu** $]$ $[_{RC}$ amba-cho Jini a-li-ki-vunja **t**$]$

1SG-PST-buy 7knife COMP-7REL 1Jini 1-PST-7-break

'I bought the knife that Jini broke.'

b.



Before presenting the other RC structure, a couple of comments about *amba* itself are in order. I am assuming that *amba* realises some head high in the clausal spine, labeled as C for convenience, where bears $[\Lambda]$. Even though there are parallels in form with one of the complement clause complementiser, *kwamba*, it's probably sensible to avoid analysing amba as a general-purpose marker of the periphery. It's notable, for example, that noun-complement clauses cannot be formed with amba, and must instead use *kuwa* as illustrated below in (89). I leave a more thorough analysis of the complementiser system to future research.

(89) ***amba* not suitable for noun-complement clauses**

[Taarifa [{**kuwa**/*amba/*kwamba} mabakuli haya ya-na-kuwa maarafu]]
5information COMP 6bowls 6DEM 6-PRES-be popular

li-na-wa-pendeza Tom na Eric.
5-PRS-2-please Tom and Eric

'The news that these bowls are popular pleases Tom and Eric.'

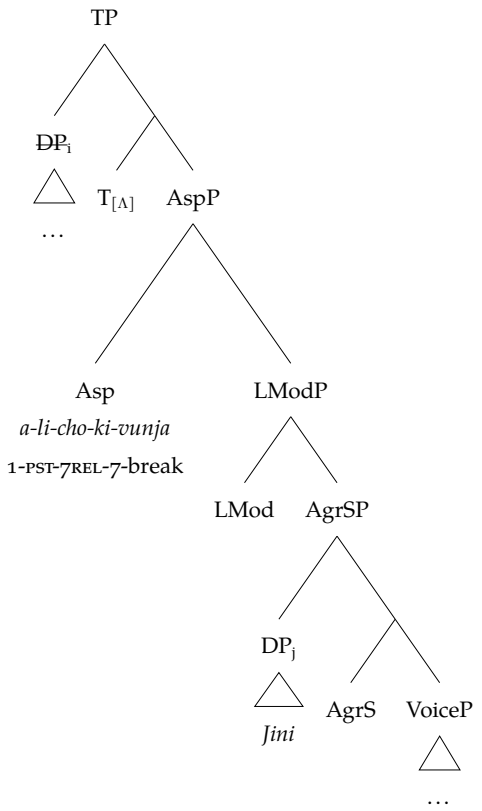
The next largest kind of relative clause, for Type 1 amba-less RCs, has [Λ] on T. By virtue of their size, these RCs have a morphosyntactic profile somewhere between COMP-complements and AGR-only complements. In the absence of structure above TP, and with Spec TP filled by the internal head of the relative, there are only two structural locations for argument DPs. Either they occupy Spec AgrSP (90) or they stay in their thematic position.

(90) **Type 1 *amba*-less RC**

a. Ni-li-nunua [$_{\text{Head}}$ **kisu**] [$_{\text{RC}}$ (*Jini) a-li-cho-ki-vunja Jini **t**]
1SG-PST-buy 7knife 1-PST-7REL-7-break 1Jini

'I bought the knife Jini broke.'

b.

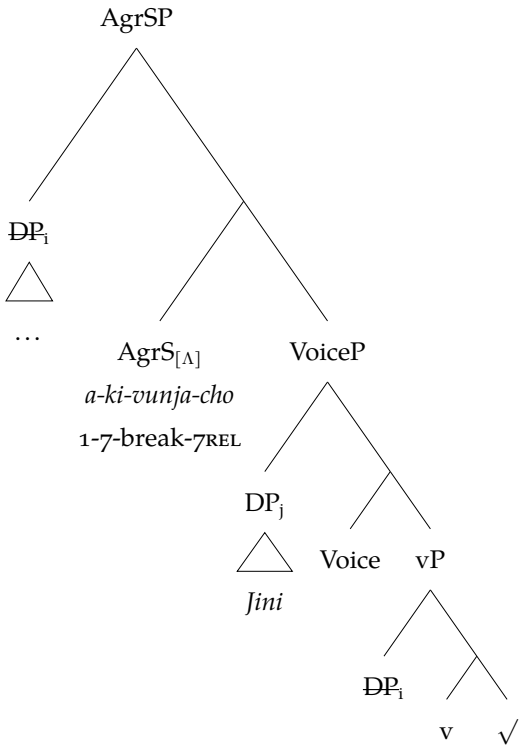


The smallest relative clause type, for Type 2 *amba*-less RCs, has [Λ] on AgrS. By virtue of their size, these RCs have a morphosyntactic profile somewhat resembling AGR-only complements. In the absence of structure above AgrSP, and with Spec AgrSP filled by the internal head of the relative, any unrelativised DPs have to remain within the thematic domain.

(91) **Type 2 *amba*-less RC**

a. Ni-li-nunua [$_{\text{Head}}$ **kisu**] [$_{\text{RC}}$ (*Jini) a-ki-vunja-cho Jini **t**]
1SG-PST-buy 7knife 1-7-break-7REL 1Jini
'I bought the knife Jini breaks.'

b.



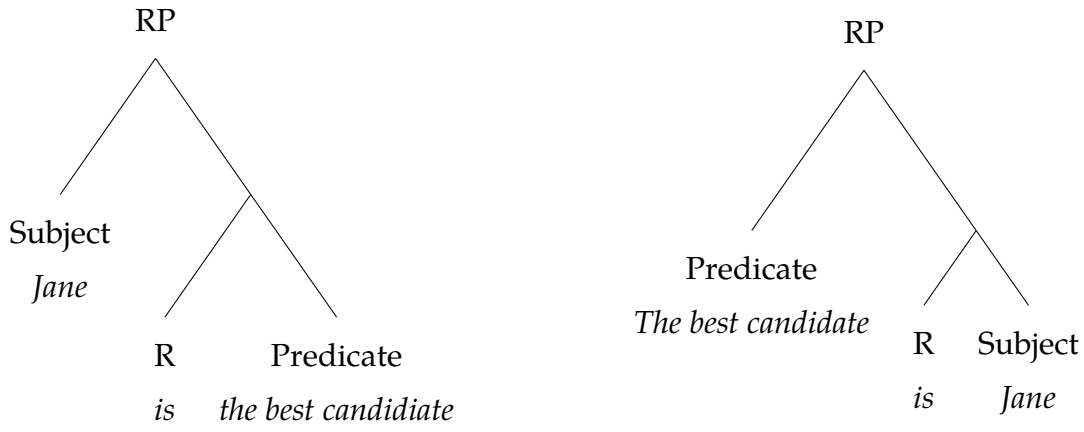
To sum up this subsection, it has been proposed that there are three sizes of relative clause in Swahili, and that this is determined in some sense by the distribution of [Λ], a feature that encodes predicate abstraction over individuals. I have not yet been very explicit about what exactly stops the projection of a CP, if T bears [Λ]. This is addressed in the next subsection.

3.2.3 What makes clauses smaller?

In subsection I briefly set out two different options for deriving smaller relative clause structures. I capitalise on the distribution of [Λ] and a locality condition on predicational relations from de Dikken (2006).

Relative clauses are interpreted as predicates of individuals, i.e. properties that be ascribed to individuals. They bear this interpretation by virtue of bearing a [Λ]. Predicates need subjects, i.e. constituents which can be interpreted as bearing the property assigned by the predicate. den Dikken (2006) proposes that a local and asymmetric syntactic relationship is required for something to be interpreted as the subject of a predicate. den Dikken frames this requirement in terms of a syntactic configuration he calls a relator phrase (RP). An RP is whatever phrase in which a predicate and a subject occupy the specifier/adjunct position and the complement position.

(92) **The syntactic configurations underlying predication relations**

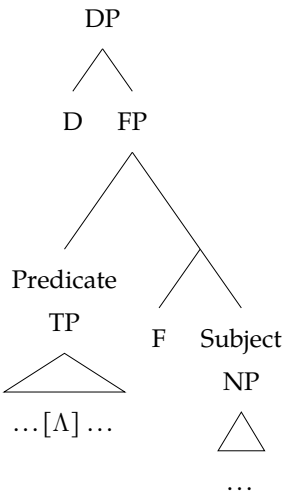


The core intuition behind relators, that predicational relationships have a phrase-bound locality, extends to restrictive relationship that relative clauses can have with their head (den Dikken 2006; 242). This would constrain the relationship between [Λ] and the projection of further clausal material in the following way.

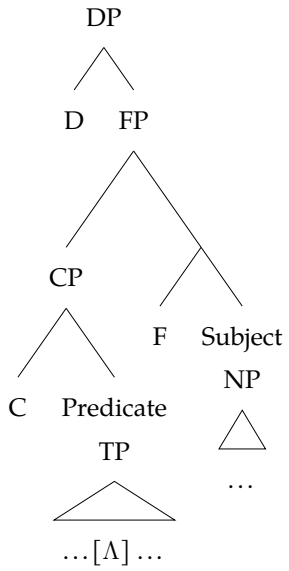
By virtue of the predicate abstraction that [Λ] triggers, the maximal projection of the head bearing [Λ] must ultimately occupy an RP configuration. That is, it must occupy a specifier/adjunct/complement positions local to a constituent (the head of the relative) that can be interpreted as the subject, bearer of the properties denoted by the relative clause. Suppose that in relative clause in question, [Λ] is hosted on T. If further clause

structure is projected on top of T, e.g. a CP-layer, and the resulting clause structure is adjoined to some functional projection in NP, the predication relationship doesn't have a sufficiently local syntactic relationship with the subject.

(93) **Local relationship for predication ✓**



(94) **Local relationship for predication ✗**



What has been proposed is essentially a filter at the LF on the structural configurations from which predicational relationships can be read off. Derivations that comply with the filter involve highest clausal constituent bearing [Λ] to be merged inside a nominal before further clausal structure can be added. The salient alternative to what has been suggested here is something in the spirit of Cecchetto and Donati (2015)'s relabelling system. In the relabelling system, there are circumstances under which moved or base-generated nominals can have their label projected over that piece of clause structure they have merged with. Such relabelling would prevent the projection of e.g. CP, if the relevant nominals were merged lower in the structure.

We can now conclude this subsection. I have argued that the locus of relativisation is a feature [Λ] which triggers predicate abstraction over individuals. This feature can appear on one of several heads in the clausal spine: C, T and AgrS. By virtue of a locality relationship of predicational relationships, the presence of [Λ] on lower functional heads prevents further projection of clausal material. The three locations of [Λ] thus define three sizes of relative clauses, which relate to the three descriptive types of Swahili RC. In the next section I want to look more closely at the consequences of having smaller clause structure.

3.3 The signature of smaller clause structures

In this section I consider three kinds of correlates of the amba/amba-less distinction that support the proposal for difference sizes of relative clause. I start with the restrictions on word order and their scope consequences, before consider the morphosyntax of verbs and the behaviour of certain resumptive pronouns. I conclude with some discussion of how to analyse the relative marker under present assumptions.

3.3.1 Verbal morphosyntax

Earlier literature Ashton (1947), Barrett-Keach (1980), Vitale (1981), and Ngonyani (2006) has identified amba RCs as having a very similar morphological profile to main clauses and COMP-complements. They can display the full range of modality, tense and aspect prefixes, as shown in (95).

(95) **Prefix selection for amba RCs**

a.

Modality	Tense	Aspect
Irrealis *nge-* ✓	Past *li-* ✓	Imperfective *na-* ✓
Counterfactual *ngali-* ✓	Present *na-* ✓	Perfect *me-* ✓
	Future *ta-* ✓	

b. Lizzie a-na-ki-ona kisu [amba-cho Jini a-li-ki-vunja] Past
Lizzie 1-PRS-7-see 7knife COMP-7REL Jini 1-PST-7-break
'Lizzie sees the knife that Jini broke.'

c. Lizzie a-na-ki-ona kisu [amba-cho Jini a-na-ki-vunja] Present
Lizzie 1-PRS-7-see 7knife COMP-7REL Jini 1-PRS-7-break
'Lizzie sees the knife that Jini breaks/is breaking.'

d. Lizzie a-na-ki-ona kisu [amba-cho Jini a-ta-ki-vunja] Future
Lizzie 1-PRS-7-see 7knife COMP-7REL Jini 1-FUT-7-break
'Lizzie sees the knife that Jini will break.'

e. Lizzie a-na-ki-ona kisu [amba-cho Jini a-me-ki-vunja] Perfect
Lizzie 1-PRS-7-see 7knife COMP-7REL Jini 1-PFT-7-break
'Lizzie sees the knife that Jini has broken.'

f. Lizzie a-na-ki-ona kisu [amba-cho Jini a-nge-ki-vunja] Irrealis
Lizzie 1-PRS-7-see 7knife COMP-7REL Jini 1-IRR-7-break
'Lizzie sees the knife that Jini would break.'

g. Lizzie a-na-ki-ona kisu [amba-cho Jini a-ngali-ki-vunja] Counterfactual
Lizzie 1-PRS-7-see 7knife COMP-7REL Jini 1-CTF-7-break
'Lizzie sees the knife that Jini would have broken.'

amba RCs can likewise display primary and secondary negation in the relevant environments, as we can see in the examples in below (96).

(96) **Negation in *amba* RCs**

a. kitabu amba-cho **ha**-tu-{ku/tu/ja}-ki-soma
7book COMP-7REL NEG-1PL-PST/FUT/PFT-7-read
'the book that we {didn't/will not/haven't} read.' Primary negation ✓

b. kitabu amba-cho tu-**si**-{nge/ngali}-ki-soma
7book COMP-7REL 1PL-NEG-IRR/CTF-7-read
'the book that we {wouldn't/would have not} read.' Secondary negation ✓

On the same grounds that we concluded that COMP-complements have at least a HModP's worth of clause structure, we can conclude the same for amba RCs.

Type 1 *amba*-less RCs having a distinctive morphological character beyond lacking *amba* and having REL fall within the prefix cluster. The verb in such relatives has access to only the Past *li-*, the present/imperfective *na-* and an allomorph of the future marker *taka-* (c.f. *ta-*). They are unable to host the modality prefixes *nge-*/*ngali-*, nor the Perfect marker *me-*. This is shown below in (97).

(97) **Prefix selection for Type 1 amba-less RCs**

a.

Modality	Tense	Aspect
Irrealis *nge-* ✗	Past *li-* ✓	Imperfective *na-* ✓
Counterfactual *ngali-* ✗	Present *na-* ✓	Perfect *me-* ✗
	Future *taka-* ✓	

b. Lizzie a-na-ki-ona kisu [a-li-cho-ki-vunja Jini] Past
Lizzie 1-PRS-7-see 7knife 1-PST-7REL-7-break Jini
'Lizzie sees the knife that Jini broke.'

c. Lizzie a-na-ki-ona kisu [a-na-cho-ki-vunja Jini] Present
Lizzie 1-PRS-7-see 7knife 1-PRS-7REL-7-break Jini
'Lizzie sees the knife that Jini breaks/is breaking.'

d. Lizzie a-na-ki-ona kisu [a-taka-cho-ki-vunja Jini] Future
Lizzie 1-PRS-7-see 7knife 1-FUT-7REL-7-break Jini
'Lizzie sees the knife that Jini will break.'

e. *Lizzie a-na-ki-ona kisu [a-me-cho-ki-vunja Jini] Perfect ✗
Lizzie 1-PRS-7-see 7knife 1-PFT-7REL-7-break Jini
Intended: 'Lizzie sees the knife that Jini has broken.'

f. *Lizzie a-na-ki-ona kisu [a-nge-cho-ki-vunja Jini] Irrealis ✗
Lizzie 1-PRS-7-see 7knife 1-IRR-7REL-7-break Jini
Intended: 'Lizzie sees the knife that Jini would break.'

g. *Lizzie a-na-ki-ona kisu [a-ngali-cho-ki-vunja Jini] Counterfactual ✗
Lizzie 1-PRS-7-see 7knife 1-CTF-7REL-7-break Jini
Intended: 'Lizzie sees the knife that Jini would have broken.'

Type 1 *amba*-less relatives only allow secondary negation, as we can see below in (98). We do not ever find combinations of secondary negation, relative marking and INFL-prefixes. My suspicion is that source of this restriction concerns the wider processes that govern the morphological composition of prefix cluster. The intuition would be that there is a kind of maximality constraint on the size of the prefix cluster. I leave working out the details of this restriction to future work.

(98) **Negation in Type 1 amba-less RCs**

a. *kitabu **ha**-tu-{ku/tu}-cho-ki-soma
7book NEG-1PL-PST/FUT-7REL-7-read
Intended: 'the book that we {didn't/will not/haven't} read.Primary negation ✗

b. kitabu tu-**si**-cho-ki-soma

7book NEG-1PL-7REL-7-read

'the book that we don't read.' Secondary negation ✓

On the basis of the lack of modality marking, and on the possibility of only secondary negation, we can conclude that Type 1 clauses have only a TP's worth of structure.[3]

Type 2 amba-less RCs have the most restricted verbal morphology of the three types of relative clause. As we can see in (99), they cannot bear any INFL prefixes, something they have in common with AGR-only complements. At present I am unclear on the temporal interpretation of these relatives, which often seems to have a generic flavour.[4] This issue deserves more careful investigation.

(99) **Prefix selection for Type 2 amba-less RCs**

a.

Modality	Tense	Aspect
Irrealis *nge-* ✗	Past *li-* ✗	Imperfective *na-* ✗
Counterfactual *ngali-* ✗	Present *na-* ✗	Perfect *me-* ✗
	Future *taka-* ✗	

b. Lizzie a-na-ki-ona kisu [a-ki-vunja-cho Jini]

Lizzie 1-PRS-7-see 7knife 1-7-break-7REL Jini

'Lizzie sees the knife that Jini breaks.'

3. The absence of the Perfect marker *me-* is unexpected if these relative clauses are TP-sized. This absence is a pecularity of Standard Swahili and not of all dialects, see e.g. the Kimakunduchi dialect discussed by Furumoto and Gibson (2022). One hypothesis would be that the 'Perfect' marker does not realise a single Aspect projection. Instead it realises a span of clausal functional structure from Asp to some projection above TP. The higher structure may be connected to the temporal remoteness markers found in other Bantu languages, discussed by e.g. Nurse (2008) and Cable (2013). In standard Swahili it could be more helpful to think of the perfect marker, in isolation, as a recent-past marker. The absence of the Perfect marking would then be parallel to that of irrealis and counterfactual marking: TP-sized relatives are too small to host these projections. In dialects like Kimakunduchi, the perfect marker has a more properly aspectual syntax and thus it is compatible with TP-sized relatives.

4. Connected to this issue, it is possible for verbs in these relatives to bear the habitual suffix *-aga*. This leads me to suspect that IP-layer in these clauses is not completely absent, which the AgrSP-size intuition is designed to capture.

c. *Lizzie a-na-ki-ona kisu [a-na-ki-vunja-cho Jini] Present ✗

Lizzie 1-PRS-7-see 7knife 1-PRS-7-break-7REL Jini

Intended: 'Lizzie sees the knife that Jini breaks/is breaking.'

d. *Lizzie a-na-ki-ona kisu [a-li-ki-vunja-cho Jini] Past ✗

Lizzie 1-PRS-7-see 7knife 1-PST-7-break-7REL Jini

Intended: 'Lizzie sees the knife that Jini broke.'

e. *Lizzie a-na-ki-ona kisu [a-ta-ki-vunja-cho Jini] Future ✗

Lizzie 1-PRS-7-see 7knife 1-FUT-7-break-7REL Jini

Intended: 'Lizzie sees the knife that Jini will break.'

f. *Lizzie a-na-ki-ona kisu [a-me-ki-vunja-cho Jini] Perfect ✗

Lizzie 1-PRS-7-see 7knife 1-PFT-7-break-7REL Jini

Intended: 'Lizzie sees the knife that Jini has broken.'

g. *Lizzie a-na-ki-ona kisu [a-nge-ki-vunja-cho Jini] Irrealis ✗

Lizzie 1-PRS-7-see 7knife 1-IRR-7-break-7REL Jini

Intended: 'Lizzie sees the knife that Jini would break.'

h. *Lizzie a-na-ki-ona kisu [a-ngali-ki-vunja-cho Jini] Counterfactual ✗

Lizzie 1-PRS-7-see 7knife 1-IRR-7-break-7REL Jini

Intended: 'Lizzie sees the knife that Jini would have broken.'

Although resembling AGR-only complements in some respects, as we can see below in (100), these RCs crucially differ in being unable to display any negative marking.

(100) **Negation in Type 2 amba-less RCs**

a. *kitabu **ha**-tu-ki-soma-cho

7book NEG-1PL-7-read-7REL

Intended: 'the book that we don't read.' Primary negation ✗

b. *kitabu tu-**si**-ki-soma-cho

7book NEG-1PL-7-read-7REL

Intended: 'the book that we don't read.' Secondary negation ✗

The complete lack of INFL-prefixes and the absence of any negative marking follows from very small clause structure, maximally AgrSP-sized. Recall that in the last chapter, we assumed that the negative markers realise NegPs which adjoin to either HModP or LModP. In the absence of these projections, there is no suitable site for sentential negation. The morphological profiles of three relatives and their associated clause structures are summarised in the table below (101).

(101) **Three morphosyntactic profiles for Swahili RCs**

	amba	Type 1 *amba*-less	Type 2 *amba*-less
INFL prefixes	MOD/TNS/ASP	TNS/ASP	Ø
Negation	Primary/Secondary	Secondary	Ø
Clause size	$[_{C}\ [_{HMod}\ [_{T}\ [_{Asp}\ [_{LMod}\ [_{AgrS}\ [\dots]]]]]]]$	$[_{T}\ [_{Asp}\ [_{LMod}\ [_{AgrS}\ [\dots]]]]]$	$[_{AgrS}\ [\dots]]$

Now that we have reviewed the motivation for the different morphosyntactic profiles of Swahili relatives, I want to turn our attention to how smaller clause structures derive the restrictions in word order observable in *amba*-less RCs.

3.3.2 Word order restrictions

In this subsection I consider how the restrictions on pre-verbal subjects and fronted elements follows from the proposal of smaller clause structures, combined with assumptions in the last chapter about the variable height of 'verb movement' and the structural location of negation. A brief comparison is offered with an alternative approach in terms of V-to-C movement.

In the last chapter it was proposed that pre-verbal DPs occupy three possible positions: Spec CP, Spec TP and Spec AgrSP. The pre-verbality of these positions is conditional on the behaviour of verb-movement, understood here to be result of Brodian pronunciation diacritic [@]. The distribution of the diacritic depended on the size of the clause, as summarised below. I would like to make a stronger proposal than I did there, now that we have TP-sized clauses to deal with. In essence there are three heights of verb movement: T, AgrS or Voice (103).

(102) **Key assumptions about verb movement from the last chapter**

a. CP-sized clauses: [@] on T

b. Asp-sized clauses: [@] on AgrSP

c. LModP-sized clauses: [@] on AgrSP

d. Voice-sized clauses: [@] on Voice

(103) **Verb-movement proposal**

In clauses TP-sized or larger clause, [@] is on T. Clauses smaller than TP have [@] on AgrS. Clauses without AgrS have [@] on the highest F in thematic domain.

The consequence of above proposal is that our two types of *amba*-less RC differ in the placement of [@]. Type 1 RCs behave like COMP-complements and *amba* RCs in locating [@] on T. Type 2 RCs pattern with *ki*-complements and AGR-only complements in located [@] on AgrS. Both of these distributions rule out the possibility of post-verbal DPs (including subjects), but in the Type 1 RCs there two structural positions, on at Spec AgrSP and the other in the thematic domain, for post-verbal DPs. By virtue of their smaller size, Type 2 RCs have their only DP position occupied by the internal head of the relative: post-verbal DPs are thus within the thematic domain. This is illustrated schematically below.

(104) **Verb-movement in RCs** Post-verbal field

a. *amba*: [$_{CP}$ ~~DP~~ [$_{HModP}$ [$_{TP}$ _ [$_{AspP}$ [$_{LModP}$ [$_{AgrSP}$ _ [_ ⋯]]]]]]]

b. Type 1 *amba*-less: [$_{TP}$ ~~DP~~ [$_{AspP}$ [$_{LModP}$ [$_{AgrSP}$ _ [_ ⋯]]]]]

c. Type 2 *amba*-less: [$_{AgrSP}$ ~~DP~~ [_ ⋯]] Position for unrelativised DP: _

This correctly captures the restrictions on pre-verbal subjects we have observed so far, which have also been reported in earlier literature, e.g. Barrett-Keach (1980) and Vitale (1981). These are repeated below.

(105) **Restrictions on pre-verbal subjects in *amba*-less RCs**

a. Ni-li-nunua [kisu] [$_{RC}$ (*Jini) a-li-cho-ki-vunja Jini **t**]

1SG-PST-buy 7knife 1-PST-7REL-7-break 1Jini

'I bought the knife Jini broke.'

b. Ni-li-nunua [kisu] [$_{RC}$ (*Jini) a-ki-vunja-cho Jini **t**]
1SG-PST-buy 7knife 1-7-break-7REL 1Jini
'I bought the knife Jini breaks.'

Since no CP layer is projected in *amba*-less RCs this account also predicts that fronted arguments/adjuncts ought to be impossible in these such relative clauses.

We can indeed see a contrast in acceptability of fronted objects, which are possible in *amba* RCs (106) but are impossible in *amba*-less RCs (107).[5] It must be acknowledged that such instances of fronting require richer left periphery than I have been so far entertaining, with at least a distinction between e.g. ForceP and FinP.[6] I take such enrichments to the clausal spine as straightfoward and generally abstract away from them.

(106) **Argument Fronting in *amba* RCs ✓**

a. Mtu [amba-ye a-li-kula **ndizi**] a-na njaa
1person COMP-1REL 1-PST-eat 10banana 1-have hunger
'The person who ate the bananas is hungry.'

b. Mtu [amba-ye **ndizi** a-li-zi-kula] a-na njaa
1person COMP-1REL banana 1-PST-10-eat 1-have hunger
'The person who ate the BANANAS is hungry.'

(107) **No Argument Fronting in Type 1 *amba*-less RCs ✗**

a. Mtu [a-li-ye-kula **ndizi**] a-na njaa
1person 1-PST-1REL-eat 10banana 3SG-have hunger
'The person who ate the bananas is hungry.'

b. *Mtu [**ndizi** a-li-ye-zi-kula] a-na njaa
1person 10banana 1-PST-1REL-10-eat 1-have hunger
'The person who ate the bananas is hungry.'

5. For this and other contrasts below I only have data from Type 1 *amba*-less RCs.
6. The internal head of the relative occupies Spec CP, whereas the pre-verbal subject occupies Spec TP. We need another position between these two account for the fronting cases.

The restrictions on do just apply object fronting. Temporal adverbials like *mwaka jana* 'last year' can appear in a post-verbal or pre-verbal position in *amba* RCs (108). Note that, as with object fronting above, the adjunct cannot appear between *amba* and the head of the relative. With type 1 amba-less RCs, this flexibility vanishes and the adverbial has to occupy a post-verbal position (109).

(108) **Temporal adjunct fronting in *amba* RCs ✓**

a. Mtu [amba-ye a-li-iba gari langu **mwaka jana**] a-ta-onana na
1person COMP-1REL 1-PST-steal 5car 5my year last 1-FUT-meet with
hakimu kesho
1judge tomorrow
'The person who stole my car last year will see the judge tomorrow.'

b. Mtu [amba-ye **mwaka jana** a-li-iba gari langu] a-ta-onana na
1person COMP-1REL year last 1-PST-steal 5car 5my 1-FUT-meet with
hakimu kesho
1judge tomorrow
'The person who stole my car last year will see the judge tomorrow.'

(109) **Temporal adjunct fronting in Type 1 *amba-less* RCs ✗**

a. Mtu [a-li-ye-iba gari langu **mwaka jana**] a-ta-onana na hakimu
1person 1-PST-1REL-steal 5car 5my year last 1-FUT-meet with 1judge
kesho
tomorrow
'The person who stole my car last year will see the judge tomorrow.'

b. *Mtu [**mwaka jana** a-li-ye-iba gari langu] a-ta-onana na hakimu
1person year last 1-PST-1REL-steal 5car 5my 1-FUT-meet with 1judge
kesho
tomorrow
'The person who stole my car last year will see the judge tomorrow.'

Similar restrictions also apply to the fronting of manner adpositions. We can see in (110) that such fronting is possible in *amba* RCs, whereas it is restricted in Type 1 *amba*-less RCs (111).

(110) **Manner adjunct fronting in *amba* RCs ✓**

a. Mtu [amba-ye a-li-nunua gari langu **kwa pesa za wizi**] a-ta-onana
1person COMP-1REL 1-PST-buy 5car 5my with money P theft 1-FUT-meet
na hakimu kesho
with 1judge tomorrow
'The person who bought my car with stolen money will see the judge tomorrow.'

b. Mtu [$_{RC}$ amba-ye **kwa pesa za wizi** a-li-nunua gari langu] a-ta-onana
1person COMP-1REL with money P theft 1-PST-buy 5car 5my 1-FUT-meet
na hakimu kesho
with 1judge tomorrow
'The person who with stolen money bought my car will see the judge tomorrow.'

(111) **Manner adjunct fronting in Type 1 *amba*-less RCs ✗**

a. Mtu [$_{RC}$ a-li-ye-nunua gari langu **kwa pesa za wizi**] a-ta-onana na
1person 1-PST-1REL-buy 5car 5my with money P theft 1-FUT-meet with
hakimu kesho
1judge tomorrow
'The person who bought my car with stolen money will see the judge tomorrow.'

b. *Mtu [$_{RC}$ **kwa pesa za wizi** a-li-ye-nunua gari langu] a-ta-onana na
1person with money P theft 1-PST-1REL-buy 5car 5my 1-FUT-meet with
hakimu kesho
1judge tomorrow
'The person who with stolen money bought my car will see the judge tomorrow.'

In principle we could analyse the basic differences in word order between relatives with/without *amba* without appealing to differences in clause size. Previous literature Ngonyani (2001, 2006) has assumed that the difference between relative clauses can be handled in terms of V-to-C movement.[7] It would be possible to modify the present assumptions about verb movement, i.e. the distribution of pronunciation diacrotic [@] along those lines, and not vary the height of [Λ]. Relatives could then have a uniform size of e.g. CP.

On this alternative analysis, the contrast between amba and amba-less relatives would be in terms of the number, and position of [@]. In amba RCs one would assume that there are two [@], one associated with amba-REL and the other associated with the verbal complex. They could be located on e.g. Force and Asp. Crucially, in the case of amba-less RCs would need to assume that there is just a single [@] in the clausal spine, and it is located on C. The key aspects of such an approach are summarised below in (112).

(112) **The V-to-C alternative to smaller clauses**

a. The Swahili clausal spine has two different distributions for [@].

b. amba RCs: C and Asp bear [@]

c. amba-less RCs: C bears [@]

Unless further assumptions are made on the part of the V-to-C approach, it makes distinct predictions about the behaviour of pre and post-verbal with respect to scope. Since the source of the word order differences is the distribution of [@], we expect that subjects in amba and amba-less RCs can occupy the same set of positions in the clause. This means that the ought to have the same scopal properties, with respect to e.g. sentential negation.

The crucial data are shown below in (113). In (113a) we have a quantificational pre-verbal subject, within an amba RC with sentential negation. We can see that the pre-verbal subject can take wide or narrow scope wrt negation, just like the pre-verbal subjects discussed in the last chapter. In (113b), still an amba RC, we find a post-verbal quantificational

7. Other proposals have been made in the literature to the same basic effect. Henderson (2007) argues, for example, that the subject inversion in amba-less RCs is the product of morphological restrictions on REL-placement forcing pronunication of the lower subject copy, on the assumption that the subject moves to Spec TP in both kinds of relatives. The earliest suggestion of a PF-based account of the restrictions on pre-verbal subjects is in Barrett-Keach (1980, Ch.5).

subject. This subject can only take narrow scope with respect to negation. The scope behaviour is exactly paralleled in (113c), an amba-less RC with a post-verbal quantificational subject.

(113) **Quantified subjects and scope in relatives**

a. [Tiketi hizi amba-zo **watu** **wote** ha-wa-nunui] ni ghali sana
10ticket 10these COMP-10REL 2person 2all NEG-2-buy COP expensive very
Wide scope: 'These tickets that everybody doesn't buy are very expensive.' (all >> not)
Narrow scope: 'These tickets that not everybody buys are very expensive.' (not >> all)

b. [Tiketi hizi amba-zo ha-wa-nunui **watu** **wote**] ni ghali sana
10ticket 10these COMP-10REL NEG-2-buy 2person 2all COP expensive very
*Wide scope: 'These tickets that everybody doesn't buy are very expensive.' (*all >> not)
Narrow scope: 'These tickets that not everybody buys are very expensive.' (not >> all)

c. [**Tiketi** **hizi** wa-si-zo-nunua watu wote **t**] ni ghali sana
10ticket 10these 2-NEG-10REL-buy 2person 2all COP expensive very
*Wide scope: 'These tickets everybody doesn't buy are very expensive.' (*all >> not)
Narrow scope: 'These tickets not everybody buys are very expensive.' (not >> all)

The trouble for this analysis is how to capture the scopal properties of post-verbal DPs. It must be further assumed that in clauses where [@] is located only on C, unrelativised DPs must remain low in the clause. Or it must be assumed that negation occupies a different structural position in these clauses such that it obligatorily scopes over DPs even in Spec TP. In other words, an account the difference between amba and amba-less RCs purely in terms of verb movement has to make special additional assumptions about negation or DP-placement connected verb movement.

No such assumptions have to be made on the present approach: post-verbal DPs in amba and amba-less relatives behave in terms of scope exactly like post-verbal DPs outside of relatives. The present account in terms of clause-size variation seems preferable because it offers a simpler, more elegant account of the word order/scope differences between amba and amba-less RCs.

3.3.3 Possessor resumption

Possessive relatives can only be formed by a resumptive dependency, in which a possessive pronoun is bound by the relative operator. Such possessive relatives are sensitive to distinction between *amba* and *amba*-less RCs, in a way that suggests a structural difference between the two.

Swahili has a paradigm of possessive pronouns which are morphologically quite distinctive from regular personal pronouns. Like other kinds of nominal modifiers, these pronouns display class concord. The third person forms refer to possessors regardless of their animacy - they are only sensitive to number.

(114) **Possessive pronoun paradigm**

	SG	PL
1	-angu	-etu
2	-ako	-enu
3	-ake	-ao

(115) a. Dereva a-li-poteza gari lake.
1driver 1-PST-lose 5car 5.3SG.POSS
'The driver lost his car.'

b. Gari li-li-poteza dereva mwake.
5car 5-PST-lose 1driver 1.3SG.POSS
'The car lost its driver.'

Swahili does not appear to allow gaps inside of NPs, nor does it allow for piedpiping. To form a possessive relative, a possessive pronoun matching in number the head of the relative occupies the base position. We will see in the next chapter that whilst most relatives with gaps are sensitive to islands, possessive relatives like the ones below are not. This suggests we are dealing with a genuinely different kind of dependency link the head of the relative to the base-position.

(116) **Resumptive possessive pronouns**

a. Kwa kweli ni-na-m-kasirikia **kijana** **yule** [amba-ye u-na-tengeneza gari **lake**].
truly 1SG-PRS-1-be.angry.at 1teenager 1DEM COMP-1REL 2SG-PRS-repair 5car 5POSS
'Truly, I'm angry at the teenger whose car you are repairing.'

b. Kwa kweli ni-na-wa-kasirikia **vijana** **wale** [amba-o u-na-tengeneza gari **lao**].
truly 1SG-PRS-2-be.angry.at 2teenager 2DEM COMP-2REL 2SG-PRS-repair 5car 5POSS.PL
'Truly, I'm angry at the teengers whose car you are repairing.'

Previous literature has observed that possessor relativisation is preferred with the *amba* strategy (Ashton, 1947; Barrett-Keach, 1980). This converges with the fact that my primary consultant did not accept an *amba*-less version (**??**a). It was necessary to add applicative marking as in (117b) and supply object marking matching the noun class of the relativised DP. It's plausible then that the possessive pronoun in (117b) is not actually a resumptive: an applied (benefactive) argument is extracted. The binding of the possessive pronoun is done from the base-position, rather than the final landing site.

(117) **Restrictions on amba-less possessive relatives**

a. *Kwa kweli ni-na-m-kasirikia **kijana** **yule** [u-na-ye-m-tengeneza gari
truly 1SG-PRS-1-be.angry.APPL 1teenager 1DEM 2SG-PRS-1REL-1-repair 5car
l-ake].
5-POSS.3SG
'Truly, I'm angry the teenager whose car you are repairing.'

b. Kwa kweli ni-na-m-kasirikia **kijana** **yule** [u-na-ye-m-tengenezea gari **t**
truly 1SG-PRS-1-be.angry.APPL 1teenager 1DEM 2SG-PRS-1REL-1-repair.APPL 5car
l-ake].
5-POSS.3SG
'Truly, I'm angry the teenager who you are repairing his car for.'

A similar restriction is observed when the possessive pronoun is part of a pre-verbal subject. Whereas the *amba* strategy is perfectly acceptable, attempting to form a minimal pair with amba-less strategy is less so. Here again, an amba-less strategy is possible if the right voice-changing verbal suffixes are added, in this case the passive *-w* marker. Notice that in the resulting structure, the possessor containing DP is in a by-phrase and the head of the relative now controls subject marking. Again, this looks the amba-less strategy is being made possible by making sure that the possessive pronoun is not a resumptive. This is just a subject relative with a gap. The binding is done again done from the base position.

(118) **Restrictions on amba-less possessive relatives**

a. Ni-na-m-kasirikia **kijana** **yule** [amba-ye gari **l-ake** li-me-haribika].
1SG-PRS-1-be.angry 1teenager 1DEM COMP-1REL 5car 5-POSS.3SG 5-PFT-break.down
'I'm angry at that teenger whose (lit. who his) car broke down.'

b. Ni-na-m-kasirikia **kijana** **yule** [**t** a-me-ye-haribikiwa na gari
1SG-PRS-1-be.angry 1teenager 1DEM 1-PFT-1REL-break.down.on.PASS by 5car
l-ake].
5-POSS.3SG
'I'm angry at that teenager who was broken down on by his car.'

I take the data to indicate that possessive pronouns cannot be bound by the relative operator in at least short-distance amba RCs. The restriction against amba-less binding of resumptives is not absolute. The data below show that it is lifted if the resumptive and binder are separated by a clause boundary. In the cases below, the resumptive possessive is contained within a CP-sized complement.

(119) **Long distance possessive relatives**

a. Ni nini ki-li-m-pata **kijana** **yule** [amba-ye u-li-sema kwamba gari
FOC 7what 7-PST-1-happen.to 1teenager 1DEM COMP-1REL 2SG-PST-say COMP 5car
l-ake li-me-haribika]?
5-POSS.3SG 5-PFT-break.down
'What happened to that teenager whose car you said broke down?'

b. Ni nini ki-li-m-pata **kijana** **yule** [u-li-ye-sema kwamba gari **l-ake**
FOC 7what 7-PST-1-happen.to 1teenager 1DEM 2SG-PST-1REL-say COMP 5car 5-POSS.3SG
li-me-haribika]?
5-PFT-break.down
'What happened to that teenager whose car you said broke down?'

Recall that I have characterised the difference between amba RCs and type 1 amba-less RCs in terms of clause size, regardless of whether a movement dependency links the variable within the RC and the specifier of the head bearing [Λ]. The DP that restricts predicate abstraction in Type 1 amba-less RCs is at Spec TP, whereas in amba RCs it is at

Spec CP. The restriction concerning the binding of resumptives can therefore be framed in the following theoretically-informed terms. The general intuition would be that possessive are too close to Spec TP to be bound from that position.

(120) **A disjointness requirement on resumptive binding**

a. A possessive pronoun can only be bound by a restrictor DP at Spec τP if they are separated by a clause boundary (e.g. CP).

b. A possessive pronoun can be bound by a restrictor DP at a local Spec CP.

Restrictions like this are not peculiar to Swahili. Several versions of an Ā-Disjointness Requirement have been proposed in the literature to account for the distribution of resumptives in Irish, Welsh, Palestinian Arabic and Hebrew (McClosky, 1990; Willis, 2000). In these languages resumptive pronouns have a more widespread distribution if they are contained within a suitable embedded environment separated from their binder. For example, resumptive pronouns are generally not permitted in the matrix subject position, but they can (or must, depending on the language) appear in embedded subject positions. The intuition would be that a resumptive in a matrix subject position is too close to a binder in Spec CP.

Even in the absence of a worked-out analysis, the disjointness requirement on resumptives is unexpected on analysis of amba/amba-less RCs is merely the presence/absence of an overt complementiser. An analysis of the distinction in terms of different sizes of clause seems to put us in the right direction to handle the behaviour of these resumptives. Having seen different kinds of plausible correlates of smaller clause structures, I now want to turn to issue of the relative marker under this general analysis of relatives.

3.4 The nature of the relative marker

A lingering issue for the proposal for three different relative clause structures concerns something they all have in common: the relativer marker. In this subsection I give the basic outline of an analysis that is compatible with clause size variation.

3.4.1 Limitations of a complementiser agreement analysis

An obvious analysis of the relative marker is as 'complementiser agreement', the realisation of a high clausal functional head bearing a [uφ] (Demuth & Harford, 1999; Ngonyani, 2006; Pietraszko, 2021). This probe acquires its features from the DP that moves, or is base-generated, at the edge of the clause. This approach is attractive enough under the assumption that there is a single size of relative clause, but once more sizes appear we require the distribution of this [uφ] be flexible.[8]

(121) **The complementiser agreement approach to relative marking**
Relative marking realises a clausal functional head (e.g. C) with φ-features which are valued by restrictor DP.

It seems important to deciding on an analysis that a second, person-defective, instance of φ-marking on verbs only appears in Swahili clauses if they relative clauses. Instances of topicalisation and wh-movement do not involve the moved elements at the left edge obligatorily controlling an additional agreement marker, let alone the subject marker. In that sense, relative marking is clearly distinct from left edge agreement displayed by Bantu languages like Kilega and Kinande (Carstens, 2005; Schnieder-Zioga, 2007).

(122) **No generalised Ā agreement in Swahili**

a. Kisu hiki Jini a-li-ki-vunja / *ki-li-m-vunja **t**.
7knife 7DEM Jini 1-PST-7-break 7-PST-1-break
'This knife, Jini broke.'

8. The relative marker seems to be segmentable into a noun class prefix and a recurrent -o. One could propose that the -o realises the [Λ], but the source of class prefixes would still need to be addressed.

b. Kisu kipi Jini a-li-ki-vunja **t**?
7knife 7WHICH Jini 1-PST-7-break
'Which knife did Jini break?'

A complementiser agreement analysis also misses the generalisation that nominal modifiers in general receive noun class marking at their edge. The paradigm of relative marking is distinct, in certain respects, from concord on adjectives and numerals etc. A further striking parallel concerns the identity of the relative marker to resumptive elements and certain pronouns, already noted by B. M. Henderson (2006).

3.4.2 Connection to resumptive elements

Certain adpositions, such as comitative *na*, must have overt complements. Scott shows that if the complements of such adpositions are relativised, a pronoun-like element must appear instead of a gap. The form of this element is identical to the relative marker, and varies according to the noun class of the relativised DP. We can see below that the Class 1 noun *mwanafunzi* 'student' leaves *-ye*, whereas the Class 8 noun *vikombe* 'cups' leaves *-vyo*. Notice that if a personal pronoun is relativised from complement of such adpositions, it can leave the same animate -ye as Class 1 nouns.[9]

(123) **Person-insensitive resumptives**

a. Ni-li-mw-ona **mwanafunzi** [amba-ye u-li-on-ana na-*(**ye**)]
1SG-PRS-1-know 1-person COMP-1REL 1SG-PST-see-RECP with-1
'I saw the student who you met with'

b. Ni-li-vi-nunua **vikombe** [amba-vyo u-li-safiri na-*(**vyo**)]
1SG-PST-8-buy 8cups COMP-8REL 2SG-PST-travel with-8
'I bought the cups you travelled with'

c. **Mimi** ndi-ye [amba-ye Hadija a-li-kut-an-a na-*(**ye**)]
1SG COP-1 COMP-1REL Hadija 1-PST-meet-RECIP-FV with-1
'It's me that Hadija met with'

9. Scott (2021) shows that there is another resumptive option for personal pronouns, which is island insensitive and marked for person.

d. **Wewe** ndi-ye [amba-ye Hadija a-li-kut-an-a na-*(**ye**)]
2SG COP-1 COMP-1REL Hadija 1-PST-meet-RECIP-FV with-1
'It's you that Hadija met with' (Scott, 2021, ex.19ab, 29ab)

Scott focuses her attention on the behaviour of *amba* RCs. We do nonetheless see these resumptive elements appear with *amba*-less RCs. One of the most productive contexts for this pattern are *be with*-type possessive constructions, which feature the same comitative adposition *na*. The possessum DP is relativised in this constructions, as we can see below in (124), a gap cannot be left. Since *kisu* is Class 7 noun, we have to leave a *-cho*.

(124) **Resumptive elements in clausal possessive construction**

a. Jini {a-na / a-li-kuwa na} kisu
1Jini 1-with 1-PST-AUX with 7knife
'Jini {has/had} a knife.'

b. Ni-na-ki-taka **kisu** [amba-cho Jini a-na-*(**cho**)] *amba* RCs
1SG-PRES-7-want 7knife COMP-7REL Jini 1-with-7
'I want the knife that Jini has.'

c. Ni-na-ki-taka **kisu** [a-li-cho-na-*(**cho**) Jini] *amba*-less RCs
1SG-PRES-7-want 7knife 1-BE-7REL-with-7 Jini
'I want the knife Jini has.'

Scott proposes that these filled gaps are actually instances of a lower copy being partially deleted in order to satisfy PF requirements, in the spirit of Landau (2006) and van Urk (2018). Part of the motivation for treating them as the overt reflexes of movement is that they cannot appear in island contexts such as clausal adjuncts (125).

(125) **Person insensitive resumptives: impossible in adjunct islands**

a. ***Mimi** ndi-ye [amba-ye u-li-tabasamu [wakati u-na-fanya kazi na-**ye**]]
1SG COP-1 COMP-1REL 2SG-PST-smile while 2SG-PRS-do work with-1
Intended: 'It's me that you smiled while you worked with'

b. ***Wewe** ndi-ye amba-ye ni-li-hama [kwa sababu ni-li-achana na-**ye**]]
2SG COP-1 COMP-1REL 1SG-PST-move for reason 1SG-PST-leave.RECIP with-1
Intended: 'It's you that I moved because I left' Scott (2021; ex.31, 33)

Scott does not ultimately address the shared form of the resumptives and the relative marker. In principle one could provide a unified analysis by treating the relative marker itself as a kind of resumptive pronoun. This has recently been explored by Liu (2024), who analyses the relative marker as a partial realisation of the moved DP at variable phase edge in the clause. I would like to offer a slightly more indirect connection.

3.4.3 Relative marking as concord

In short, I believe that relative marking should just be treated as an instance of nominal concord, what I term the the Concord Intuition (126). Previous research on concord (e.g. Norris, 2014; Ackema & Neeleman, 2020; Grabovac, 2022) has focused on non-clausal nominal modifiers like demonstratives, adjectives and quantifiers. They display concord by processes of feature percolation, and copying of features onto language-specific sets of nominal modifiers. Nothing in these approaches stops the processes of φ-feature copying from targeting clausal material which happens to be modifying nominal structure.

(126) **The Concord Intuition**
The relative marker realises nominal features copied from head of the relative.

There are two obvious hurdles this intuition has to cross to become a full-fledged analysis. The first hurdle concerns the form of the relative marker, which is not identical to the instances of nominal concord one sees on e.g. quantifiers and demonstratives. One possibility is that the relative marker is a kind of elsewhere form for the realisation of φ-features. That is, the verbal and nominal prefixes represent the realisation of $[\varphi]$ is the context of certain functional heads, e.g. AgrS and Num/n. Outside of specific functional heads, $[\varphi]$ will be realised as what we call relative marking.

(127) **If relative marking is nominal concord, why does it have a unique shape?**
It reflects a structural context in which $[\varphi]$ is given its elsewhere form.

This could ultimately be the reason why the relative marker shares the form with the partially-deleted copies discussed by Scott (2021). For Scott, the person-insensitive resumptives reflects higher nominal structure, in isolation from lower structure which has been made silent by chain resolution/copy deletion. The second hurdle for the Concord Intuition concerns the variable placement of the relative marker. We have seen that relative marker can occupy three positions, associated with our three types of relative clause: right adjacent to *amba*, right adjacent to the leftmost INFL prefix or right adjacent to final vowel of the lexical verb. What these three positions all seem to have in common is a kind of second-position character. That is, the relative marker is right adjacent to the leftmost suitable realisation of the clausal spine. At present my intuition is that the placement should be handled postsyntactically. This will hinge on spelling out more carefully the concord mechanism, i.e. how features are shared from the relativised nominal. It will also depend on a more explicit analysis of how the clausal spine is realised morphosyntactically. I leave both of these issues to future research.

To conclude this subsection, and the wider section, we have seen several different kinds of consequences for the claim that Swahili relatives come in different sizes. These range from word order and scope, to verbal morphosyntax and the behaviour of resumptives. I have suggested that, in line with these consequences, the relative marker would benefit from being analysed as instance of nominal concord, rather as complementiser agreement. At this point I want to take a slightly wider crosslinguistic view, and briefly explore the motivation for different sizes of relative clause in a more familiar language: English.

3.5 Smaller relatives: the view from English

Whereas the idea of smaller complement clauses is often entertained, it is less common to see accounts of relative clause appealing to variable clause size. In this subsection I want to briefly discuss a precedent for the present proposal in Douglas (2016), which focuses on English relative clauses. If that proposal is correct, then the relative clause system of Swahili looks much less unique that one might initially suppose.

3.5.1 Reduced/participial relatives

The most obvious candidates for smaller relatives in familiar languages like English and Italian are reduced or participial relatives (e.g. Kayne 1994, Siloni 1995, Hazout 2001, Doron & Reintges 2005, Cechetto & Donati 2010, Harwood 2016).

Douglas details several kinds of these relatives in English, but broadly they can be divided into two classes based on verbal morphology: those with *-ed* participles, and those with *-ing* participles. A selection of examples are shown below in (128).

(128) **English reduced relatives** Douglas (2016, ex.14, p196)

a. All properties [having been built prior to 1900] are eligible for exemption from land tax.

b. The man [sitting on the bench] is John.

c. The cake [being eaten by the guests] is a chocolate cake.

d. The cake [eaten by the guests] was a chocolate cake.

In addition to a particular morphosyntax of their own, the relativisation dependency is highly restricted in such clauses. As we can see below in (129), what can be relativised is only what would otherwise be a (derived) subject.

(129) **The 'subject-only' restriction**

a. I found the professor [giving the cake to the students].

b. *I found the cake [(the professor) giving to the students].

c. I found the cake [being given to the students].

Let's briefly focus on the RCs in (128bc), which Douglas terms present-participle RRCs. Following Harwood (2016), Douglas proposes that these RRCs have a variable structure which is maximally ProgP sized. The motivation for this structure for present-participle RRCs is related to a wider set of diagnostics that Harwood (2016) uses to identified an important structural boundary between progressive and perfective aspect layers.

(130) **Sizing up present-participle RRCs**

a. English lower clausal spine: $[_{\text{TP}}\ [_{\text{ModP}}\ [_{\text{PerfP}}\ [_{\text{ProgP}}\ [_{\text{VoiceP}}\ [_{\text{vP}}\ \dots]]]]]]$

b. Maximal RRC size: $[_{\text{ProgP}}\ [_{\text{VoiceP}}\ [_{\text{vP}}\ \dots]]]$

The closest analogue to reduced/participial relatives we have seen in Swahili are the Type 2 *amba*-less RCs. The most obvious syntactic differences concern the subject-only restriction: subjects and non-subjects can be relativised with Type 2 RCs. It turns out that there English also provides us with a rough analogue of the *amba*/Type 1 amba-less contrast, in the domain of finite RCs.

3.5.2 Two kinds of finite relatives

Douglas (2016) provides diagnostics showing that, quite relevant to our purposes, finite relatives with and without the complementiser/relative pronoun have different clause structures.

For simplicity, I focus on two types: that/wh-finite RCs and Ø-finite RCs. He cashes the distinctions out in cartographic terms, with the that/wh-finite RCs having a full left periphery/CP-layer, whereas the Ø-finite RCs relatives having a reduced CP.

(131) **Two kinds of finite relative clause in English**

a. I found the cake $[_{\text{ForceP}}\ \sout{\text{cake}}_{\text{i}}$ that $[_{\dots}\ [_{\text{FinP}}\ [_{\text{TP}}$ Scott baked $\mathbf{t}_{\text{i}}\ ]]]]$ that/wh-RCs

b. I found the cake $[_{\text{CP}}\ \sout{\text{cake}}_{\text{i}}\ [_{\text{TP}}$ Scott baked $\mathbf{t}_{\text{i}}\ ]]$ Ø-RCs

Part of the motivation for these different clause structures is the different interactions the RCs have with respect to argument and adjunct fronting, drawing on earlier argumentation from Haegeman (2012). That/wh-finite RCs permit adjunct and argument fronting, subject to certain restrictions, whereas Ø-finite RCs do not permit such fronting at all. This

is illustrated below for argument fronting using the benefactive PP *for Jane* and adjunct fronting using the adverb *yesterday*. The contrasting behaviour of relatives with/without a complement with respect to argument fronting has a direct parallel in word order restrictions discussed above.

(132) **Two profiles of argument fronting**

a. I found the cake [$_{\text{ForceP}}$ ~~cake~~$_{\text{i}}$ that [$_{\dots}$ [$_{\text{PP}}$ for Jane] [$_{\text{FinP}}$ [$_{\text{TP}}$ Scott baked **t**$_{\text{i}}$]]]]

b. *I found the cake [$_{\text{CP}}$ ~~cake~~$_{\text{i}}$ [$_{\text{PP}}$ for Jane] [$_{\text{TP}}$ Scott baked **t**$_{\text{i}}$]]

(133) **Two profiles of Adjunct fronting**

a. I found the cake [$_{\text{ForceP}}$ ~~cake~~$_{\text{i}}$ that [$_{\dots}$ [$_{\text{AdvP}}$ yesterday] [$_{\text{FinP}}$ [$_{\text{TP}}$ Scott baked **t**$_{\text{i}}$]]]]

b. *I found the cake [$_{\text{CP}}$ ~~cake~~$_{\text{i}}$ [$_{\text{AdvP}}$ yesterday] [$_{\text{TP}}$ Scott baked **t**$_{\text{i}}$]]

A neat consequence of Douglas' proposal is that it offers an account of the anti-*that*-trace effect (Bresnan 1972). This is the observation that complementiser/wh-element is optional only in non-subject relatives (134). This effect only occurs when the relativisation dependency is short distance. Once the gap is separated over a finite clause boundary, the higher complementiser/wh-word becomes optional.[10]

(134) **The anti-that-trace effect**

a. The man [(that/whom) Tom likes **t**] is called Simone.

b. The man [*(that/who) **t** likes Simone] is called Tom.

c. The man [(that/who) I think [Tom likes **t**]] is called Simone.

d. The man [(that/who) I think [**t** likes Simone]] is called Tom.

The essential logic of Douglas' argument goes as follows. Subject relatives are formed by a DP first moving to Spec TP. Crucially, movement is subject to an Anti-Locality condition (Erlewine 2016), which forces movement to cross a maximal projection distinct its launching site. In other words, movement from one specifier, to the specifier on the immediately higher projection is ruled out. This restriction on movement interacts with the two

10. I set aside for simplicity the issue of the that-trace effect, which Douglas discusses extensively.

structures for finite relative clauses we have seen so far. Subject relatives cannot be formed with the CP-sized Ø-relatives because the required movement would involve a step from TP to CP, ruled out by the Anti-Locality Condition. Subject relatives not so restricted in the bigger ForceP-sized clauses, because there are more projections intevening between ForceP and TP. This effectively gives more space to avoid the Anti-Locality affect.

(135) **Moving from Spec TP in two sizes of English RC**

a. *$[_{CP}$ **DP** $[_{TP}$ **t** $[\dots]]]$ Movement from TP too local!

b. $[_{ForceP}$ **DP** *that* $[_{FinP}$ $[_{CP}$ $[_{TP}$ **t** $[\dots]]]]]$ Bigger RC avoids Anti-Locality

If Douglas' proposal about English non-reduced relatives is right, then Swahili and English are essentially alike in having multiple points in the clausal spine at which $[\Lambda]$ can be present. Nonetheless there are a number of differences between Swahili and English relatives. A case in point is that we cannot form in English something directly analogous to the Type 1 *amba*-less relatives, as illustrated below. What this suggests is that the head of whatever FP hosts subjects in English cannot bear $[\Lambda]$. My suspicion is that such restrictions are tied to nature of EPP effects in English, which are clearly absent in Swahili. I leave a more exact diagnosis of the problem to future work.

(136) **No post-verbal subjects in English relatives**

a. I love the cakes Scott makes

b. *I love the cakes makes Scott

For now it is sufficient to conclude that, even setting aside the existence of reduced relatives, multiple sizes of relative clauses is not a peculiarity of Swahili. The differences between the relative clause systems of English and Swahuili may partly reduced to independently motivated differences in clause structure, or properties of particular clausal zones. We will briefly return to properties of smaller English relatives, and their interesting locality profile, in the next chapter.

Chapter 4

Clause structure and the locality of movement

4.1 Introduction

In this chapter I turn to the nature of the syntactic dependency that connects the head of the relative to the base-position within the relative clause. Relative clauses with gaps show locality restrictions and semantic behaviour indicative of a movement dependency. Crucially, it is shown that the different sizes of relative clause show distinct restrictions when the movement dependency originates in a complement clause. Let's briefly illustrate the core restrictions, which form the empirical core of the thesis.

Consider in (137) attempts to have the base-position contained within the largest kind of complement clause, the CP-sized ones which can display complementisers *kwamba* or *kuwa*. We can see that only *amba* strategy (137a) is acceptable. By comparison it looks like *amba*-less RCs are clause-bound.

(137) **Movement out of COMP-complements: only *amba* RC is possible**

a. **Mtu** [amba-ye ni-na-amini [$_{CP}$ kwamba **t** a-na-fanya kazi zaidi]] ni Musa.
1person COMP-1REL 1SG-PRS-believe COMP 1-PRS-do work more COP 1Musa
'The person who I believe works the most is Musa.' amba ✓

b.* **Mtu** [ni-na-ye-amini [$_{CP}$ kwamba **t** a-na-fanya kazi zaidi]] ni Musa.
1person 1SG-PRS-1REL-believe COMP 1-PRS-do work more COP 1Musa
Intended: 'The person I believe works the most is Musa.' Type 1 amba-less ✗

c.* **Mtu** [ni-amini-ye [$_{CP}$ kwamba **t** a-na-fanya kazi zaidi]] ni Musa.
1person 1SG-believe-1REL COMP 1-PRS-do work more COP 1Musa
Intended: 'The person I believe works the most is Musa.' Type 2 amba-less ✗

As we have seen, Swahili has several kinds of complement clause beyond COMP-complement. If the relativisation dependency takes place over an AspP-sized *ki*-complement, for example, our three RC strategies pattern differently. The data below in (138) show us that both *amba* and the Type 1 *amba*-less strategies can their base position within the complement clause. Only the Type 2 *amba*-less strategy is still restricted. In light of such data, the issue of clause-boundedness is clearly not binary: some *amba*-less RCs can have their base positions contained within some kinds complement clauses.

(138) **Movement out of *ki*-complements: *amba* and Type 1 *amba*-less RC are possible**

a. Huu ndio **wali** [amba-o ni-li-mw-ona [$_{AspP}$ Tom a-ki-u-pika **t**]]
11DEM COP.FOC 11cooked.rice COMP-11REL 1SG-PST-1see 1Tom 1-SIT-11-cook
'This is the rice that I saw Tom cooking.' amba ✓

b. Huu ndio **wali** [ni-li-o-mw-ona [$_{AspP}$ Tom a-ki-u-pika **t**]]
11DEM COP.FOC 11cooked.rice 1SG-PST-11REL-1-see 1Tom 1-SIT-11-cook
'This is the rice I saw Tom cooking.' Type 1 amba-less ✓

c.* Si-pendi **wali** [ni-mw-ona-o [$_{AspP}$ Tom a-ki-u-pika **t** kila wiki]]
1SG.NEG-like 11cooked.rice 1SG-1-see-11REL 1Tom 1-SIT-11-cook every week
Intended:'I don't like the rice I see Tom cooking every week.' Type 1 amba-less ✗

The only kinds of complements which are completely transparent to all three RC strategies are the very smallest ones, the *ku*-complements of raising/control predicates. In the data shown below in (139) we can see that all three RC strategies are acceptable if their base-position is *ku*-complement to *-taka* 'want'.

(139) **Movement out *ku*-complements: all RC-strategies possible**

a. **Mtu** [amba-ye ni-na-taka [$_{\text{VoiceP}}$ ku-m-shukuru **t**]] ni Musa.
1person COMP-1REL 1SG-PRS-want INF-1-thank COP 1Musa
'The person who I want to thank is Musa.' amba ✓

b. **Mtu** [ni-na-ye-taka [$_{\text{VoiceP}}$ ku-m-shukuru **t**]] ni Musa.
1person 1SG-PRS-1REL-want INF-1-thank COP 1Musa
'The person I want to thank is Musa.' Type 1 amba-less ✓

c. **Mtu** [ni-taka-ye [$_{\text{VoiceP}}$ ku-m-shukuru **t**]] ni Musa.
1person 1SG-want-1REL INF-1-thank COP 1Musa
'The person I want to thank is Musa.' Type 2 amba-less ✓

To summarise, we can clearly observe a tight connection between the size of relative clauses and complement clauses which determines whether long-distance movement is possible. The three sizes of relative display three locality profiles for movement. I term this connection *The Size-Locality Generalisation*, and summarise its contents below in (171). I will describe more generally of connections between the location of landings site in clausal spine and the size of complements as *The Size-Locality Effects*.

(140) **The Size-Locality Generalisation**
A complement clause C is transparent to extraction forming a relative clause R only if C is smaller or the same size as R.

The remaining structure of the chapter is as follows. In §(4.2) I start by providing the empirical motivation for movement dependencies in some kinds of relative clauses in Swahili. In In §(4.3) the full range of restrictions on long-distance movement. I also discuss the strategies of resumption and prolepsis which are allow smaller relatives to circumvent the Size-Locality Generalisation. In §(4.4) I briefly consider the implications of SLG to the A/$\bar{\text{A}}$ status of movement in Swahili. Finally in §(4.5) I turn to fleshing out in more detail the behaviour infinitival relatives in English, which provide support for Size-Locality effects at a more cross-linguistic level.

4.2 Evidence for a movement derivation

The purpose of this section is to provide empirical evidence that some relatives clauses in Swahili feature a movement dependency. The primary evidence comes from island and reconstruction effects. Variability in status of relative clause islands is handled by appealing to the distinction between matching and raising analyses.

4.2.1 Hallmarks of movement: island and reconstruction effects

One way of looking at the comparative unboundedness *amba* RCs is not by appealing to their size, but by proposing that they lack a movement derivation altogether. This route has already been explored in literature by Barrett-Keach (1980). If such a route is taken, it would partly undermine the motivation for a Size-Locality Generalisation. The primary aim here is to show that *amba* RCs, though able to have their base position contained in any types of complement clause, nonetheless displays the hallmarks of movement.

The easiest island environments to elicit in Swahili are clausal adjuncts. If a gap is contained in such a clause, the resulting relative clause is unacceptable. This holds whether or not the gap is associated with subject or object marking. Crucially, this restriction holds whether we are dealing with amba RCs or amba-less ones. Similar adjunct island effects for amba RCs have been observed by Scott (2021). The data below show this restriction in action for several types adjunct clauses: conditional (141), reason (142) and temporal (143) types. For each kind of adjunct, an acceptable non-movement baseline is provided, alongside the unacceptable instances of relativisation.

(141) **Adjunct islands: Conditional clause**

a. Tu-na-linda msitu [ikiwa **migambo** wa-na-lipwa vya kutosha]
1PL-PRS-protect 3forest if 2ranger 2-PRS-pay.PASS 8P enough
'We protect the forest if the rangers are paid enough.' Baseline ✓

b.* Hawa ndio [**migambo** amba-o tu-na-linda msitu [ikiwa **t** wa-na-lipwa vya
2DEM COP.FOC 2ranger COMP-2REL 1PL-PRS-protect 3forest if 2-PRS-pay.PASS 8P
kutosha]]
enough

'These are the rangers that we protect the forest if are paid enough.' *amba* RC ✗

c.* Hawa ndio [**migambo** tu-na-o-linda msitu [ikiwa **t** wa-na-lipwa vya
2DEM COP.FOC 2ranger 1PL-PRS-2REL-protect 3forest if 2-PRS-pay.PASS 8P
kutosha]]
enough

'These are the rangers we protect the forest if are paid enough.' *amba*-less RC ✗

(142) **Adjunct islands: Reason clause**

a. Tu-na-linda msitu [kwa sababu **miti** i-ko hatari-ni]
1.PLU-IMPF-protect 3forest for reason 4tree 4-LOC.COP danger-LOC

'We protect the forest because the trees are endangered.' Baseline ✓

b.* Ku-na [**miti** amba-yo tu-na-linda msitu [kwa sababu **t** i-ko hatari-ni
17-P 4tree COMP-4REL 1.PLU-IMPF-protect 3forest for reason 4-LOC.COP danger-LOC
]]

'There are trees that we protect the forest because are endangered.' *amba* RC ✗

c.* Ku-na [**miti** tu-na-yo-linda msitu [kwa sababu **t** i-ko hatari-ni]]
17-P 4tree 1.PLU-IMPF-4REL-protect 3forest for reason 4-LOC.COP danger-LOC

'There are trees we protect the forest because are endangered.' *amba*-less RC ✗

(143) **Adjunct islands: Temporal clause**

a. U-li-kuwa u-na-uza mabakuli [wakati ni-li-kuwa ni-na-m-tazama **fundi**
2SG-PST-AUX 2SG-IMPF-sell 6bowl while 1SG-PST-AUX 1SG-IMPF-1-watch 1craftsman
yule]
1DEM
'You were selling bowls while I was watching that craftsman.' Baseline ✓

b.* Yule ni [**fundi** amba-ye u-li-kuwa u-na-uza mabakuli [wakati ni-li-kuwa
1DEM COP 1craftsman COMP-1REL 2SG-PST-AUX 2SG-IMPF-sell 6bowl while 1SG-PST-AUX
ni-na-m-tazama **t**]]
1SG-IMPF-1-watch
'That guy is the craftsman who you were selling plates while I was watching*ámba* ✗

c.* Yule ni [**fundi** u-li-ye-kuwa u-na-uza mabakuli [wakati ni-li-kuwa
1DEM COP 1craftsman 2SG-PST-1REL-AUX 2SG-IMPF-sell 6bowl while 1SG-PST-AUX
ni-na-m-tazama **t**]]
1SG-IMPF-1-watch
'That guy is the craftsman you were selling plates while I was watching*ámba*-less ✗

Coordinate structures are another well-known island type that can be identified in Swahili. The data below in (144) show that the head of either RC-type cannot relate to a gap only in the right conjunct of a plausible TP-level coordination. Again, I give an acceptable baseline for comparison which lacks movement. The data feature a natural way of forming requests, embedded under the verb *-omba* 'request'. In more informal contexts it is most natural to drop the subject marking.

(144) **Coordinate Structure Effects**

a. [Ni-na-changanya rangi] na [Eric a-na-ya-remba **mabakuli**]
1SG-PRS-mix paint and Eric 1-PRS-6-beautify 6bowl
'I mix paint and Eric decorates the bowls' Baseline ✓

b. *Na-omba u-uze **mabakuli** [amba-yo [ni-na-changanya rangi] na
PRS-request 2SG-sell.SBJN 6bowl COMP-6REL 1SG-PRS-mix paint and
[Eric a-na-ya-remba **t**]] ?
Eric 1-PRS-6-beautify
Intended: 'Can you sell the bowls that I mix paint and Eric decorates?' *amba* ✗

c. *Na-omba u-uze **mabakuli** [[ni-na-yo-changanya rangi] na [Eric
PRS-request 2SG-sell.SBJN 6bowl 1SG-PRS-6REL-mix paint and Eric
a-na-ya-remba **t**]] ?
1-PRS-6-beautify
Intended: 'Can you sell the bowls I mix paint and Eric decorates?' *amba*-less ✗

The 'repair strategy' my consultants suggested is, naturally, to change the argument structure of the left conjunct so that movement dependency becomes across-the-board. This is shown below in (145). The change in argument structure is reflect in the verbal morphology of the left conjunct, which now bears an applicative marker *-i*.

(145) **ATB movement is possible if left conjunct argument structure is altered**

a. Na-omba u-uze **mabakuli** [amba-yo [ni-na-changanyia rangi **t**] na
PRS-request 2SG-sell.SBJN 6bowl COMP-6REL 1SG-PRS-mix.APPL paint and
[Eric a-na-ya-remba **t**]] ?
Eric 1-PRS-6-beautify
'Can you sell the bowls that I mix paint for and Eric decorates?'

b. Na-omba u-uze **mabakuli** [[ni-na-yo-changanyia rangi **t**] na [Eric
PRS-request 2SG-sell.SBJN 6bowl 1SG-PRS-6REL-mix.APPL paint and Eric
a-na-ya-remba? **t**]] ?
1-PRS-6-beautify
'Can you sell the bowls I mix paint for and Eric decorates?'

Another kind of effect concerns relative clause themselves, which are special cases of the Complex NP Constraint (Ross (1967)). We will discuss islandhood of RCs in more detail in the next subsection, since the data from my consultants is at variance with that

identified in previous literature. That data below in (146), reflecting the judgements of my consultants, shows that neither *amba* or *amba*-less RCs can acceptably have their position contained in another *amba* RC.

(146) **Relative Clause Islands**

a. Tu-li-m-kasikiria kijana yule$_i$ [amba-ye t$_i$ a-li-li-vunja **bakuli**$_j$].
1PL-PST-1-be.angry.at teenager 1DEM COMP-1REL 1-PST-5-break 5bowl
'We were angry at the teenager who broke broke the bowl.'

b.* Eric a-li-tengeneza **bakuli**$_j$ [amba-lo tu-li-m-kasikiria kijana yule$_i$ [amba-ye t$_i$ a-li-li-vunja **t**$_j$]].
Eric 1-PST-repair 5bowl COMP-5REL 1PL-PST-1-be.angry.at teenager 1DEM COMP-1REL 1-PST-5-break
Intended: 'Eric repaired the bowl that we were angry at the teenager who broke.'

c.* Eric a-li-tengeneza **bakuli**$_j$ [tu-li-lo-m-kasikiria kijana yule$_i$ [amba-ye t$_i$ a-li-li-vunja **t**$_j$]].
Eric 1-PST-repair 5bow 1PL-PST-5REL-1-be.angry.at teenager 1DEM COMP-1REL 1-PST-5-break
Intended: 'Eric repaired the bowl we were angry at the teenager who broke.'

Some restrictions may involve combinations of traditional island effects. Potential analogues of subject islands are difficult to elicit because sentential subjects do not seem to be permitted in Swahili. Furthermore, it's not possible to extract possessors from NPs, meaning that we cannot easily replicate English data like **The boy who the picture of **t** fell*. It is however possible to have a clausal complement to nouns like *habari* 'news' or *tarifa* 'information'. These complex NPs can occupy a pre-verbal position and control subject marking. Leaving a gap in such the clausal component of these NPs is unacceptable, presumably due to a combination of the restrictions underlying the Complex NP Constraint and Subject Islands. This is illustrated below in (147).

(147) **CNPC/Subject Islands**

a. [Taarifa kuwa **mabakuli** haya ya-na-kuwa maarafu] li-na-wa-pendeza Tom
5information COMP 6bowls 6DEM 6-PRES-be popular 5-PRS-2-please Tom
na Eric.
and Eric
'The news that these bowls are popular pleases Tom and Eric.'

b.*Haya ndiyo **mabakuli** [amba-yo [taarifa kuwa **t** ya-na-kuwa maarafu]
6DEM COP.FOC 6bowl COMP-6REL 5information COMP 6-PRES-be popular
li-na-wa-pendeza Tom na Eric].
5-PRS-2-please Tom and Eric
Intended:'These are the bowls that the news that are popular pleases Tom and Eric.'

Having reviewed a number of island effects, let us turn to reconstruction effects. Previous literature on Swahili relatives has identified reconstruction effects with respect to idioms, variable binding and scope (Ngonyani, 2001; Gould & Scott, 2019; Scott, 2021). The significance of such effects that the head of the relative appears to be interpreted in a different structural position than where its linear order is determined. I have observed similar effects with my consultants, for both *amba* RCs and *amba*-less RCs. Here I focus on reconstruction for variable binding and quantifier scope.

To start with variable binding, we should first note the behaviour of pronouns with respect to quantifiers in simple sentences. The data below in (148) suggest that a pronoun can be bound by a quantifier like *kila* 'every' when the quantifier c-commands the pronoun. The bound reading is not available when the pronoun is within a pre-verbal subject and the quantificational phrase is the internal argument.

(148) **Quantifier binding in simple sentences**

Context: Musa has recently won the lottery, and has decided to retire and become a writer. When he finishes his first book, all of the attention goes to his head. He gives an interview to the local paper, and embarrasses himself without realising it. In the interview he says:

a. Kila mwandishi hu-jivunia **kitabu chake cha kwanza**.
every 1writer HAB-be.proud.of 7book 7POSS 7P first
'Every writer$_i$ is proud of his$_{i/j}$ first book.' Bound reading ✓

b. **kitabu chake cha kwanza** hu-pendenza kila mwandishi
7book 7POSS 7P first HAB-please every 1writer
'His$_{j/*i}$ first book pleases every writer$_i$.' Bound reading ✗

Suppose that we have an object relative with a quantificational subject *kila mwandishi* 'every writer', and the head of the relative contains a pronoun. The below in (149) shows us that it's possible for a pronoun embedded in the head of the relative to be interpreted as variable bound by the quantificational subject. This is despite the fact that quantificational subject does not c-command the top of the relativisation dependency.

(149) **Reconstruction for quantifier binding**
Context: Musa has recently won the lottery, and has decided to retire and become a writer. When he finishes his first book, all of the attention goes to his head. He gives an interview to the local paper, and embarrasses himself without realising it. In the interview he says:

a. **Kitabu chake cha kwanza** [amba-cho kila mwandishi hu-jivunia **t**] huwa
7book 7POSS 7P first COMP-7REL every 1writer HAB-be.proud.of HAB.AUX
ni kizuri chote
COP 7nice 7all
'His$_i$ first book that every writer$_i$ is proud of is the best of all.'

b. **Kitabu chake cha kwanza** [a-na-cho-jivunia kila mwandishi **t**] huwa ni
7book 7POSS 7P first 1-PRS-7REL-be.proud.of every 1writer HAB.AUX COP
kizuri chote.
7nice 7all
'His$_i$ first book every writer$_i$ is proud of is the best of all.'

We also find instances of scope reconstruction, i.e. cases where relativised quantificational NPs are interpreted as if they were in their base position. This is illustrated below in (150) using object relatives with a quantificational head *magonjwa mawili* 'two diseases',

and this relative has a quantificational subject *kila daktari* 'every doctor'. It's possible for the head to be interpreted within the scope of the quantificational subject, i.e. for every doctor there are two diseases etc. Both amba and amba-less versions of such an relative clause are thus correct descriptions of the the context below.

(150) **Reconstruction for Quantifier Scope**
Context: Yesterday, there were three doctors in the clinic. Each doctor treated two different diseases. Six different diseases were treated in total that day. The diseases they encountered are not common in the local area.

a. **Magonjwa** **mawili** [amba-yo kila daktari a-li-pima **t** jana] sio ya
4disease 4two COMP-4REL every doctor 1-PST-treat yesterday NEG.COP P
kawaida
common
'The two diseases that every doctor treated are not common.' $\forall >> 2$ ✓

b. **Magonjwa** **mawili** [a-li-yo-pima kila daktari **t** jana] sio ya kawaida
4disease 4two 1-PST-4REL-treat every doctor yesterday NEG.COP P common
'The two diseases every doctor treated are not common.' $\forall >> 2$ ✓

Having reviewed evidence from a number of different kinds of islands and reconstruction effects, it is difficult to maintain that Swahili relatives with gaps, especially the *amba* kind, do not feature a movement dependency. Earlier research by Barrett-Keach (1980) reached different conclusions on the basis of the lack of relative clause islands. I take up this issue in the next section.

4.2.2 Variation in relative clause islands

In this subsection I focus on variation in the islandhood of RCs. Following Sichel (2018) I propose that such variation reflects the availability of raising, as well as matching, derivations for relatives. The difference essentially amounts to whether the nominal structure external to a relative clause has an escape hatch.

Barrett-Keach (1980) originally observed that relatives clauses were only islands for relativisation forming amba-less relatives. Amba RCs appear to have a base position within

another amba or amba-less RC. This contrast is illustrated below in (151). Restricting their attention to just the behaviour amba RCs, Gould and Scott (2019) have more recently replicated Barrett-Keach's observation - their examples are displayed below in (152).[1]

(151) **Relativisation out relatives** (Barrett-Keach, 1980, ex.70, p.71, glosses added)

a. Mtu amba-ye ni-li-wa-ona watoto amba-o a-na-wa-penda.
1person COMP-1REL 1SG-PST-2-see 2child COMP-2 1-PRS-2-like
'The person who I saw the children that (he) likes (them).'

b. *Mtu ni-li-ye-wa-ona watoto a-na-o-wa-penda.
1person 1SG-PST-1REL-2-see 2child 1-PRS-2REL-2-like
'The person I saw the children (he) likes (them).'

c. Mtu amba-ye ni-li-wa-ona watoto a-na-o-wa-penda.
1person COMP-1REL 1SG-PST-2-see 2child 1-PRS-2REL-2-like
'The person who I saw the children that (he) likes (them).'

d. *Mtu ni-li-ye-wa-ona watoto ambao a-na-wa-penda.
1person 1SG-PST-1REL-2-see 2child COMP-2 1-PRS-2-like
'The person who I saw the children that (he) likes (them).'

(152) **Relativisation out relatives** (Gould & Scott, 2019, ex.3, 4, glosses altered)

a. Nick a-li-ki-nunua kitabu amba-cho ni-li-wa-ona watoto amba-o
Nick 1-PST-7-buy 7book COMP-7REL 1SG-PST-2-see 2child COMP-2REL
wa-na-ki-soma.
2-PRS-7-read
'Nick bought the book that I saw the children who read it.'

b. Ni-li-mw-ita mtu amba-ye u-li-wa-ona watoto amba-o a-na-wa-penda.
1SG-PST-1-call 1person COMP-1REL 2SG-PST-2-see 2child COMP-2REL 1-PRS-2-like
'Nick bought the book that I saw the children who read it.'

1. Such apparent exceptions are by no means limited to Swahili. Relative clauses, particularly in Mainland Scandinavian languages, have been observed not to always constitute islands (Erteschik, 1972; Engdahl, 1980, 1982; Erteschik-Shir, 1982; Taraldsen, 1982).

In contrast to the consultants of Barrett-Keach (1980) and Gould and Scott (2019), my consultants completely rejected amba or amba-less RCs having a base position contained within another relative clause. We have already seen this in the previous section. Below in (153) is my attempt to replicate Barrett-Keach's paradigm of facts. My consultants rejected all parts of the paradigm, despite being given a facilitating context.

(153) **Attempted replication of Barrett-Keach's paradigm**

a. *Na-omba ku-azima **kitabu kile**$_j$ [amba-cho ni-li-wa-ona watoto$_i$ [amba-o
PRS-request INF-borrow 7book 7DEM COMP-7REL 1SG-PST-2-see 2child COMP-2REL
u-li-wa-somea **t**$_j$ **t**$_i$]].
2SG-PST-2-read.APPL

Intended: 'Can I borrow the book that I saw the children who you were reading to?'

b. *Na-omba ku-azima **kitabu kile**$_j$ [ni-li-cho-wa-ona watoto$_i$ [amba-o
PRS-request INF-borrow 7book 7DEM 1SG-PST-7REL-2-see 2child COMP-2REL
u-li-wa-somea **t**$_j$ **t**$_i$]].
2SG-PST-2-read.APPL

Intended: 'Can I borrow the book I saw the children who you were reading to?'

c. *Na-omba ku-azima **kitabu kile**$_j$ [amba-cho ni-li-wa-ona watoto$_i$
PRS-request INF-borrow 7book 7DEM COMP-7REL 1SG-PST-2-see 2child
[u-li-o-wa-somea **t**$_j$ **t**$_i$]].
2SG-PST-2REL-2-read.APPL

Intended: 'Can I borrow the book that I saw the children you were reading to?'

d. *Na-omba ku-azima **kitabu kile**$_j$ [ni-li-cho-wa-ona watoto$_i$ [u-li-o-wa-somea
PRS-request INF-borrow 7book 7DEM 1SG-PST-7REL-2-see 2child 2SG-PST-2REL-2-read.APPL
t$_j$ **t**$_i$]].

Intended: 'Can I borrow the book I saw the children you were reading to?'

In the face of this inter-speaker variation, I adopt a strategy inspired by Sichel (2018).

Restrictions on RC extraction (and the Complex NP constraint more generally) stem ultimately from phase-based locality: DPs are phases, meaning that extraction over DP must proceed through Spec DP. Variation in islandhood of RCs boils down to variation in whether Spec DP is accessible from the edge of the relative clause. Sichel proposes that such accessibility holds under a particular kind of relative clause structure, the *raising derivation* (Schacter, 1972; Vergnaud, 1974; Carlson, 1976; Kayne, 1994; Bianchi, 1999; Bianchi, 2000; Bhatt, 2002; de Vries, 2002; B. Henderson, 2007; Cecchetto & Donati, 2015). Relative clauses which are strong islands are formed instead by a *matching derivation* (Sauerland, 1998; Cresti, 2000; Citko, 2001; Sauerland, 2003; Salzmann, 2006, 2017). The variety of Swahili that my consultants speak is one which amba and amba-less RCs are always involve a matching derivation. Speakers who are more permissive towards extraction from relative clauses allow it under a raising derivation otherwise unavailable for my consultants.

(154) **Source of RC island variability: raising vs. matching derivations**

a. Movement out of RC to matrix CP must proceed via Spec DP.

b. Spec DP can only be accessed on a raising derivation.

c. RC Island Conservative Variety: Matching Derivation Only

d. RC Island Permissive Variety: Matching/Raising Derivations

To see how this restriction arises, let's briefly consider the major differences between matching and raising derivations. Both derivations involve movement to the edge of the relative clause, e.g. Spec CP. The contrast lies in the external nominal structure surrounding the clause. On a raising derivation in the spirit of Kayne (1994), after the NP raises to Spec CP, a D directly merges with CP. This is what gives relative clauses their externally nominal character. By contrast, in the matching analysis the same CP is an adjunct to an NP, matching with the NP in Spec CP. The D subsequently merges with NP, projecting a DP. The key difference between the raising and matching derivations is essentially the amount of external, unmoved nominal structure. Crucially for our purposes, there is an extra Spec NP in matching derivation, which is missing in the raising derivation.

(155) **Two ways to derive movement in relatives**

a. **Raising:** $[_{DP}\ [D]\ [_{CP}\ [NP]_i \ldots \mathbf{t}_i\ ]\ ]$

b. **Matching:** $[_{DP}\ [_{NP}\ \_\_\ [NP]\ [CP\ [\sout{DP}]_i \ldots \mathbf{t}_i\ ]\ ]]$ Crucial specifier: __

The specifier position above is highlighted because its presence is what prevents movement out of the RC from accessing Spec DP. To achieve this effect we need to appeal to a combination of phase-based locality and Anti-Locality (Abels 2003). We need to assume that in addition to DP, NP is also a phase. This means any movement across NP must proceed through Spec NP (Bošković 2015). Combine this with an anti-locality condition which would block movement from Spec NP to Spec DP.

(156) **Two further assumptions**

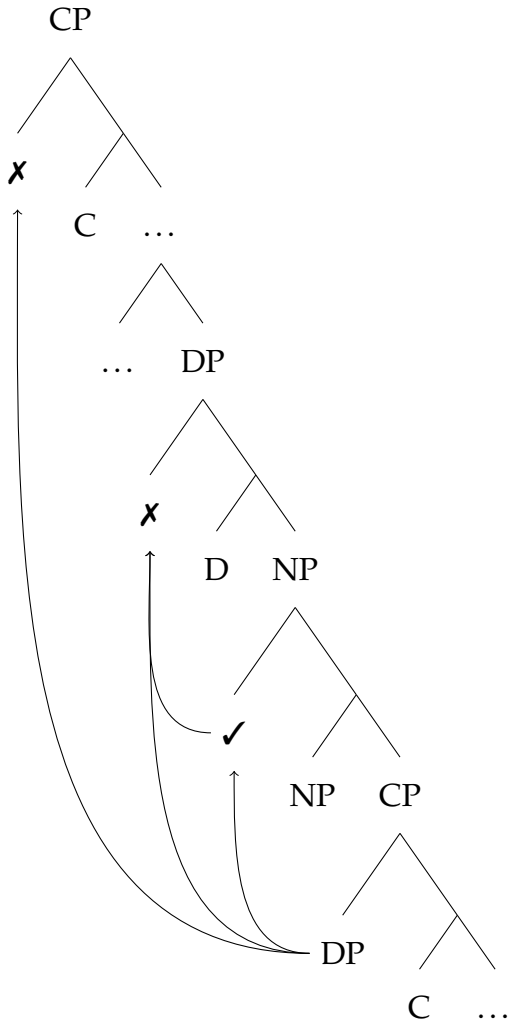
a. Two phases in the nominal domain: NP and DP

b. Ant-Locality condition prevents movement from Spec NP to Spec DP.

Let's now consider the consequences of these assumptions for extraction from relatives under a matching derivation. Recall that yo move out of DP, it is necessary to land in Spec DP. The matching derivation involves an external DP structure containing an NP. To move to Spec DP, movement would have to proceed through Spec NP by the assumed phasal nature of NP. The additional Anti-Locality constraint, however it is precisely implemented, prevents the required movement from Spec NP to Spec DP, leaving no other way to access Spec DP in the presence of NP.[2] In essence, the presence of the extra NP specifier traps movement out of the relative clause within lower levels of the external nominal structure. This is illustrated schematically below in (157).

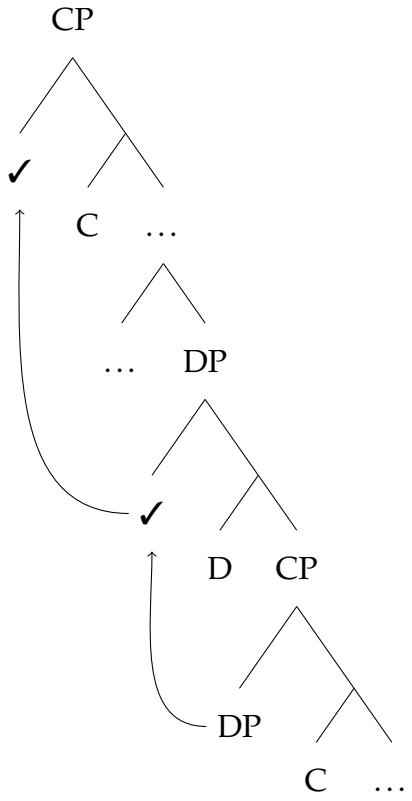
2. This constraint may be a bit too strong for languages which, unlike Swahili, allow possessor extraction. Sichel, following Bošković (2015), has a more specific condition that NPs are phases for categories which are not theta marked by them. This would mean that extraction from the complement of N would not need to proceed from Spec NP.

(157) **DP extraction blocked under Matching analysis**



Having seen the way the restrictions play out under the matching derivation, we can now consider what happens in the raising derivation. Recall that the key difference between raising and matching derivations is that the raising derivations lack certain NP structure. In a Kaynean implementation, nominal functional structure like D merges directly with CP. The lack of an NP layer means that movement leaving the relative clause can land at Spec DP without getting trapped. Subsequent movement into the matrix clause is then possible. This is illustrated below in (158).

(158) **DP extraction under Raising analysis**



The general logic is here is sufficient to address the issue of inter-speaker variation in RC islandhood. Some Swahili speakers only form relative clauses under a matching derivation, whereas others also (or only) use a raising derivation. [3]

To conclude this section, we have seen that it is possible to address the variability of RC islands in Swahili by appealing to the difference between raising and matching derivations. This means that we do not have to give up on the idea that amba RCs are formed by movement. I now want to turn to classic correlates of unbounded movement, parasitic gaps and weak crossover, and the difficulty with finding them in Swahili relatives.

3. This approach is not quite sufficient to handle the specific patterns that Barrett-Keach identified in (151). The key pattern recall is that whereas amba RCs can have a base-position in any kind of RC, amba-less RCs cannot. On the face of it, this looks like a promising candidate for the Size-Locality Generalisation, especially in terms of amba-less RCs not having their base position in their bigger amba counterparts. The stumbling block for this line of argument is the inability of amba-less RCs to allow extraction to form amba-less RCs. The Size-Locality Generalisation as it is currently stated only involves movement from smaller clauses into bigger ones being restricted. We would need to make the generalisation more restrictive. See Egressy (2023) for proposals about such a generalisation in Hungarian.

4.3 The Size-Locality Generalisation

Having now established the motivation for a movement derivation for relatives with gaps, I now turn to behaviour of gaps separated across clause boundaries. First I discuss the data supporting the Size-Locality Generalisation, before exploring the principled exceptions to the generalisation involving resumption.

4.3.1 Long-distance relativisation: the core data

4.3.1.1 amba RCs

We start our presentation with long-distance amba RCs. The data below in (159) show a variety of instances with COMP-complements, with several different embedding predicates. In these examples the complementiser is *kwamba* is used, but note that it is optional and, as far as I can tell, freely substitutable with the other complementiser *kuwa*.

(159) ***amba*-RCs: COMP-complements**

a. Ni-li-nunua **kisu** [amba-cho Lizzie a-li-amini [$_{CP}$ kwamba Jini a-li-ki-vunja **t**]]
1SG-PST-buy 7knife COMP-7REL Lizzie 1-PST-believe COMP Jini 1-PST-7-break
'I bought the knife that Lizzie believed that Jini broke.'

b. Ni-li-nunua **kisu** [amba-cho Lizzie a-li-dhani [$_{CP}$ kwamba Jini a-li-ki-vunja **t**]]
1SG-PST-buy knife COMP-7REL Lizzie 1-PST-think COMP Jini 1-PST-7-break
'I bought the knife that Lizzie thought that Jini broke.'

c. Ni-li-nunua **kisu** [amba-cho Lizzie a-li-sema [$_{CP}$ kwamba Jini a-li-ki-vunja **t**]]
1SG-PST-buy knife COMP-7REL Lizzie 1-PST-say COMP Jini 1-PST-7-break
'I bought the knife that Lizzie believed that Jini broke.'

d. Ni-li-nunua **kisu** [amba-cho Lizzie a-li-tangaza [$_{CP}$ kwamba Jini a-li-ki-vunja **t**]]
1SG-PST-buy knife COMP-7REL Lizzie 1-PST-announce COMP Jini 1-PST-7-break
'I bought the knife that Lizzie believed that Jini broke.'

e. **Mtu** [amba-ye ni-na-amini [$_{CP}$ kwamba **t** a-na-fanya kazi zaidi]] ni Musa.
1person COMP-1REL 1SG-PRS-believe COMP 1-PRS-do work more COP Musa
'The person who I believe does the most work is Musa.'

Below in (160) and (161) are instances of long distance amba RCs with their base positions contained in *ki*-complements and AGR-only complements respectively. In both the cases the matix predicate displays object marking with the embedded subject. This object marking is optional, but presence/absence subtly changes the meaning. This is discussed in more detail in the next chapter.

(160) ***amba* RCs: *ki*-complements (AspP-sized)**

Huu ndio **wali** [amba-o ni-li-mw-ona [$_{AspP}$ Tom a-ki-u-pika **t**]]
11DEM COP.FOC 11cooked.rice COMP-11REL 1SG-PST-1see Tom 1-SIT-11-cook

'This is the rice that I saw Tom cooking.'

(161) ***amba RCs*: AGR-only complements (LModP-sized)**

a. Agnes ha-hitaji **kiti** [amba-cho mimi ni-na-m-taka [$_{LModP}$ Jini a-ki-tengeneze **t**]]
Agnes 1.NEG-need 7chair COMP-7REL 1SG 1SG-PRS-1-want Jini 1-7-repair.SBJN

'Agnes doesn't need the chair that I want Jini to repair.'

b. Mimi hu-nunua **vidonge** [amba-vyo u-na-m-lazimish-aga [$_{LModP}$ paka a-vi-le **t**]]
1SG HAB-buy 8tablet COMP-8REL 2SG-PRS-1-force-HAB 1cat 1-8-eat.SBJN

'I buy the tablets that you force the cat to eat.'

Finally, below in (162) are a number of different instances of long-distance *amba* RCs with *ku*-complements.

(162) **ku-complements (VoiceP-sized)**

a. Agnes ha-hitaji [**kiti** amba-cho a-na-taka [$_{VoiceP}$ ku-ki-tengeneza **t**]]
Agnes 1.NEG-need 7chair COMP-7REL 1-PRS-want INF-7-repair

'Agnes doesn't need the chair that she wanted to repair.'

b. **Mtu** [amba-ye ni-na-taka [$_{VoiceP}$ ku-m-shukuru **t**]] ni Musa.
1person COMP-1REL 1SG-PRS-want INF-1-thank COP Musa

'The person who I want to thank is Musa.'

c. **Kisu** [amba-cho Lizzie a-li-jaribu [$_{\text{VoiceP}}$ ku-ki-tengeneza **t**]] ni hiki.
7knife COMP-7REL Lizzie 1-PST-try INF-7-repair COP 7DEM
'The knife that Lizzie tried to repair is this one.'

d. **Gari** [amba-lo a-na-penda [$_{\text{VoiceP}}$ ku-li-endesha **t**]] ni hatari
5car COMP-5REL 1-PRS-like INF-5-drive COP dangerous
'The car that he likes to drive is dangerous.'

To summarise a fairly simple picture, *amba* RCs with gaps can their base positions contained all four types of complement clause. They have unbounded behaviour characteristic of 'classic' Ā-movement.

4.3.1.2 Type 1 amba-less RCs

Moving on to Type 1 *amba*-less RCs, the range of possible of complement clauses is more restriction. Most obviously, minimal pairs of the above amba RCs with COMP-complements are unacceptable, as shown below in (163). Again it must be emphasized that the choice of complementiser, or indeed its presence, does not affect the acceptability of these clauses.

As we will see below, amba-less RCs are not totally ruled out with these complements. A strategy of resumptive prolepsis is often given as a repair to replace the unacceptable instances below. Some embedding predicates like *-sema* 'say' resist attempts to form proleptic alternatives, making it easier with such predicates to notice the restriction on long-distance movement.

(163) **Type 1 *amba*-less RCs: COMP-complements (CP-sized)**

a.*Ni-li-nunua [**kisu** a-li-cho-amini Lizzie [$_{\text{CP}}$ kwamba Jini a-li-ki-vunja **t**]]
1SG-PST-buy 7knife 1-PST-7REL-believe Lizzie COMP Jini 1-PST-7-break
'I bought the knife Lizzie believed that Jini broke.'

b.*Ni-li-nunua [**kisu** a-li-cho-dhani Lizzie [$_{\text{CP}}$ kwamba Jini a-li-ki-vunja **t**]]
1SG-PST-buy 7knife 1-PST-7REL-think Lizzie COMP Jini 1-PST-7-break
'I bought the knife Lizzie thought that Jini broke.'

c.*Ni-li-nunua [**kisu** a-li-cho-sema Lizzie [$_{CP}$ kwamba Jini a-li-ki-vunja **t**]]
1SG-PST-buy 7knife 1-PST-7REL-say Lizzie COMP Jini 1-PST-7-break
'I bought the knife Lizzie said that Jini broke.'

d.*Ni-li-nunua [**kisu** a-li-cho-tangaza Lizzie [$_{CP}$ kwamba Jini a-li-ki-vunja **t**]]
1SG-PST-buy 7knife 1-PST-7REL-announce Lizzie COMP Jini 1-PST-7-break
'I bought the knife Lizzie announced that Jini broke.'

e.***Mtu** [ni-na-ye-amini [$_{CP}$ kwamba **t** a-na-fanya kazi zaidi]] ni Musa.
1person 1SG-PRS-1REL-believe COMP 1-PRS-do work more COP Musa
'The person who I believe does the most work is Musa.'

Complement clauses smaller than CP remain just as acceptable with the Type 1 *amba*-less strategy as with the amba RCs above. Below in (164) and (165) are instances of long distance amba RCs with their base positions contained in *ki*-complements and AGR-only complements respectively.

(164) ***Ki*-complements (AspP-sized)**
Huu ndio **wali** [ni-li-o-mw-ona [$_{AspP}$ Tom a-ki-u-pika **t**]]
11DEM COP.FOC 11cooked.rice 1SG-PST-11REL-1-see Tom 1-SIT-11-cook
'This is the rice I saw Tom cooking.'

(165) **Agr-only complements (LModP-sized)**

a. Agnes ha-hitaji [**kiti** ni-na-cho-taka mimi [$_{LModP}$ Jini a-ki-tengeneze **t**]]
Agnes 1.NEG-need 7chair 1SG-PRS-7REL-want 1SG Jini 1-7-repair.SBJN
'Agnes doesn't need the chair that I want Jini to repair.'

b. Mimi hu-nunua **vidonge** [u-na-vyo-m-lazimish-aga [$_{LModP}$ paka a-vi-le **t**]]
1SG HAB-buy 8tablet 2SG-PRS-8REL-1-force-HAB 1cat 1-8-eat.SBJN
'I buy the tablets that you force the cat to eat.'

Similarly, we can see in (166) that Type 1 *amba*-less RCs can still have their base positions contained with *ku*-complements.

(166) **ku-complements (VoiceP-sized)**

a. Agnes ha-hitaji [**kiti** a-na-cho-taka [$_{\text{VoiceP}}$ ku-ki-tengeneza **t**]]
Agnes 1.NEG-need 7chair 1-PRS-7REL-want INF-7-repair
'Agnes doesn't need the chair that she wanted to repair.'

b. **Mtu** [ni-na-ye-taka [$_{\text{VoiceP}}$ ku-m-shukuru **t**]] ni Musa.
1person 1SG-PRS-1REL-want INF-1-thank COP Musa
'The person who I want to thank is Musa.'

c. **Kisu** [a-li-cho-jaribu [$_{\text{VoiceP}}$ ku-ki-tengeneza **t**]] ni hiki.
7knife Lizzie 1-PST-7REL-try INF-7-repair COP
'The knife that she tried to repair is this one.'

d. **Gari** [a-na-lo-penda [$_{\text{VoiceP}}$ ku-li-endesha **t**]] ni hatari
5car 1-PRS-5REL-like INF-5-drive COP dangerous
'The car that he likes to drive is dangerous.'

To summarise, Type 1 amba-less RCs permit long-distance movement out all complement clauses except the CP-sized COMP-complements.

4.3.1.3 Type 2 amba-less RCs

Finally we can turn to the most restricted of the three relative clause types, Type 2 *amba*-less RCs. In (167) below we can see that like the Type 1 RCs above, Type 2 RCs cannot have their base position contained in CP-complements. I do not have as many minimal pairs to contrast with the data above. Part of the difficulty is with the more restricted status of these RCs in general, both in terms of register, but also in terms of their peculiar lack of tense/aspect prefixes. As with the Type 1 RCs above, I suspect that resumptive prolepsis is a possibility that can mask the restrictions on long-distance movement here.

(167) **Type 2 *amba*-less RCs: COMP-complements (CP-sized)**

***Mtu** [ni-amini-ye [$_{\text{CP}}$ kwamba **t** a-na-fanya kazi zaidi]] ni Musa.
1person 1SG-believe-1REL COMP 1-PRS-do work more COP Musa
Intended: 'The person I believe does the most work is Musa.'

It's with smaller than CP-complements that the unique locality profile of Type 2 RCs emerges. Unlike their Type 1 counterparts, they cannot have their base positions contained in either *ki*-complements (168) or AGR-only complements (168). These restrictions are unexpected on analysis of Type 2 RCs in which they are simply morphological variants of essentially the same syntax as Type 1 RCs. It's this reason that I have not simply collapsed the two types of *amba*-less RCs together and abstracted away from their differing morphology.

(168) **Type 2 *amba*-less RCs: *Ki*-complements (AspP-sized)**

*Si-pendi **wali** [ni-mw-ona-o [$_{\text{AspP}}$ Tom a-ki-u-pika **t** kila wiki]]
1SG.NEG-like 11cooked.rice 1SG-1-see-11REL Tom 1-SIT-11-cook every week

Intended:'I don't like the rice that I see Tom cooking every week.'

(169) **Type 2 *amba*-less RCs: AGR-only complements (LModP-sized)**

a. *Agnes ha-hitaji **kiti** [ni-taka-cho mimi [$_{\text{VoiceP}}$ Jini a-ki-tengeneze **t**]]
Agnes 1.NEG-need 7chair 1SG-want-7REL 1SG Jini 1-7-repair.SBJN

'Agnes doesn't need the chair that I want Jini to repair.'

b. *Mimi hu-nunua **vidonge** [u-m-lazimish-aga-vyo [$_{\text{AgrSP}}$ paka a-vi-le **t**]]
1SG HAB-buy 8tablet 2SG-1-force-HAB-8REL 1cat 1-8-eat.SBJN

Intended:'I buy the tablets that you force the cat to eat.'

Finally, like Type 1 RCs and amba RCs, Type 2 RCs can their base-position contained with *ku*-complements (170).

(170) ***ku*-complements (VoiceP-sized)**

a. **Mtu** [ni-taka-ye [ku-m-shukuru **t**]] ni Musa.
1person 1SG-want-1REL INF-1-thank COP Musa

'The person I want to thank is Musa.'

b. **Gari** [a-penda-lo [$_{\text{VoiceP}}$ ku-li-endesha **t**]] ni hatari
5car 1-like-5REL INF-5-drive COP dangerous

'The car he likes to drive is dangerous.'

To summarise, Type 2 *amba*-less RCs have the most restricted locality profile, only allowing their base position to be contained within the smallest kinds of complement clauses. The combined behaviour of the three types types of relative and four types of complement clause inform the Size Locality Generalisaion, repeated below.

(171) **The Size-Locality Generalisation**

a. A complement clause C is transparent to extraction forming a relative clause R only if C is smaller or the same size as R.

b.

Complement	amba (CP)	Type 1 amba-less (TP)	Type 2 amba-less (AgrSP)
CP	✓	✗	✗
AspP	✓	✓	✗
LModP	✓	✓	✗
VoiceP	✓	✓	✓

In the next subsection I discuss the strategies for forming RCs which do not conform the Size-Locality Generalisation. Their non-compliance follows from lacking cross-clausal movement entirely.

4.3.2 Exceptions to the Size-Locality Generalisation

In this subsection I review two kinds of resumptive dependencies which are both not subject to the Size-Locality Generalisation: possessor resumption and resumptive prolepsis (e.g. Salzmann, 2006, 2017).

4.3.2.1 Possessor resumption

In the last chapter it was observed that possessive relatives could be formed with/without *amba* if the resumptive possessive pronoun was contained within an embedded clause. The cases under discussion involved CP-sized COMP-complements. The relevant data are repeated below in (172).

(172) **Possessor relatives: COMP-complements**

a. Ni nini ki-li-m-pata **kijana** **yule** [amba-ye u-li-sema [kwamba gari
FOC 7what 7-PST-1-happen.to 1teenager 1DEM COMP-1REL 2SG-PST-say COMP 5car
l-ake li-me-haribika]]?
5-POSS.3SG 5-PFT-break.down
'What happened to that teenager whose car you said broke down?'

b. Ni nini ki-li-m-pata **kijana** **yule** [u-li-ye-sema [kwamba gari **l-ake**
FOC 7what 7-PST-1-happen.to 1teenager 1DEM 2SG-PST-1REL-say COMP 5car 5-POSS.3SG
li-me-haribika]]?
5-PFT-break.down
'What happened to that teenager whose car you said broke down?'

In light of our discussion above about parasitic gaps and contexts with island-sensitive resumption, we cannot now take for granted the idea that the lack of a gap equates to a lack of movement. We may wonder whether the long-distance dependencies in (172) involve movement, and for similar reasons to extraction from adpositions, it is merely leaving a gap (rather than movement *per se*) that its restricted. If this were the case, (172) would constitute a genuine counterexample to the Size-Locality Generalisation.

The exceptional status of possessive relatives is, however, motivated by their insensitivity to islands. We have already seen that amba and amba-less RCs with gaps cannot have their base position contained with clausal adjuncts. Example (173) below shows that, on the contrary, the resumptive possessive pronoun can be a constituent of a reason adjunct.

(173) **Possessive pronoun in adjunct island**
Ni-na-m-kasirikia **kijana** **yule** [amba-ye barabara i-li-kuwa i-me-fungwa
1SG-PRS-1-be.angry.at 1teenager 1DEM COMP-1REL 9road 9-PST-1REL-AUX 9-PFT-close.PASS
[$_{\text{Reason Adjunct}}$ kwa sababu gari **l-ake** li-me-haribika]].
for reason 5car 5-POSS.3SG 5-PFT-break.down
'I'm angry at the teenager who the road was closed because his car broke down.'

This suggests that Size-Locality Generalisation applies to very specific instances of 'relativisation', i.e. only those formed by movement. Base-generated resumptives are exempt. This insight informs my thinking about another set of *prima facie* exceptions.

4.3.2.2 Resumptive prolepsis

In investigating the possibility of forming *amba*-less RCs with their base-positions in COMP-complements, my primary consultant suggested modifications to the embedding predicates which resulted in acceptable long-distance relative clauses. A key ingredient was the addition of object marking the embedding predicate, which matched the noun-class of the relativised DP. Some embedding predicates only needed this object marking, but others also required the presence of applicative suffixes.

(174) **The morphological signature of avoiding Size-Locality effects**

a. Object marking tracking relativised DP's noun class on the embedding predicate.

b. Applicative/valency increased suffixes on the embedding predicate.

Embedding predicates like *-amini* 'believe' need only display the object marling. Interestingly, the presence of such object marking on *-amini* changes its lexical meaning to something closer to 'trust/believe in'. A minimal pair showing the effect of object marking is given below. The object marking is especially suggestive since we are notionally dealing with a long-distance subject relative.

(175) **The impact of matrix object marking**

a.***Mtu** [ni-na-ye-amini [$_{CP}$ kwamba **t** a-na-fanya kazi zaidi]] ni Musa.
1person 1SG-PRS-1REL-believe COMP 1-PRS-do work more COP Musa
'The person who I believe works the most is Musa.'

b. **Mtu** [ni-na-ye-m-amini **t** [$_{CP}$ kwamba **pro** a-na-fanya kazi zaidi]] ni Musa.
1person 1SG-PRS-1REL-1-believe COMP 1-PRS-do work more COP Musa
'The person I trust works the most is Musa.'

Other embedding predicates like *tangaza* 'announce' and *dhani* 'think' require object marking and applicative suffixes. The presence of applicative marking is not sufficient for certain verbs like *sema* 'say'.[4]

4. This may be related to the fact that applicative morphology with this root has an idiosyncratic interpretation *semea* 'speak on behalf of'.

(176) **The impact of matrix object and applicative marking**

a.*Ni-li-nunua **kisu** [a-li-cho-dhani Lizzie [$_{CP}$ kwamba Jini a-li-ki-vunja **t**]]
1SG-PST-buy 7knife 1-PST-7REL-think Lizzie COMP Jini 1-PST-7-break
'I bought the knife Lizzie thought that Jini broke.'

b. Ni-li-nunua **kisu** [a-li-cho-ki-dhania Lizzie **t** [$_{CP}$ kwamba Jini a-li-ki-vunja **pro**]]
1SG-PST-buy 7knife 1-PST-7REL-7-think.APPL Lizzie COMP Jini 1-PST-7-break
'I bought the knife Lizzie thought that Jini broke.'

c.*Ni-li-nunua **kisu** [a-li-cho-tangaza Lizzie [$_{CP}$ kwamba Jini a-li-ki-vunja **t**]]
1SG-PST-buy 7knife 1-PST-7REL-announce Lizzie COMP Jini 1-PST-7-break
'I bought the knife Lizzie announced that Jini broke.'

d. Ni-li-nunua **kisu** [a-li-cho-ki-tangazia Lizzie **t** [$_{CP}$ kwamba Jini a-li-ki-vunja
1SG-PST-buy 7knife 1-PST-7REL-7-announce.APPL Lizzie COMP Jini 1-PST-7-break
pro]]

'I bought the knife Lizzie announced that Jini broke.'

I hypothesize that the changes in the lexical meaning of the matrix predicate, the addition of applicative morphology and the presence of object marking reflect a resumptive prolepsis dependency, in the sense of Salzmann (2006, 2017). That is to say, the relativised DP is base-generated as an internal argument of the embedding predicate. It may undergo movement from that position. The apparent 'base position' within the complement clause is in fact a base-generated *pro*, which is bound by the relative operator in the higher clause. Since there is no cross-clausal movement dependency, the Size-Locality Generalisation does not apply. This is sketched below in (177).

(177) **Resumptive prolepsis**

$[_{CP/TP/...}\ \mathbf{DP}_i \ldots [_{ApplP}\ \sout{\mathbf{DP}_i}\ [_{VP}\ V\ [_{CP} \ldots \mathbf{pro}_i \ldots]]]]$

If there is resumptive prolepsis at work, we would want to see island insensitivity within the complement clause, parallel to what was illustrated for possessive relatives. This would support the proposed lack of cross-clausal movement. Preliminary evidence that this is case is given below in (178), using coordinated clausal complements.

(178) a. Ni-li-nunua **kisu** [a-li-cho-ki-dhania Lizzie **t** [$_{CP}$ kwamba mpini wake
1SG-PST-buy 7knife 1-PST-7REL-7-think.APPL Lizzie COMP 3handle 3POSS
u-li-kuwa mzuri] na [$_{CP}$ kwamba Jini a-li-ki-vunja **pro**]]
3-PST-be nice and COMP Jini 1-PST-7-break
'I bought the knife Lizzie thought that its handle was nice and that Jini broke.'

b. *Ni-li-nunua **kisu** [a-li-cho-dhani Lizzie [$_{CP}$ kwamba mpini wake
1SG-PST-buy 7knife 1-PST-7REL-think Lizzie COMP 3handle 3POSS
u-li-kuwa mzuri] na [$_{CP}$ kwamba Jini a-li-ki-vunja **t**]]
3-PST-be nice and COMP Jini 1-PST-7-break

Ultimately we need to provide principled conditions on the distribution of resumptive *pro*. If it were permitted across the board, all of the island effects presented in this section should not be detectable. Such an account would likely need to address the restrictions we observed in the last chapter on the distribution of resumptive possessive pronouns.

To conclude this section, we have reviewed in more detail the patterns of long-distance relativisation which support the Height-Locality Generalisation. Where the generalisation does not seem apply, there is suggestive evidence for different kinds of resumptive dependencies which lack the crucial step of cross-clausal movement.

4.4 Implications for the classification of movement

In this section I consider how the SLG impacts the classification of movement in terms of the A/Ā, and highlight the currently inconclusive status of some traditional diagnostics.

4.4.1 Clause-boundedness and the A/Ā-distinction

When the syntax of a language like English is carefully considered, movement dependencies seem to appear in several places. These movements do not have a uniform set of properties, in terms of locality, landing site, semantic interpretation and interactions with other grammatical process. Nevertheless, careful consideration (especially with reference to languages with a richer range of movement processes) suggests that the variation in the properties of movement it not a free for all. Certain properties cluster together, traditionally conceived of as forming two types of movement, today termed A-movement and Ā-movement (Postal 1971, Chomsky 1977, 1981). Consider for example the summary of properties from Richards (2014; 167-169):

(179)

A-movement	**Ā-movement**
Local	Non-Local
Restricted to nominals	Not restricted to nominals
No Reconstruction for Principle C	Reconstruction for Principle C
New antecedents for anaphors	No new antecedents for anaphors
No Weak Crossover	Weak Crossover
No licesing of parasitic gaps	Licensing of parasitic gaps

To describe A-movement as being *local*, usually involves two distinct kinds of restrictions. The first is a familiar one: A-movement, such as Raising to Subject in English, cannot cross a finite clause boundary. By contrast, Ā-movement (such as wh-movement, topicalisation and relativisation) can cross such a boundary, all else being equal.

(180) **A-movement cannot cross a finite clause boundary**

a. *Tom$_j$ seems [$\mathbf{t}_j$ made pilav]. Raising ✗

b. **What$_i$** does it seem [Tom made $\mathbf{t}_i$]? Wh-movement ✓

c. This is the **pilav**$_i$ that it seems [Tom made **t**$_i$]. Relativisation ✓

d. **The pilav**$_i$, it seems [Tom made **t**$_i$]. Topicalisation ✓

Secondly, A-movement can only target the highest argument in the thematic domain - a restriction clearly not obeyed by Ā-movement. To illustrate this independently of finite-clause boundary restriction, one needs to examine cases of passivisation like those below in (181). If a matrix ECM predicate like believe is passivised, only its DP internal argument (*Bill*) can occupy the matrix A-position. Even though there are DPs within the non-finite complements, none of these are suitable candidates for A-movement. By contrast, Ā-movement like in (182), can free extract from the lower arguments in such structural configurations.

(181) **Only the highest argument DP can undergo A-movement**

a. Jane believed Bill to want Harry to meet Henry.

b. **Bill** is believed **t** to want Harry to meet Henry.

c. *__Harry__ is believed Bill to want **t** to meet Henry.

d. *__Henry__ is believed Bill to want Harry to meet **t**.

(182) **Any argument DP can undergo Ā-movement**

a. **Who** did Jane believe **t** to want Harry to meet Henry?

b. **Who** did Jane believe Bill to want **t** to meet Henry?

c. **Who** did Jane believe Bill to want Harry to meet **t**?

The cross-clausal movement that is possible in amba-less RCs has a locality profile that only partially matches archetypal A-movement. If 'finite clause' is understood to mean CP-sized clause, then it would be true to say that such movement cannot cross the boundaries of finite clauses. But we have seen a number of instances in which internal arguments are moved over external arguments - something that classic A-movement cannot do. More to the point, movement in amba-less RCs displays *two degrees* of clause boundedness. This by itself suggests that the classic A/Ā classification of movement is at best incomplete.

(183) **Problems from amba-less RCs for classic A/Ā-distinction**

a. Movement can target non-local arguments.

b. Movement cannot cross a CP-boundary.

c. Depending on the RC-type, movement can cross boundaries as high as AspP

Swahili is by no means the only language with locality profiles problematizing the A/Ā-distinction. A similar kind of mixed behaviour is displayed by wh-movement for some speakers of Russian. As discussed in Müller and Sternefeld (1993), wh-movement for those speakers is only permitted out finite complements in Russian if they have a subjunctive complementiser *čtoby*. Movement out of indicative complements with the complementiser *čto* is comparatively degraded. As we can see, wh-movement out of the subjunctive complements is still able to target DPs other than the highest argument, e.g. objects.

(184) **Russian wh-movement is clause-bound**

a.*?[**Kakuju knigu**] ty dumaeš' [$_{CP}$ čto Petr pročital **t**]?
which book you believe COMP.INDIC Petr read
'Which book do you believe Petr read?'

b. [**Kakuju knigu**] ty dumaeš' [$_{CP}$ čtoby Petr pročital **t**]?
which book you believe COMP.SBJN Petr read
'Which book do you believe Petr read?' (Müller & Sternefeld, 1993, ex. 7ab)

The weakness of the classic A/Ā-distinction is now relatively well known, especially in light of work like Van Urk (2015) which looks at the behaviour of movement in Dinka (Western Nilotic). Dinka seems to have unbounded movement which, unlike classic Ā-movement, does not show Weak Crossover Effects, and can bind anaphors in the matrix clause. In light of the mix of A/Ā-properties, Van Urk proposes turning the traditionally binary distinction into a ternary one. On the assumption that the distinction boils down whether movement is triggered by [A]-features (e.g. φ-features) or [Ā]-features, Van Urk proposes that movement in some languages is driven by both kinds of features at once. It isn't obvious that this 'ternary strategy' can be usefully applies to where the A/Ā *locality* distinction breaks down. I walk through the relevant reasoning in more detail in the next chapter.

4.4.2 Inconclusive diagnostics

The locality issue aside, it would of course be informative to know how movement in Swahili relatives behaves for other A/Ā-properties. If amba-less RCs behaved exactly like classic A-movement, we might draw different conclusions about their analysis compared to if they had a more mixed behaviour. The picture at present is not entirely clear.

One issue with examining the diagnostics is that they rest of certain presumed properties which might not hold of a given language. Swahili does not appear to have pronominal elements one could describe as anaphors or reciprocals, in English sense (Vitale 1981). This means that it is harder to check whether movement feeds binding relations.

More promising in principle is the possibility of investigating Weak Crossover effects (Postal 1971). That is, whether the relativised DP can move over a pronoun, e.g. in contained in a DP in Spec, TP, and bind it. My initial findings are that they do not occur with either *amba* and Type 1 *amba*-less RCs, illustrated below in (185). We can see that a quantificational object can be relativised and bind from its surface position a pronoun which c-commands the base-position. It is unclear to me whether this is a quirk of Swahili relatives (along the lines reported by Postal 1993 for WCO in French relatives), or a general feature of movement dependencies in the language.

(185) **No Weak Crossover difference between amba and amba-less RCs**

a. Wazazi wake$_{j/*i}$ a-li-sifa kila mwanafunzi$_i$
2parent 2POSS.3SG 1-PST-praise every 1student
'Her$_{j/*i}$ parents praised every student$_i$.'

b. Kila mwanafunzi$_i$ a-li-sifwa na wazazi wake$_{i/j}$
Every 1student 1-PST-praise.PASS by 2parent 2POSS.3SG
'Every student$_i$ was praised by her$_{i/j}$ parents.'

c. Kila mwanafunzi$_i$ [amba-ye wazazi wake$_{i/j}$ wa-li-sifa **t**] a-na-furahi
Every 1student COMP-1REL 2parent 2POSS.3SG 2-PST-praise 1-PRS-be.happy
'Every student$_i$ who her$_{i/j}$ parents praised is happy.' **No Weak Crossover!**

d. Kila mwanafunzi$_i$ [wa-li-ye-sifa wazazi wake$_{i/j}$ **t**] a-na-furahi
Every 1student 2-PST-1REL-praise 2parent 2POSS.3SG 1-PRS-be.happy
'Every student$_i$ her$_{i/j}$ parents praised is happy.' **No Weak Crossover!**

In terms of parasitic gaps (e.g. Engdahl 1982, 1985), a key difficulty for testing such predictions is the pervasive presence of null objects in Swahili, which are superficially similar to PGs. Recent work on the realisation of movement dependencies in Swahili by Scott (2021) offers a potential solution to this problem. Scott shows that there are morphosyntactic contexts in which the conflation between PGs and null objects cannot be made. Scott argues that in some structural configurations, what appear to be resumptive pronouns are actually overt parasitic gaps. In (186) there are two instances of *-ye* adjacent to adpositions, the class 1 marker that we have seen as a island-sensitive resumptive and a part of the relative marker system. Scott argues that the *-ye* contained adjunct clause is not a true (movement-derived) resumptive element. In part this is becuase movement derived resumptives, unlike true resumptive pronouns also available in the language, cannot appear in adjunct clauses.[5]

(186) **Overt parasitic gaps in Swahili** Scott (2021;)
Mimi ndi-ye [amba-ye u-li-pika na-**ye** [kabla ya ku-ondoka na-ye]]
1SG COP-1 COMP-1REL 1SG-PST-cook with-1 before INF-leave.RECIP with-1
'It's me who you cooked with before leaving with' **Gap**, Parasitic Gap

Naturally, if Scott's argument holds, it would be interesting to see a minimal pair of (186) with an amba-less RC - the kinds of RCs that she sets aside. I do not have the data yet to completely replicate Scott's findings. This issue clearly deserves further investigation.

To conclude this subsection, the A/Ā-status of movement in Swahili RCs is not yet clear. A plausible direction for future research would to examine more carefully the parasitic gap-like properties of certain resumptive elements identified by Scott (2021). What seems clearest is that locality profiles identified in this chapter complicate a traditional understanding of A/Ā-distinction.

5. Additionally, if the -ye in matrix part of the RC is replaced with a true resumptive, the -ye in adjunct clause is no longer acceptable as a parasitic element. That is, the -ye is adjunct is licensed by movement in the same way that familiar parasitic gaps are.

4.5 Size-Locality: the view from English relatives

In the last chapter we briefly discussed the system of English relative clauses analysed by Douglas (2016). Like I have done for Swahili, Douglas proposed that English relatives come in a number of different sizes. In this section I briefly explore the prediction, essentially correct, that these smaller relatives are formed by more local dependencies.

4.5.1 The size of bare infinitival relatives

Recall that Douglas proposes that/wh-finite RCs having a full left periphery/CP-layer, whereas the Ø-finite RCs relatives having a reduced. Part of the motivation for these sizes is the availability of argument/adjunct fronting: it is permitted in that/wh-finite RCs but impossible in Ø-finite RCs. The same diagnostics can be applied to infinitival relatives.

My focus here is on the behaviour of Ø-infinitive RCs. These clauses lack any kind of complementiser or wh-word and have a PRO subject. Such clauses are superficially similar to *object purpose clauses* (OPCs) (e.g. Bach 1982, Landau 2000, 2013). The latter clauses do not form complements with the noun phrases that they appear to modify.

(187) **Distinguishing Ø-Infinitive RCs from Object Purpose clauses**

a. I_j found [a $cake_i$ [PRO_j to bake $\mathbf{t}_i$]] Ø-Infinitive RCs

b. I_j bought [a cake] [PRO_j to eat] Object Purpose Clause

Douglas provides a number of diagnostics which distinguish IRCs from OPCs. The apparent gap in OPCS can, for example, be substituted for a pronoun, whereas it cannot in IRCs. I set aside the interesting question of what exactly allow null objects in OPCs.

(188) **Pronoun may replace gap in Object Purpose Clauses**

a. I found a cake to bake (*it).

b. I bought a cake to eat (it).

Cleft and copular constructions, typical contexts in which relative clauses appear, do not permit pronouns to replace the gap.

(189) **Pronoun may not replace gap in relative-clause environments**

a. This is [a cake to bake (*it)].

b. [A cake to bake (*it)] is this one.

c. What I need is [a cake to bake (*it)].

d. [A cake to bake (*it)] is what I need.

Furthermore, like restrictive relatives in general, IRCs cannot modify a non-referential head. To the extent that they are acceptable, they require coercion. No such restrictions exist on the apparent modification of an object by OPCs.

(190) **Only OPCs can seem to modify referential expressions**

a. I brought Charlie to talk to. OPC

b. I brought it to eat with. OPC

c. *This is Charlie to talk to. IRC

d. *This is it to eat with. IRC

Having identified Ø-infinitive RCs as distinct from object purpose clauses, we can now turn to the issue of fronting. The fronting patterns of Ø-infinitive RC is very similar to that of Ø-finite RCs discussed in the last chapter. Neither adjuncts or arguments may occupy a position between the (external) head of the relative and *to*.

(191) **No fronting in Ø-infinitival relatives**

a. I found a cake [$_{TP}$ to bake $\mathbf{t}_i$ [$_{PP}$ for Jane]]

b. *I found a cake [$_{TP}$ [$_{PP}$ for Jane] to bake $\mathbf{t}_i$]

c. I found a cake [$_{TP}$ to bake $\mathbf{t}_i$ [$_{AdvP}$ tomorrow]]

d. *I found a cake [$_{TP}$ [$_{AdvP}$ tomorrow] to bake $\mathbf{t}_i$]

On this basis we could conclude that such relatives have a similarly truncated C-layer to Ø-finite RCs. Douglas shows us, however, that the behaviour of long-distance movement distinguishes the two types of RC. This encourages appealing to a structural or featural distinction between them, clearly supported by the obvious morphosyntactic differences.

4.5.2 The clause-boundedness of infinitival relatives

Drawing on observations from Longenbaugh (2016), Douglas provides data showing that bare infinitive relatives cannot have a base position contained in a finite complement.

First, we should note that infinitival relatives allow for the relativisation of all the major types of arguments. This suggests that movement dependency forming these relatives is not subject to an A-movement type of locality.

(192) **Short-distance infinitival relatives**

a. I found a **man** [to **t** fix the sink] Subject extraction

b. I found a **sink** [to fix **t**] Object extraction

c. I found **someone** [to give a present to **t**] Indirect Object extraction

d. I found a **knife** [to spread butter [with **t**]] Instrument extraction

Next, we should note that Ø-infinitival relatives can, like their finite counterparts, have their base position contained in an infinitival complement, as shown below.

(193) **Long-distance finite and Ø-infinitce RCs: non-finite complements**

a. I found a poem [to force Pietro [to read **t**]]

b. I found a poem [that I can force Pietro [to read **t**]]

c. I found someone [to pretend [to hear from **t**]]

d. I found someone [that I can pretend [to hear from **t**]]

Now we come the cases of finite complements. Douglas notes that there is some disagreement in the speakers he consulted. My judgement, in line with his, is that that infinitival relatives are noticeably degraded by comparision to near minimal pairs of their Ø-finite counterparts. The relevant data are shown below in (195) and (195).

(194) **Long-distance Ø-finite relatives: finite complements**

a. I found a play [that you can prove [$_{CP}$ **t** was written by Shakespeare]]

b. I found a play [that you can prove [$_{CP}$ Shakespeare wrote **t**]]

c. I found a puzzle [you can announce [$_{CP}$ the research group has uncovered **t**]]

d. I found a puzzle [you can announce [$_{CP}$ **t** has been uncovered by research group]]

e. I found a problem [you can imply [$_{CP}$ Tom has not solved **t**]]

f. I found a problem [you can imply [$_{CP}$ **t** has not been solved by Tom]]

(195) **Long-distance infinitival relatives: finite complements**

a.*I found a play [to prove [$_{CP}$ **t** was written by Shakespeare]]

b.*I found a play [to prove [$_{CP}$ Shakespeare wrote **t**]]

c.*I found a puzzle [to announce [$_{CP}$ the research group has uncovered **t**]]

d.*I found a puzzle [to announce [$_{CP}$ **t** has been uncovered by the research group]]

e.*I found a problem [to imply [$_{CP}$ Tom has not solved **t**]]

f.*I found a problem [to imply [$_{CP}$ **t** has not been solved by Tom]]

The puzzle here is how to handle the fact that Ø-infinitive RCs have a locality profile somewhere between classic A-movement and classic Ā-movement. They are not restricted to targeting the highest argument, and yet the dependency in question cannot cross a finite clause boundary.[6] In light of the behaviour of Swahili relatives, an obvious strategy is to pursue the intuition that the size of infinitival relatives determines their locality. There are certain complexities that have to be addressed, in order to firm up a Size-Locality Generalisation for English relatives.

As Douglas (2016) points out, infinitival RCs can display a complementiser for and an overt accusative subject. In terms of fronting, infinitive RCs with *for* pattern with complementiser-less counterparts. No fronting is permitted between the head of the relative and *for*, or between *for* and overt subject. In terms of the size of these clauses, we expect them to be similar to that of Ø-finite RCs or other infinitive RCs. They have a truncated, or perhaps entirely absent left periphery - depending on how one wants to analyse *for*.

(196) **No argument/adjunct fronting in *for*-infinitive RCs**

a. I found a cake [$_{CP}$ ~~cake~~$_i$ for Tom to bake **t**$_i$] *for*-Infinitive RCs

b. I found a cake [$_{CP}$ for Tom to bake **t**$_i$ [$_{AdvP}$ tomorrow]]

6. This is combination of properties is shared with *tough*-movement, as detailed in Longenbaugh (2017).

c. *I found a cake [$_{CP}$ [$_{AdvP}$ tomorrow] for Tom to bake $\mathbf{t}_i$]

d. I found a cake [$_{CP}$ for Tom to send $\mathbf{t}_i$ [$_{PP}$ to Jane]]

e. *I found a cake [$_{CP}$ [$_{PP}$ to Jane] for Tom to send $\mathbf{t}_i$]

When we turn our attention to long-distance *for*-infinitive RCs, they allow a dependency to be established over non-finite complements, and crucially finite complements too (197). In this way they pattern with finite relatives clauses, and not with their Ø-infinitive counterparts.

(197) **Long-distance *for*-infinitive relatives: finite complements**

a. I found a play [for to you prove [$_{CP}$ that Shakespeare wrote **t**]]

b. I found a play [for to you prove [$_{CP}$ that **t** was written by Shakespeare]]

c. I found a puzzle [for to you announce [$_{CP}$ that the research group has uncovered **t**]]

d. I found a puzzle [for to you announce [$_{CP}$ that **t** has been uncovered by the research group]]

e. I found a problem [for you to imply [$_{CP}$ that Tom has not solved **t**]]

f. I found a problem [for you to imply [$_{CP}$ that **t** has not been solved by Tom]]

Douglas assumes that *for*-infinitives RCs and Ø-finite RCs are essentially the same size, terminating in a defective C-head. If one wants to explore program of size-determined locality differences, one would ultimately have to come up with good arguments for thinking that for-RCs are big, despite disallowing argument fronting. I leave such detailed considerations of English clause structure to future work. The basic point is that, English may well display its own version of the Size Locality Generalisation.

To conclude this section, the contrasts in English long-distance relatives suggests that the connection between size and locality is not simply a peculiarity of Swahili relatives. This strengthens the motivation for proposing a general source of these Size-Locality effects which transcends differences between Swahili and English relative clause systems. I leave a more detailed investigation of these English patterns for future research.

Chapter 5

Deriving the Williams Cycle

5.1 Introduction

Recall the pattern of long-distance movement we observed in the last chapter, described as the Size Locality Generalisation (SLG) (198). The higher in the functional sequence the landing site of the restrictor DP is, the bigger transparent complement clauses can be. I propose that the SLG is a special case of general size-based locality constraint of syntactic dependencies, which is informally called *the Williams Cycle*.

(198) **The Size-Locality Generalisation**
A complement clause C is transparent to extraction forming a relative clause R only if C is smaller or the same size as R.

The Williams Cycle is partly motivated by phenomena described as improper movement, and more recently by increasingly apparent 'Height-Locality' (Keine, 2016) effects in different languages. At its coarsest, the Williams Cycle is just intuition that *movement higher functional sequence is less local*. It is possible to formulate various specific versions of this constraint. The starting point for this chapter is the Generalised Ban on Improper Movement (GBOIM) formulated below in (199).

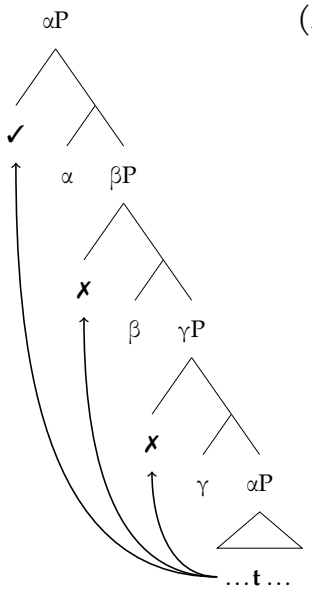
(199) **Generalised Ban on Improper Movement** (Williams, 2003, 2011; Poole, 2023)

a. Movement to [Spec, XP] cannot proceed from [Spec, YP] or across YP, where Y is higher than X in the functional sequence.

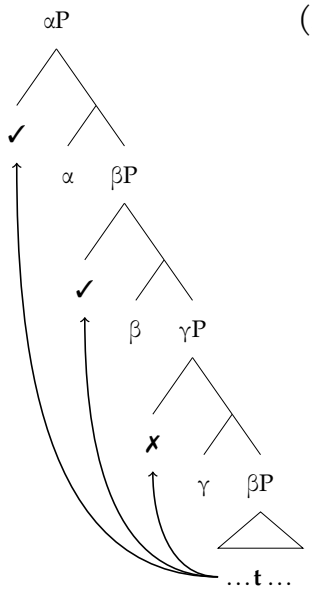
b. A dependency relating α and β occurs ACROSS XP iff XP dominates β but not α.

The impact of GBOIM formulated above is the following. For movement to proceed out of a complement clause, the bigger that complement clause is, the higher in the functional sequence in the matrix clause movement will have to target. The restriction is illustrated in schematic clause structures below, formed according to abstract clausal functional sequence [α[β[γ]]]. By changing the complement type from αP, to one lower in the functional sequence such as γP or δP, the range of possible landing sites increases.

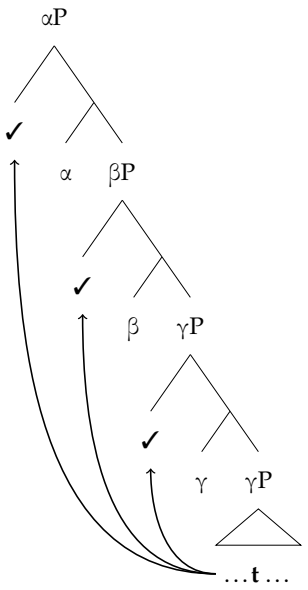
(200)



(201)



(202)



The GBOIM is just theory-informed descriptive constraint that ultimately needs to be derived from something. This chapter explores in the most detail the Level Embedding approach, which derives the GBOIM from more general constraints on structure building/ dependency formation (Williams, 2003, 2011; Poole, 2023). The Level Embedding approach has two core components. The first is the LEVEL EMBEDDING CONJECTURE (203a), the conjecture that the bigger an embedded clause is, the later in the derivation it is embedded in the matrix clause. This means that CP-sized complements and TP-sized complements, for example, are embedded at different stages of the derivation. This conjecture is ultimately derived by building strictly in parallel clauses in different workspaces. The second component, termed here the CYCLIC REQUIREMENT (203b), is a constraint on syntactic operations which essentially requires that they affect only the material that has just been introduced into the derivation.

(203) **Core components of the Level Embedding approach**

a. Level Embedding Conjecture (LEC): The bigger an embedded clause is, the later in the derivation it is introduced into a matrix clause.

b. Cyclic Requirement: Syntactic operations must target the periphery of the current clausal extended projection.

This chapter develops an implementation of the Level Embedding approach which is slightly different from those of Williams, 2003, 2011 and Poole, 2023. The main difference is a novel formulation of the Cyclic Principle, distinct from Williams' Extension Requirement and Poole's use of the Strict Cycle Condition. The present formulation, the Featural Extension Requirement (FER) in (204), offers a very specific definition of what it means to affect clause structure. The Level Embedding Conjecture is achieved, as indicated in (205), by building clause spines in parallel. Big clauses are embedded late using adjunction.

(204) **The Featural Extension Requirement**
Featural triggers (e.g. [uREL]) on a clausal F can only be representationally altered (valued, checked, satisfied etc.) at the cycle at which they are introduced. Each clausal F is introduced in its own cycle.

(205) **Parallel Derivation and Adjunction**
The Merge of component of clausal sequence applies in parallel across workspaces. Big clauses are embedded low via adjunction (feature-free external Merge).

The structure of the chapter is as follows. In §(5.2) I set out the core ingredients of the revised Level Embedding account in more detail. IN §(5.3) I explore some of analytical and empirical consequences of the revised Level Embedding approach. In §(5.4), I review the range of cross-clausal movement derivations for forming Swahili relatives and how the Strict Cycle Condition/Parallel Embedding derive the attested restrictions. In §(5.5), I outline the core similarities and differences between the present timing-based proposal and other ways of deriving versions of the Williams Cycle. Finally in §(5.6) I highlight limitations of trying account for SLG without some version of the Williams Cycle.

5.2 A revised Level Embedding account

In this section I outline the core ingredients of the present derivation of the GBOIM, the Featural Extension Requirement and Parallel Derivation and Adjunction.

5.2.1 The Featural Extension Requirement

One component of Level Embedding system is something independently assumed in versions of generative syntax since Chomsky (1965); a notion of *cyclicity*. That is, syntactic rules apply in ordered manner in cycles, or stages, which are delineated by particular cyclic nodes in a structure. Suppose a rule cannot apply in a given cycle, because there is no suitable environment. A notion of cyclicity prevents the application of that rule at a later stage in the derivation in which the relevant environment has been created. In useful review of the literature, Müller (2024) identifies two distinct implementations of cyclicity, The Cyclic Principle (206a) and the Strict Cycle Condition (206b), somewhat masked by a range of superficially different principles.[1]

(206) **Two implementations of cyclicity**

a. The Cyclic Principle (Chomsky 1965, Perlmutter & Soames 1979, McCawley 1984)
When two operations can be carried out, where one applies to the cyclic domain D_x and the other applies to the cyclic domain $D_{x\text{-}1}$ included in D_x, then the latter is applied first. (Müller 2024; ex. 9)

b. The Strict Cycle Condition (Chomsky 1973)
Once a cyclic domain D_x has been affected by an operation, no subsequent operation may exclusively affect a cyclic domain $D_{x\text{-}1}$ that is a proper subdomain of D_x.
(Müller 2024; ex. 13)

These implementations of cyclicity are quite different in how they constrain the application of syntactic operations in a derivational context. The Cyclic Principle simply enforces an order of operations: operations apply at a more embedded/earlier cyclic domain must apply first. The effect that this has depends on the number of cyclic domains. Fewer

1. The Strict Cycle Condition is the principle which underlies the more recent Extension Condition (Chomsky 1995): every structure building operation must extend the root. The Cyclic Principle underlies Pesetsky (1989)'s Earliness Principle and Richards (1998, 2001)'s notion of Featural Cyclicity.

cyclic domains (e.g. CP and DP) give more room for unordered application of operations, compared to if e.g. every maximal projection delineates a cyclic domain. By contrast, the Strict Cycle Condition ensures that, once a cyclic domain has been built, subsequent operations can only affect its contents in a limited way. The overall effect is a kind of stability in syntactic structures built over the course of the derivation. Whereas the Cyclic Principle ensures that operations triggered in later cyclic domains happen later, it doesn't in principle prevent those operations from *affecting* material in earlier cyclic domains.

Given this background in cyclicity, let us consider how existing versions of Level Embedding's Cyclic Requirement fit in. Drawing an explicit parallel with Chomsky (1995)'s Extension Condition, Williams' Extension Requirement in is a stronger version of the Strict Cycle Condition. The crucial difference from the SCC formulation in (206b) is *exclusively affect*. As pointed out above, the SCC permits limited alterations to material in previous cyclic domains. You are allowed to affect such material, so long as you are also affect material in the current cycle. The Extension Requirement is clearly more stringent: you can only affect material introduced in the current cyclic domain (which may be the most peripheral one). By contrast, Poole (2022; 384) implements the Cyclic Requirement using the Strict Cycle Condition essentially as in (206b).

(207) **Extension Requirement** (Williams 2003, p.76)
Any operation has to affect material that could not have been affected in a previous level [=cycle] ...where every node is cyclic.

This thesis pursues a novel implementation of the Cyclic Requirement, distinct Strict Cycle Condition or the Extension Requirement. This is the Featural Extension Requirement (208). Clearly modelled after the Extension Requirement, the FER offers a more explicit and restricted account of what it means to affect syntactic structure. Applications of Merge (or Agree) only affect the clause to the extent that they *representationally alter* a featural trigger. This is a cover term for all the ways syntacticians talk about featurally-driven operations, e.g. checking, valuing and satisfying. The FER imposes a time-limit on such representational alterations: they can only occur within a cycle - a notion expanded on below. To the extent that all syntactic operations are driven by featural triggers, the FER is no less strict the Extension Requirement. However, if we admit that some operations might apply freely of featural triggers, we introduce a kind of looseness that isn't obvious in ei-

ther Williams' or Poole's implementation of the Cyclic Principle. I return to significance of this looseness in due course.

(208) **The Featural Extension Requirement**
Featural triggers (e.g. [uREL]) on a clausal F can only be representationally altered at the cycle at which they are introduced. Each clausal F is introduced in its own cycle.

To give a more concrete illustration of the FER, we briefly need to consider the so-far implicit nature of cycles. A Cycle is essentially a unit of syntactic time.[2] Following Williams (2011), I assume that the clausal functional sequence is our way of measuring syntactic time.[3] The merger of each category in the clausal functional sequence denotes the start of a Cycle, in which Merge and Agree further apply. The next cycle commences when Merge of another category in the clausal functional sequence applies. The ordering of the cycles is determined by the order inherent in the functional sequence.

(209) **The timing of a simple derivation**
Toy functional sequence: [α [β [γ]]]

Start of γ-cycle: Merge γ

γ-cycle: Apply Merge/Agree

Start of β-cycle: Merge β

β-cycle: Apply Merge/Agree

Start of α-cycle: Merge α

α-cycle: Apply Merge/Agree

2. They are not, strictly speaking, instants or moments. A cycle in the sense that I am using it, can have multiple occurrences (of e.g. Merge, Agree) 'inside' which can be ordered, as in e.g. Georgi (2014).

3. If nominals are also built incrementally, which seems reasonable, then we have to wonder how the timing of that structure building relates to the timing of clausal structure building. For simplicity I assume that cycles of clausal and nominal structure building are fully out of sync. This means that 'big' nominals can Merge in the very first cycle of the clausal structure building. It may also mean that 'big' clauses can Merge in the first cycle of nominal structure building.

For a concrete illustration of the FER, consider how to model movement to Spec TP in a simple [C [T [V]]] functional sequence. Suppose that this movement is driven by a featural trigger [uF], which is representationally altered to [F] if a DP bearing [F] occupies a Spec Head configuration with T. In principle there is a choice about when Merging DP with T'. It could be done as soon as T is merged, as illustrated in (210).

(210) **Merge DP with T when T is the periphery: ✓**
Toy functional sequence: [C [T [V]]]

V-Cycle: [V]

V-Cycle: $[_{V}\ [V]\ [DP_{F}]]$

T-Cycle: $[_{T}\ [T_{uF}]\ [_{VP}\ [V]\ [DP_{F}]]]$

T-Cycle: $[_{T}\ [\mathbf{DP}_{F}]\ [_{T}\ [T_{F}]\ [_{VP}\ [V]\ [\mathbf{DP}_{F}]]]]$

C-Cycle: $[_{CP}\ [C]\ [_{TP}\ [\mathbf{DP}_{F}]\ [_{T}\ [T_{F}]\ [_{VP}\ [V]\ [\mathbf{DP}_{F}]]]]]$

Or, one might think, we could wait until the next cycle, i.e. when C has merged (211). This latter option is precisely what is excluded by the FER: there is no possibility to 'wait around' when it comes to featural triggers. Once C is merged in the spine, it is now too late to merge a DP to alter [uF] on T. The FER ensures that certain syntactic rules apply at the earliest cycle in which their structural description is met or not at all.

(211) **Merge DP with T when T is the periphery: ✗**
Toy functional sequence: [C [T [V]]]

V-Cycle: [V]

V-Cycle: $[_{V}\ [V]\ [DP_{F}]]$

T-Cycle: $[_{T}\ [T_{uF}]\ [_{VP}\ [V]\ [DP_{F}]]]$

C-Cycle: $[_{CP}\ [C]\ [_{TP}\ [T_{uF}]\ [_{VP}\ [V]\ [\mathbf{DP}_{F}]]]]$

C-Cycle: $[_{CP}\ [C]\ [_{TP}\ [\mathbf{DP}_{F}]\ [_{T}\ [T_{F}]\ [_{VP}\ [V]\ [\mathbf{DP}_{F}]]]]]$ **Movement violates FER!**

To derive the GBOIM from the Featural Extension Requirement, it is clear that the distinction between featurally-driven and featurally-free operations matters. [4] Only those instances of Merge which representationally alter featural triggers are restricted. The syntactic system has no other means of keeping track of what goes on in a derivation but such features. I assume that the syntactic processes in (212) are largely feature-driven. This covers the building of the nominal and clause spine, external merge of arguments, most instances of Internal Merge and Agree. The result is that syntactic derivations are largely, but not wholly, driven by the featural properties of lexical items.[5]

(212) **Largely Featurally-Driven Syntax**

a. External Merge of clausal/nominal spine components.

b. External Merge of arguments.

c. Most instances of Internal Merge.

d. Instances of Agree

Two exceptions to the generalisation in (212) will prove important. What is traditionally called adjunction is simply external Merge not driven by features - and this will be useful in creating a suitable approach to clausal embedding combined with Parallel Derivation. As with external Merge, there are also be some instances of internal Merge which are exempt. These principally concern movement through phase edges - something I return to in the next chapter. Which movements, if any, are featurally-free will naturally have consequences for the distribution of Height/Size Locality effects.

Having outlined the way the Cyclic Principle is achieved in the present system, let's now turn to the derivational relationship between main and embedded clauses.

4. Thanks to Doreen Georgi for pushing me to more explicit about this.

5. One could assume along the lines of (CITATIONS) that there are dedicated structure-building features, which trigger the Merge of spine components or arguments, distinct from the features that trigger internal Merge.

5.2.2 Parallel Derivation and Adjunction

In Williams (2003, 2011) the Level Embedding Conjecture (LEC) is effectively a constraint on the derivational stage at which clauses are embedded, which crucially makes reference to the size of clauses. This is achieved more or less as Williams does, but with more explicit reference to how embedding is mechanistically achieved.

In essence, the idea is main and embedded clauses are built in parallel, even though they initially occupy different syntactic 'workspaces'. The clausal spine can be thought of as the output of an ordered set of operations, which apply to all workspaces at the same time. At the derivational stage at which a T is merged with a VP in one workspace, a T is also merged with a VP in another workspace. There is no way for a clause in one workspace to be built 'out of step' with any others.

(213) **Parallel Derivation of Main and Embedded Clauses**

a. Main and embedded clauses are built in separate workspaces.

b. The Merge of a component of clausal functional sequence applies in parallel across all workspaces.

c. Syntactic dependencies involving Merge/Agree cannot be established across workspaces.

The key question is how clausal embedding in achieved under Parallel Derivation. Clearly it needs to be superficially countercyclic: a CP needs to be able to Merge with V long after the V-cycle is complete, if we are to handle simple clausal complementation. To comply with the Featural Extension Requirement, I assume that (many) instances of clausal embedding actually involve adjunction.[6] [7] That is, they involve external Merge which applies freely of featural triggers. Without any features being representationally altered by

6. In an earlier version of this thesis, I employed a Substitution operation in addition to Merge, along the lines suggested by Poole (2022). The purpose of such an operation, borrowed from the literature on Tree Adjoining Grammar (CITATIONS), was allow clausal embedding to happen late without violating the Cyclic Principle. This involved merging placeholder categories which, at certain stages of the derivation, would be rewritten for structure from another workspace. In revising the thesis I have come to realise that once the FER is adopted, and we adopt a Largely Featurally-Driven syntax, there is room to do embedding by featurally free instances of Merge. This keeps the theoretical toolbox simpler, and it avoids tensions generated by the use of placeholder categories that I couldn't otherwise resolve easily.

7. This converges with recent work in the literature on clausal complementation, which argues that many

such applications of Merge, we do not fall afoul of the FER. Except for embedding very small complements to verbs, a lot of clausal "complementation" will therefore technically involve Late Merge (CITATIONS). The lateness is permitted because the notion of cyclicity pursued here is a very specific one, pertaining just to operations affecting featural triggers.

(214) **The nature of clausal embedding**
Clauses are embedded using featurally free instances of external Merge.

To illustrate the application of Parallel Derivation and Adjunction, let's consider an abstract scenario. We want to embed a full-sized toy-functional sequence [δ [γ [β [α]]]] as a complement to lowest category in another instance of clausal functional sequence. This is, in effect, an abstracted version of V taking a CP-complement. According to Parallel Derivation, the merger of each component of the functional sequence happens in parallel across both workspaces. It is only in that last cycle that a δP-sized clause can be embedded inside another clause.

(215) **Parallel Derivation and Embedding by Adjunction**
Toy functional sequence: [δ [γ [β [α]]]]

α-Cycle: [α] [α]

β-Cycle: [β [β] [α]] [β [β] [α]]

γ-Cycle: [γ [γ] [β [β] [α]]] [γ [γ] [β [β] [α]]]

δ-Cycle: [δ [δ] [γ [γ] [β [β] [α]]]] [δ [δ] [γ [γ] [β [β] [α]]]]

δ-Cycle (**Adjoin δP**): [δ [δ] [γ [γ] [β [β] [α [<u>[δ [δ] [γ [γ] [β [β] [α]]]]</u> α]]]]]

One might raise a concern that clausal embedding in a parallel derivation fashion might complicate movement being featurally driven. The worry would be that since complement clauses, for example, are not necessarily introduced in the matrix clause very early, there might be situations in which a featural trigger is forced to wait around until

complements are actually adjuncts (CITATIONS). That is, they semantically compose with the verb phrase using Predicate Modification, along the same lines as adverbs. In keeping with this literature it must be assumed that adjuncts are not in fact absolute islands, which seems to be independently supported (CITATIONS)

the complement clause is introduced. In fact, no undue 'waiting around' on the part of featural triggers is possible, due to crucial role played by the FER.[8] If a T, for example, comes with a featural trigger for movement, movement out of a complement clause to satisfy this trigger would have to happen at the derivation stage at which T is introduced.

5.2.3 Putting the pieces together

To keep things concrete, let's return to some English data and assume a simple [C [T [V]]] clausal functional sequence. We are primarily concerned with what excludes the following cross-clausal syntactic dependencies. The first is hyperraising: movement out of a CP-sized complement to Spec TP/subject position.

(216) **Restrictions on movement out of English CP complements**

*$[_{CP}$ $[_{TP}$ **The chefs** seem … $[_{CP}$ **t** made a paella]]] No movement to Spec, TP

The first step to deriving these restrictions is to recall that no Agree or movement dependencies can be established between clauses in different workspaces. An absolute precondition for establishing cross-clausal syntactic dependencies is being preceded by clausal embedding.

Recall that embedding generally happens by adjunction, i.e. featurally free Merge, in this system. If we want to embed a CP-complement to V, we have to wait until a stage of derivation when both clausal extended projections have been built to the C-level. At this point we adjoin the embedded CP to the matrix CP. Such an operation permitted at this late cycle precisely because no featural triggers have been representaionally changed in the process. This is illustrated below.

8. The only waiting around that occurs is within a single derivation stage/cycle. Supposing that C has a [wh] trigger and a suitable DP is contained within a different workspace, it's true that there is (in a sense) a non-trivial question of ordering the adjunction of embedded clause and satisfying the trigger. If the trigger had to be satisfied before adjunction, cross-clausal movement/agreement would never be possible. To avoid such an outcome, one could assume that adjunction is the first operation to apply in a cycle. Alternatively, one could assume that trigger satisfaction and adjunction are freely ordered with respect to each other, with the problematic orderings being filtered out in a trans-derivational fashion.

(217) **The timing of embedding for CP-complements**

Toy functional sequence: [C [T [V]]]

V-Cycle: [V] [V]

T-Cycle: [T [T] [VP [V]]] [T [T] [VP]]

C-Cycle: [C [C] [TP [T] [VP [V]]]] [C [C] [TP [T] [VP]]]

C-Cycle (**Adjoin CP**$^{\downarrow}$): [C [C] [TP [T] [VP [V] [CP [C] [TP [T] [VP]]]]]]

It is the this timing of clausal embedding, given where we want to move, that proves to be the problem. Once we have embedded CP, it is now the C-cycle. The most recently introduced component of the matrix clausal extended projection is C. According to the Featural Extension Requirement, any applications of Agree or Merge at the cycle have affect matrix C. It is too late to representationally change any triggers still present from earlier cycles, e.g. on T. By this stage in the derivation, the only cross-clausal movement that is permitted is to Spec CP.

(218) **Possible movement at the C-cycle**

Toy functional sequence: [C [T [V]]]

C-Cycle: [C [C] [TP [T] [VP [V]]]] [C [C] [TP [T] [VP [**DP**]]]]

C-Cycle (**Adjoin CP**): [C [C] [TP [T] [VP [V] [CP [C] [TP [T] [VP [**DP**]]]]]]]

C-Cycle (Move to Spec TP ✗): [C [C] [TP ✗ [T] [VP [V] [CP [C] [TP [T] [VP [**DP**]]]]]]]

C-Cycle (Move to Spec CP ✓): [CP [**DP**] [[C] [TP [T] [VP [V] [CP [C] [TP [T] [VP [**DP**]]]]]]]]

Not all intermediate steps of movement behave as movement through phase edges does. Consider the data below in (219), concerning raising and wh-movement in English. Movement is not possible to TP out CP, even if movement ultimately seems to land in Spec CP. If the EPP requirement on T reflects a featural requirement, along the same lines as other movement triggers, it could only be satisfied by movement *possible at the TP-cycle*. By Parallel Derivation, the biggest clause that could have been substituted at this point in the derivation is something TP-sized. By the time substitution of a CP-sized complement is possible, the opportunity to satisfy the EPP with cross-clausal movement has passed.

(219) **No movement to or through TP out of CP**

a. [$_{CP}$ [$_{TP}$ *(It) seems [$_{CP}$ Tom made a tortilla]]]

b. *[$_{CP}$ [$_{TP}$ **Tom** seems [$_{CP}$ **t** made a tortilla]]]

c. *[$_{CP}$ **Who** [$_{TP}$ **t** seems [$_{CP}$ **t** made a tortilla?]]]

d. [$_{CP}$ **Who** does [$_{TP}$ *(it) seem [$_{CP}$ **t** made a tortilla?]]]

The overall effect of the system presented so far is the following. A landing site/probe must be introduced in the same cycle or a later one than when the launching site/goal is introduced. The bigger a complement clause is, the higher in the matrix clause movement has to aim for to leave the complement. Likewise, probes have to be located higher in the matrix clausal spine to be able to see into bigger clausal complements. This is exactly the GBOIM that we set out to derive.

5.3 Some consequences of the Level Embedding account

Adopting a Level Embedding account like the one outlined above requires us to think about certain aspects of syntax somewhat differently. In this section I consider the implications for how different kinds of clausal embedding work, and restrictions imposed on Agree by Featural Extension Requirement.

5.3.1 Varieties of clausal embedding under Parallel Derivation

We have seen so far how Parallel Derivation and Adjunction work in simple, abstracted cases of clausal embedding. In this subsection I review how Parallel Derivation and adjunction apply to multiply-embedded complements, subject and adjunct CPs and relative clauses and NP complements.

5.3.1.1 Multiply-embedded complements

Let's consider what this means for the analysis of multiply embedded complement clauses. Two cases are relevant: one in which the embedded clauses are of different sizes, and one in which they are the sames size. These are illustrated below using English examples.

(220) a. Tom thinks [$_{CP}$ that Eric said [$_{CP}$ that exhibition was awful]].

b. Tom started [$_{VP}$ to say [$_{CP}$ that exhibition was awful]]

The case of same-sized complements is, in a sense, the more straightforward of the two. There will be two instances of adjunction at the C-cycle, as shown below. The order is these instances is inconsequential.

(221) **Parallel Derivation and Embedding by adjunction**
Tom thinks [$_{CP}$ that Eric said [$_{CP}$ that exhibition was awful]]
Toy functional sequence: [C [T [V]]]

V-Cycle: [V] [V] [V]

T-Cycle: [T [T] [VP [V]]] [T [T] [VP [V]]] [T [T] [VP]]

C-Cycle: [CP [C] [TP [T] [VP [V]]]] [CP [C] [TP [T] [VP [V]]]] [C [C] [TP [T] [VP]]]

C-Cycle (**Adjoin CP**): [CP [C] [TP [T] [VP [V]]]] [CP [C] [TP [T] [VP [[C [C] [T [T] [VP]]] V]]]]

C-Cycle (**Adjoin CP**): [CP [C] [TP [T] [VP [[CP [C] [TP [T] [VP [[CP [C] [TP [T] [VP]]] V]]]] V]]]]

In terms of the different sized complements, the picture is minimally different.Unlike in the case above, the adjunction operations happen at different syntactic cycles. One instance happens at the V-Cycle, and the other at the C-cycle. The result is that what ends up being the intermediately embedded, smaller clause is embedded in the matrix clause before the bigger clause is embedded inside of it.

(222) **Parallel Derivation and Embedding by adjunction**
Tom started [$_{VP}$ to say [$_{CP}$ that exhibition was awful]]
Toy functional sequence: [C [T [V]]]
V-Cycle: [V] [V] [V]

V-Cycle (**Adjoin VP**): [V [[VP [V]] V]] [V]

T-Cycle: [T [T] [VP [[VP [V]] V]]] [T [T] [VP]]

C-Cycle: [C [C] [TP [T] [VP [[VP [V]] V]]]] [C [C] [TP [T] [VP]]]

C-Cycle (**Adjoin C**$^{\downarrow}$): [CP [C] [TP [T] [VP [[VP [[CP [C] [TP [T] [VP]]] V]] V]]]]

Parallel Derivation, just as in the Level Embedding system of Williams (2003), forces some superficially countercyclic derivations but to no great empirical effect. The smaller a complement clause is, the earlier it is embedded. In a derivation in which a complement clause ends up embedding another complement clause, the intermediately embedded clause can be embedded in the main clause before its complement.

5.3.1.2 Subject and adjunct CPs

Let's turn our attention to how Parallel Derivation treats big (e.g. CP-sized) non-complement clauses. A couple of English examples are shown below: a 'subject'-CP in Spec TP and an CP-sized adjunct clause. In these cases the role of placeholders and adjunction is crucial for allowing clauses of this size to be introduced at lower levels of the clause than CP.

(223) **Big non-complement clauses**

a. $[_{CP}\ [_{TP}\ [_{CP}$ That the exhibition was awful] didn't surprise Eric]]

b. $[_{CP}$ Tom laughed $[_{CP}$ when he was asked about the exhibition]]

Big subject clauses are derived by adjunction to e.g. TP at the C-cycle. It is of course not crucial that such clauses are true subjects, given empirical considerations raised by e.g. Postal (2004), Moulton (2009). They could well be adjoined higher/later.

(224) **Parallel Derivation and Embedding by adjunction**

$[_{CP}\ [_{TP}\ [_{CP}$ That the exhibition was awful] didn't surprise Eric]]

Toy functional sequence: [C [T [V]]]

V-Cycle: [V] [V]

T-Cycle: [T [T] [VP]] [T [T] [VP]]

C-Cycle: [C [C] [TP [T] [VP]]] [C [C] [TP [T] [VP]]]

C-Cycle (**Adjoin CP**): [CP [C] [TP <u>[CP [C] [TP [T] [VP]]]</u> [TP [T] [VP]]]]

The behaviour of adjunct clauses can be handled in a similar way. Haegeman (2012) argues there is an empirical distinction between adjunct/adverbial clauses that are embedded at the clause periphery (CP-adjunction) and the those which are embedded within the clause (TP-adjunction). Nothing exceptional has to be said here about adjunct clauses, except perhaps that the lower adjunction sites are more likely to involve instances of late Merge, if we are adjoining big clauses.

Although Late Merge is possible in the present system, there is in fact an important constraint imposed by Parallel Derivation with perceptible empirical effects. Suppose that we want to Merge a TP-sized adjunct - we can only do that at cycle in which main and embedded clauses have been built to TP. This is because Parallel Derivation induces a "Don't wait around" effect of its own (225). If we wanted to externally merge a TP-sized clause with CP, we would have to wait until the C-cycle. We can of course wait around, but in the process the TP-sized clause will grow until a CP-sized one. In other words, to stop clauses growing they have to be embedded early. There is no other way to keep them the size they whilst letting other clauses continue to grow. This suggests that while

allowing feature-free Merge affords a kind of looseness, Parallel Derivation itself prevents an anything-goes situation.[9]

(225) **The Size-Lateness Constraint**

A clause cannot be externally merged with material introduced in a later cycle.

Parallel Derivation with adjunction is consequently compatible with non-complement kinds of clause-in-clause embedding. The final type of embedded clause I want to review are those which involve a more indirect relationship to matrix clauses, by means of intervening nominal layers.

5.3.1.3 Relative clauses and NP complements

There are two kinds of familiar cases of clauses being embedded inside nominal structure: relative clauses and noun-complement clauses. Nominalised clausal complements will also fall into this category, potentially along with clausal adjuncts with an external nominal (e.g. PP) layer. Abstracting away from the differences in internal structure of these clauses, the by-now familiar logic of Parallel Derivation and Adjunction will allow us to conduct superficially countercyclic derivations.

(226) **Clausal embedding via nominal structure**

a. $[_{CP}$ Eric enjoyed $[_{DP}$ the photography $[_{CP}$ which he had seen]]]

b. $[_{CP}$ Tom heard $[_{DP}$ a rumour $[_{CP}$ that Marina Abramović would show up]]]

These clauses actually raise a non-trivial issue for Parallel Derivation. Presumably we want nominals to be built up incrementally, just as clauses have been assumed to be. What then is the relative timing of clausal and nominal structure building? In this thesis I will make what I take to be a simplifying assumption in (227). In effect, nominal and clausal structure can be built totally out of sync with each other.

9. Empirically this means that while big clauses can be adjoined low, small clauses cannot be adjoined high unless they are moved there. The broad outlines of this correlation between size and adjunction height has recently been observed by Privoznov (2021) in the context of Balkar converbial clauses.

(227) **The relative timing of nominal and clausal derivation**
Fully-formed clauses may merge at the start of nominal derivation, fully-formed nominals may merge at the start of clausal derivation

Given the assumptions above, it's possible to adjoin CP to NP. The nominal that will contain CP will be merged in the matrix clause at a suitable cycle, e.g. V-Cycle in our current simplified functional sequence. The adjunction process will apply, as above, at the CP-cycle.

(228) **Parallel Derivation and Embedding by adjunction**
Toy functional sequence: [C [T [V]]]
[$_{CP}$ Eric enjoyed [$_{DP}$ the photography [$_{CP}$ which he had seen]]]
[$_{CP}$ Tom heard [$_{DP}$ a rumour [$_{CP}$ that Marina Abramović would show up]]]

V-Cycle: [V] [V]

T-Cycle: [T [T] [VP [DP …] [V]]] [T [T] [VP]]

C-Cycle: [C [C] [TP [T] [VP [DP …] [V]]]] [C [C] [TP [T] [VP]]]

C-Cycle (**Adjoin CP**): [C [C] [TP [T] [VP [DP …[CP [C] [TP [T] [VP]]] …] [V]]]]

Here again, standard outputs of clausal embedding are preserved but through superficially countercyclic derivations. Having reviewed all the key ingredients of the proposed derivation of Williams Cycle and how they interact with each other in principle, I want to briefly consider the impace of the proposal on Agree and agreement.

5.3.2 Consequences for Agree and agreement

5.3.2.1 Constraints on Agree

Agree is highly constrained by the present implementation of the Williams Cycle. If a probe, i.e. a feature lacking a value [uα], is introduced as part of functional head F in the clausal in the spine, the process of searching for and copying a value (i.e. Agree) to [uα] can apply at the cycle in which F is introduced. If we wait until a later cycle to apply Agree, the changing of the featural content of [uα] will violate the FER.

Suppose that T has a probe [uF] and a DP in the embedded clauses bears a suitable goal [F], and further suppose that there are no intervening DPs with [F]. By the time that a CP-complement has been embedded, it is too late according to FER for Agree to affect the featural composition of matrix T. If, by contrast, there was a probe [uF] on C, and the embedded DP had a suitable goal [G], Agree would be permitted at the C-cycle to affect matrix C.

(229) **Possible Agree-relations at the C-cycle**

Toy functional sequence: [C [T [V]]]

C-Cycle: [C [C] [TP [T] [VP [V] [$\underline{\text{C}}^{\downarrow}$]]]] [C [C] [TP [T] [VP [**DP**$_{\textbf{[F, G]}}$]]]]

C-Cycle (**Adjoin CP**$^{\downarrow}$): [C [C$_{[uG]}$] [TP [T$_{[uF]}$] [VP [V] [CP [C] [TP [T] [VP [**DP**$_{\textbf{[F, G]}}$]]]]]]]

C-Cycle (Agree at T ✗): [C [C] [TP [**T**$_{\textbf{[uF]}}$] [VP [V] [CP [C] [TP [T] [VP [**DP**$_{\textbf{[F, G]}}$]]]]]]]

C-Cycle (Agree at C ✓): [C [**C**$_{\textbf{[uG]}}$] [TP [T] [VP [V] [CP [C] [TP [T] [VP [**DP**$_{\textbf{[F, G]}}$]]]]]]]

5.3.2.2 How to handle long-distance agreement

One of the most well-known patterns of putative LDA comes from Tsez (Nakh-Dagestanian), originally discussed by Polinsky & Potsdam (2001). Before we get to the patterns in question, a few background facts about Tsez need to be introduced.

Tsez is a head final language with a relatively free/information structure sensitive order. Verbs in Tsez agree with a single DP in noun class and number. The choice of DP is heavily restricted by case: a verb can only agree with a DP in the absolutive case.[10] Embedded clauses come in two types: IP/TP-sized nominalised ones and CP-sized finite clauses. One of way of distinguishing between them is the final suffix on the embedded verb, which also affects the possible tense/mood/aspect suffixes on the verb. Nominalised complements behave like (Class IV) absolutive arguments, meaning that they typically control the agreement prefix on the embedding verb.

10. Absolutive case is assigned to the single argument of an intransitive and the internal argument of a transitive predicate. Ergative case is assigned to the external argument of a transitive predicate. Polinsky & Potsdam argue that ergative-marked DPs are structurally higher than their absolutive counterparts.

(230) **Key background facts about Tsez**

a. DP_{ERG} **DP_{ABS} Agr**-V

b. Nominalised IP complements: $[_{TP} \ldots$ V-łi$]$

c. Full-finite CP complements: $[_{CP} \ldots$ V-χin$]$

With this background in hand, let's proceed the putative LDA patterns. An embedded absolutive argument can control the matrix verb's agreement prefix under a very specific set of circumstances. Less relevant to us is an information-structural requirement: the absolutive DP must be interpreted as a topic (i.e. old/given information).[11] More important is the sensitivity to complement clause type: LDA is impossible with the CP complements.[12]

(231) **LDA and clause-size interactions** Polinsky & Potsdam (2001, ex. 56)

a. eni-r [už-ā magalu b-āc'-ru-ł**i**] **r**-iy-xo No LDA
mother-DAT boy-ERG bread.III.ABS III-eat-PSTPRT-NMZ.IV IV-know-PRS
'The mother knows that the boy ate the bread.' IP complement

b. eni-r [už-ā **magalu** b-āc'-ru-łi] **b**-iy-xo LDA ✓
mother-DAT boy-ERG bread.III.ABS III-eat-PSTPRT-NMZ.IV III-know-PRS
'The mother knows that bread, the boy ate.' IP complement

c. *eni-r [už-ā **magalu** b-āc'-si-χin] **b**-iy-xo LDA ✗
mother-DAT boy-ERG bread.III.ABS III-eat-PST.EVID-COMP III-know-PRS
'The mother knows that bread, the boy ate.' CP complement

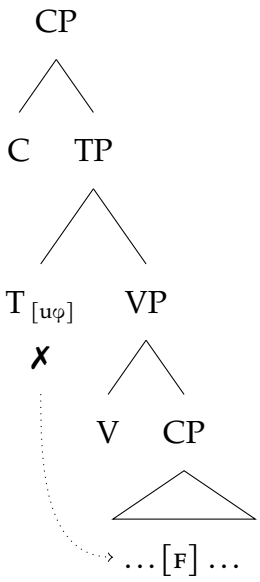
The present approach to Agree and the Williams Cycle can handle these facts, so long as we depart from Polinsky & Potsdam (2001) in placing the [uφ] / agreement trigger higher than V. Let's assume that [uφ] is located on T, the highest head in the extended projection of the nominalised complements, and not quite the highest head in main clauses / COMP-complements. Remember that, by Parallel Derivation, embedding CP-complements

11. Polinsky and Potsdam show, for example, that absolutive embedded wh-phrases are impossible LDA controllers. I abstract away from this issue in the dicussion below.

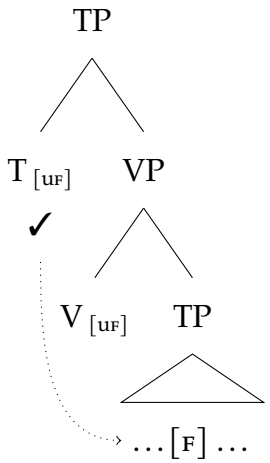
12. Restrictions also emerge if wh-words, adverbs or other topic-marked DPs occur at the left edge of a nominalised clause. Polinsky & Potsdam assume that reflect a similar fact as the presence of the complementiser: the complements in question are bigger.

requires waiting until the CP-cycle in both main and embedded clauses. At this derivational cycle, attempting to apply Agree between [uφ] on matrix T would violate the FER. By contrast, embedding of a smaller TP-sized complement happens at the same cycle (the T-cycle) as when the matrix T with its [uφ] is introduced.

(232) **Agree at C-cycle**



(233) **Agree at T-cycle**



Obviously there are subtleties in the Tsez patterns that can be analysed more closely, but the general pattern seems to fall exactly in line with constraints imposed on the LDA by the Williams Cycle.

5.4 Deriving the Size-Locality Generalisation

In this section I walk through how Parallel Derivation and the Strict Cycle Condition, along with their associated background assumptions, derive the Size-Locality patterns we identified in the last chapter. The full inventory of embedded clauses in Swahili is shown below, ordered according to when they are embedded.

(234) **Clause size and the order of embedding in Swahili**

ku-complements: $[_{\text{VoiceP}} \dots]$	**Voice-Cycle**
Type 2 *amba*-less RCs: $[_{\text{AgrSP}} [_{\text{VoiceP}} \dots]]$	**AgrS-Cycle**
AGR-only complements: $[_{\text{LModP}} [_{\text{AgrSP}} [_{\text{VoiceP}} \dots]]]$	**LMod-Cycle**
ki-complements: $[_{\text{AspP}} [_{\text{LModP}} [_{\text{AgrSP}} [_{\text{VoiceP}} \dots]]]]$	**Asp-Cycle**
Type 1 *amba*-less RCs: $[_{\text{TP}} [_{\text{AspP}} [_{\text{LModP}} [_{\text{AgrSP}} [_{\text{VoiceP}} \dots]]]]]$	**T-Cycle**
COMP-complements, *amba* RCs: $[_{\text{CP}} [_{\text{HMod}} [_{\text{TP}} [_{\text{AspP}} [_{\text{LModP}} [_{\text{AgrSP}} [_{\text{VoiceP}} \dots]]]]]]]$	**C-Cycle**

5.4.1 Long-distance Movement in *amba* RCs

Movement out of all four sizes of complement clause can form *amba* RCs. This stems from the present proposal in the following way. All the complement clauses are formed earlier or at the same time as the relative clause. As a result movement out of those complement clauses can happen at in the same cycle in which CP is introduced with the $[\text{u}\Lambda]$. Such movement is thus not forbidden by the Featural Extension Requirement.

(235) **Movement from *ku*-complements ✓**

v-Cycle: …

Voice-Cycle: $[_{\text{VoiceP}} \dots]$ $[_{\text{VoiceP}} \dots$*ku*-V DP $\dots]$

Voice-Cycle (**Adjoin VoiceP**): $[_{\text{VoiceP}} \dots [_{\text{VoiceP}} \dots$*ku*-V DP $\dots]]$

AgrS-Cycle to HMod-Cycle: …

C-Cycle: $[_{\text{CP}} \ldots [_{\text{VoiceP}} \ldots [_{\text{VoiceP}} \underline{\ldots \textit{ku}\text{-V DP} \ldots}]]]$

C-Cycle (**Move DP ✓**): $[_{\text{CP}}$ **DP** $\ldots [_{\text{VoiceP}} \ldots [_{\text{VoiceP}} \underline{\ldots \textit{ku}\text{-V } \textbf{DP} \ldots}]]]$

C-Cycle (**Adjoin CP**): $[_{\text{DP}} \ldots [_{\text{CP}}$ **DP** $\ldots [_{\text{VoiceP}} \ldots [_{\text{VoiceP}} \underline{\ldots \textit{ku}\text{-V } \textbf{DP} \ldots}]]]]$

(236) **Movement from AGR-only complements ✓**

v-Cycle to AgrS-Cycle: …

LMod-Cycle: $[_{\text{LModP}} \ldots]$ $[_{\text{LModP}} \ldots \text{V.SBJN DP} \ldots]$

LMod-Cycle (**Adjoin LModP**): $[_{\text{LModP}} \ldots [_{\text{LModP}} \underline{\ldots \text{V.SBJN DP} \ldots}]]$

Asp-Cycle to HMod-Cycle: …

C-Cycle: $[_{\text{CP}} \ldots [_{\text{LModP}} \ldots [_{\text{LModP}} \underline{\ldots \text{V.SBJN DP} \ldots}]]]$

C-Cycle (**Move DP ✓**): $[_{\text{CP}}$ **DP** $\ldots [_{\text{LModP}} \ldots [_{\text{LModP}} \underline{\ldots \text{V.SBJN } \textbf{DP} \ldots}]]]$

C-Cycle (**Adjoin CP**): $[_{\text{DP}} \ldots [_{\text{CP}}$ **DP** $\ldots [_{\text{LModP}} \ldots [_{\text{LModP}} \underline{\ldots \text{V.SBJN } \textbf{DP} \ldots}]]]]$

(237) **Movement from *ki*-complements ✓**

v-Cycle to LMod-Cycle: …

Asp-Cycle: $[_{\text{AspP}} \ldots]$ $[_{\text{AspP}} \ldots \textit{ki}\text{-V DP} \ldots]$

Asp-Cycle (**Adjoin AspP**): $[_{\text{AspP}} \ldots [_{\text{AspP}} \underline{\ldots \textit{ki}\text{-V DP} \ldots}]]$

T-Cycle to HMod-Cycle: …

C-Cycle: $[_{\text{CP}} \ldots [_{\text{AspP}} \ldots [_{\text{AspP}} \underline{\ldots \textit{ki}\text{-V DP} \ldots}]]]$

C-Cycle (**Move DP ✓**): $[_{\text{CP}}$ **DP** $\ldots [_{\text{AspP}} \ldots [_{\text{AspP}} \underline{\ldots \textit{ki}\text{-V } \textbf{DP} \ldots}]]]$

C-Cycle (**Adjoin CP**): $[_{\text{DP}} \ldots [_{\text{CP}}$ **DP** $\ldots [_{\text{AspP}} \ldots [_{\text{AspP}} \underline{\ldots \textit{ki}\text{-V } \textbf{DP} \ldots}]]]]$

(238) **Movement from COMP-complements ✓**

v-Cycle to T-Cycle: …

C-Cycle: $[_{CP} \dots]$ $[_{CP}$ COMP … V DP … $]$

C-Cycle (**Adjoin CP**): $[_{CP} \dots [_{CP}$ COMP … V DP … $]]$

C-Cycle (**Move DP ✓**): $[_{CP}$ **DP** … $[_{CP}$ COMP … V **DP** … $]]$

C-Cycle (**Adjoin CP**): $[_{DP} \dots [_{CP}$ **DP** … $[_{CP}$ COMP … V **DP** … $]]]$

The great range of complement clauses out of which *amba* RCs can be formed by movement is ultimately due to the very high location of the final landing site in the clausal functional sequence. If we lower the landing site, we will find that some complement clauses will be embedded after the cycle at which the landing site is made available.

5.4.2 Long-distance movement in Type 1 *amba*-less RCs

Movement out of most complement clauses can form the TP-sized Type 1 *amba*-less RCs. This follows by the same logic as above. For those complements smaller than TP, they are built earlier in the derivation and merged into the relative clause sooner. The movement to Spec TP can happen in the same cycle as when TP is introduced, meaning that such movement is not forbidden by the Featural Extension Requirement.

(239) **Movement from *ku*-complements ✓**

v-Cycle: …

Voice-Cycle: $[_{VoiceP} \dots]$ $[_{VoiceP} \dots$*ku*-V DP … $]$

Voice-Cycle (**Adjoin VoiceP**): $[_{VoiceP} \dots [_{VoiceP} \dots$*ku*-V DP … $] \dots]$

AgrS-Cycle to Asp-Cycle: …

T-Cycle: $[_{TP} \dots [_{VoiceP} \dots [_{VoiceP} \dots$*ku*-V DP … $] \dots]]$

T-Cycle (**Move DP ✓**): $[_{TP}$ **DP** … $[_{VoiceP} \dots [_{VoiceP} \dots$*ku*-V **DP** … $] \dots]]$

T-Cycle (**Adjoin TP**): $[_{DP} \dots [_{TP}$ **DP** … $[_{VoiceP} \dots [_{VoiceP} \dots$*ku*-V **DP** … $] \dots]]]$

(240) **Movement from AGR-only complements ✓**

v-Cycle to AgrS-Cycle: …

LMod-Cycle: $[_{\text{LModP}} \dots]$ $[_{\text{LModP}} \dots \text{V.SBJN DP} \dots]$

LMod-Cycle (**Adjoin LModP**): $[_{\text{LModP}} \dots [_{\text{LModP}} \underline{\dots \text{V.SBJN DP} \dots}] \dots]$

Asp-Cycle: …

T-Cycle: $[_{\text{TP}} \dots [_{\text{LModP}} \dots [_{\text{LModP}} \underline{\dots \text{V.SBJN DP} \dots}] \dots]]$

T-Cycle (**Move DP ✓**): $[_{\text{TP}}$ **DP** $\dots [_{\text{LModP}} \dots [_{\text{LModP}} \underline{\dots \text{V.SBJN DP} \dots}] \dots]]$

T-Cycle (**Adjoin TP**): $[_{\text{DP}} \dots [_{\text{TP}}$ **DP** $\dots [_{\text{LModP}} \dots [_{\text{LModP}} \underline{\dots \text{V.SBJN DP} \dots}] \dots]]]$

(241) **Movement from *ki*-complements ✓**

v-Cycle to LMod-Cycle: …

Asp-Cycle: $[_{\text{AspP}} \dots]$ $[_{\text{AspP}} \dots ki\text{-V DP} \dots]$

Asp-Cycle (**Adjoin AspP**): $[_{\text{AspP}} \dots [_{\text{AspP}} \underline{\dots ki\text{-V DP} \dots}]]$

T-Cycle: $[_{\text{TP}} \dots [_{\text{AspP}} \dots [_{\text{AspP}} \underline{\dots ki\text{-V DP} \dots}]]]$

T-Cycle (**Move DP ✓**): $[_{\text{TP}}$ **DP** $\dots [_{\text{AspP}} \dots [_{\text{AspP}} \underline{\dots ki\text{-V}}$ **DP** $\dots]]]$

T-Cycle (**Adjoin TP**): $[_{\text{DP}} \dots [_{\text{TP}}$ **DP** $\dots [_{\text{AspP}} \dots [_{\text{AspP}} \underline{\dots ki\text{-V}}$ **DP** $\dots]]]]$

We have now come the first place where Parallel Derivation and the Featural Extension Requirement have an impact: attempting to move out of a CP-sized complement to form a TP-sized relative. At the TP-cycle, all clauses not already embedded are built to the TP-level. At this stage, the relative clause Adjoins to the external head of the relative, which itself is already part of the main clause. For the relative clause to contain a CP-sized clause complement, it is necessary to wait until the CP-cycle. At that point the CP-complement can be adjoined within the RC. Once we have reached the C-Cycle however, featurally-driven movement to Spec TP to satisfy the [uΛ] is crucially ruled out by the FER.

(242) **Movement from COMP-complements ✗**

v-Cycle to Asp-Cycle: …

T-Cycle (**Adjoin TP**): $[_{DP} \ldots [_{TP} \ldots]]$ $[_{TP} \ldots \text{V DP} \ldots]$

HMod-Cycle: …

C-Cycle: $[_{DP} \ldots [_{TP} \ldots \underline{C^{\downarrow}} \ldots]]$ $[_{CP}$ COMP … V DP …]

C-Cycle (**Adjoin CP**): $[_{DP} \ldots [_{TP} \ldots [_{CP} \underline{\text{COMP} \ldots \text{V DP} \ldots}]]]$

C-Cycle (**Move DP ✗**): $[_{DP} \ldots [_{TP}$ **✗** … $[_{CP} \underline{\text{COMP} \ldots \text{V } \textbf{DP} \ldots}]]]$ **FER violated!**

The lower in the functional sequence the final landing site is located, which recall is determined ultimately by the location of $[\Lambda]$, the more sizes of complement clause will be embedded after the landing site is made available.

5.4.3 Long-distance Movement in Type 2 *amba*-less RCs

Movement out of only one complement clause can form the AgrS-sized Type 2 *amba*-less RCs. This follows by the same logic as above. For those complements smaller or the same size as AgrSP, they are embedded at a Cycle at which subsequent movement to Spec AgrSP will be permitted by the FER.

(243) **Movement from *ku*-complements ✓**

v-Cycle: …

Voice-Cycle: $[_{VoiceP} \ldots]$ $[_{VoiceP} \ldots$ *ku*-V DP …]

Voice-Cycle (**Adjoin VoiceP**): $[_{VoiceP} \ldots [_{VoiceP} \underline{\ldots \textit{ku}\text{-V DP} \ldots]} \ldots]$

AgrS-Cycle: $[_{AgrSP} \ldots [_{VoiceP} \ldots [_{VoiceP} \underline{\ldots \textit{ku}\text{-V DP} \ldots]} \ldots]]$

AgrS-Cycle (**Move DP ✓**): $[_{AgrSP}$ **DP** … $[_{VoiceP} \ldots [_{VoiceP} \underline{\ldots \textit{ku}\text{-V } \textbf{DP} \ldots]} \ldots]]$

AgrS-Cycle (**Adjoin AgrSP**): $[_{DP} \ldots [_{AgrSP}$ **DP** … $[_{VoiceP} \ldots [_{VoiceP} \underline{\ldots \textit{ku}\text{-V } \textbf{DP} \ldots]} \ldots]]]$

All of the other clausal complements, by virtue of their size, are introduced at a later Cycle than when movement to Spec AgrSP is permissible according to the FER.

(244) **Movement from AGR-only complements ✗**

v-Cycle to Voice-Cycle: …

AgrS-Cycle (**Adjoin AgrSP**): [$_{DP}$ … [$_{AgrS}$ …]]

LMod-Cycle: [$_{DP}$ … [$_{AgrSP}$ … $\underline{\text{LMod}^{\downarrow}}$ …]] [$_{LModP}$ … V.SBJN DP …]

LMod-Cycle (**Adjoin LModP**): [$_{DP}$ … [$_{AgrSP}$ … [$_{LModP}$ … V.SBJN DP …]]]

LMod-Cycle (**Move DP ✗**): [$_{DP}$ … [$_{AgrSP}$ ✗ … [$_{LModP}$ … V.SBJN **DP** …]]] **FER violated!**

(245) **Movement from *ki*-only complements ✗**

v-Cycle to Voice-Cycle: …

AgrS-Cycle (**Adjoin AgrSP**): [$_{DP}$ … [$_{AgrSP}$ …]]

LMod-Cycle: …

AsP-Cycle: [$_{DP}$ … [$_{AgrSP}$ … $\underline{\text{LMod}^{\downarrow}}$ …]] [$_{AspP}$ … *k*i-V DP …]

Asp-Cycle (**Adjoin AspP**): [$_{DP}$ … [$_{AgrSP}$ … [$_{AspP}$ … *ki*-V DP …]]]

Asp-Cycle (**Move DP ✗**): [$_{DP}$ … [$_{AgrSP}$ ✗ … [$_{AspP}$ … *ki*-V **DP** …]]] **FER violated!**

(246) **Movement from COMP-complements ✗**

v-Cycle to Voice-Cycle: …

AgrS-Cycle (**Adjoin AgrSP**): [$_{DP}$ … [$_{AgrSP}$ …]]

LMod-Cycle to HMod-Cycle: …

C-Cycle: [$_{DP}$ … [$_{AgrS}$ … $\underline{\text{C}^{\downarrow}}$ …]] [$_{CP}$ COMP … V DP …]

C-Cycle (**Adjoin CP**): [$_{DP}$ … [$_{AgrSP}$ … [$_{CP}$ COMP … V DP …]]]

C-Cycle (**Move DP ✗**): [$_{DP}$ … [$_{AgrSP}$ ✗ … [$_{CP}$ COMP … V **DP** …]]] **FER violated!**

Having now reviewed in detail how the present derivation of the Williams Cycle applies in principle and to the Size-Locality Generalisation emerging from Swahili relatives, I now want to turn to the question of alternative implementations.

5.5 Alternative approaches to the Williams Cycle

In this section I want to outline the major similarities and differences between the present proposal and previous approaches attempts to derive (part of) the Williams Cycle. For a more exhaustive review of previous approach see Keine (2016, 2020). I have chosen to restrict my attention to two proposals: the Universal Constraint on Operational Ordering (UCOOL) of Abels (2007, 2009) and the Horizons of Keine (2016, 2019, 2020).

5.5.1 UCOOL

In the face of the undergeneration problems in Williams (2003)'s original proposa;, there have been attempts to derive Size-Locality effects by a looser set of operational orderings. This is the approach taken by Abels (2007, 2009) and further applied by Neeleman & van de Koot (2010). The logic of the approach is to buy into the general idea that Size-Locality effects follow from issues of ordering/timing, but to divorce the ordering from the clausal spine and positions.

The assumption of these approaches is that movement operations come in different types, and that there is a constraint on order in which these movements apply which is not tied directly to clause structure, which Abels terms the Universal Constraint on Operational Ordering (UCOOL). What UCOOL does is arrange movement types into a hierarchy, and the hierarchy is enforced by means of an independent restriction, the Generalised Prohibition on Improper Movement.

(247) **Universal Constraint on Operational Ordering (UCOOL)**
ϑ << Scrambling << A-movement << wh/Op << Topicalisation

(248) **Generalised Prohibition on Improper Movement (GPIM)**
No constituent may undergo movement of type τ if it has been affected by movement of type σ, where $\tau << \sigma$ in UCOOL.

The way that Height-Locality effects emerge under these assumptions is through the application of multiple movement operations to a single constituent. What rules out a case of hyperraising in English, for example, is the ordering requirement of two movement. Movement to Spec TP would be a case of A-movement, and according to UCOOL

and GPIM can only be fed by scrambling-type movements. To leave a finite complement however, some other higher type of movement would be required, e.g. wh-movement or topicalisation.

(249) **Ruling out hyperraising: wh-movement must feed A-movement but A $<<$ wh**
$[_{CP}\ [_{TP}$ **Tom** $[_{VP}$ seems $[_{CP}$ $\mathbf{t}_{A}$ [... $[$VP $\mathbf{t}_{Wh}$ likes cake]]]]]]

It seems broadly possible to apply UCOOL to the Height-Locality Generalisation emerging from Swahili relatives. Keeping the complement clause size constant at CP-sized, and varying the size of relative, we see that only CP-sized relatives permit movement out of CP-sized complements. On the UCOOL view, this is cross-clausal relatives formed by movement need two distinct movement steps. Only when moving out of CP and landing landing in CP are the movements compliant with UCOOL. Movement to lower positions, Spec TP or Spec AgrSP, involve movement types lower in UCOOL, which cannot be fed by the first step of movement to edge of complement clause. Varying the complement clause further distinguishes movement to Spec TP from movement to Spec AgrSP. The former is possible out of AspP-sized clauses, whereas the latter is not. Again this suggests there is a first step of movement, to the edge of the AspP complement, which is higher in UCOOL than the movement to Spec AgrSP. UCOOL is modified below to account for these patterns.

(250) **Deriving Height-Locality restrictions with a modified UCOOL**
... $<<$ A-movement/Relativisation to AgrSP $<<$ Movement to AspP $<<$ Wh/op/relativisation to TP $<<$ Topicalisation/relativisation to CP

Modifying UCOOL in this way makes the hierarchy it encodes much closer to that encoded in the clausal functional sequence. While aspects of this are not problematic - UCOOL is designed to be sufficiently abstracted from the clausal functional sequence to avoid the restrictiveness of Level Embedding Conjecture - other aspects seem to stretch our the sense in which it is a hierarchy of movement types defined independently of clause structure.

Under approach above it is necessary to move through the edge of certain clausal complements, CP and AspP, in order to derive restrictions on higher movement types.[13] This is

13. Such intermediate movements are perfectly possible in the present proposal and have been abstracted away from, because they aren't necessary to derive the restrictions.

compatible with a contextual view of phases (CITATIONS). What's surprising is that even though movement to Spec CP and movement to Spec AspP are notionally of the same type, intermediate movements forced by phases/subjacency/barriers, they would have to fall in different places in the UCOOL hierarchy. This suggests to me that, while UCOOL can accommodate the generalisations emerging from Swahili relatives, the primacy of position within the clausal spine in determining locality cannot be adequately explained.

5.5.2 Horizons

A very different approach the Williams Cycle has been developed by Keine (2016, 2019, 2020), which formulate it an emergent restriction following from conditions on Agree and its interaction with the clausal spine. This model can straightfowardly be used to handle the Size-Locality Generalisation instead of a timing-based approach. In this subsection I briefly outline the workings of the Horizons system before, highlighting what I take to be the downsides of this approach.

The core idea of Keine's system is the notion of a horizon, a locality specific to an individual probe that is independent of phases or Minimal Search. A horizon is a feature forming part of a category label, which, when encountered, terminates further probing. By default a probe's horizon is determined by its location in the clausal spine: a probe located on T has its horizon as the category feature [T]. A separate assumption is made about the nature of category features is that they are inherited upwards from where they are in the extended projection. Such category inheritance is illustrated below.

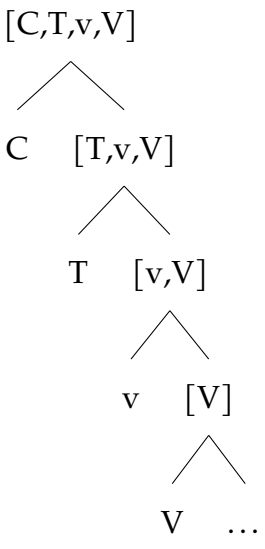
(251) **Core assumptions of the Horizons System**

a. Horizons: If a category label X is a horizon for probe π, then a π-initated search terminates at a node of category X. All elements dominated by XP are therefore outside π's search space.

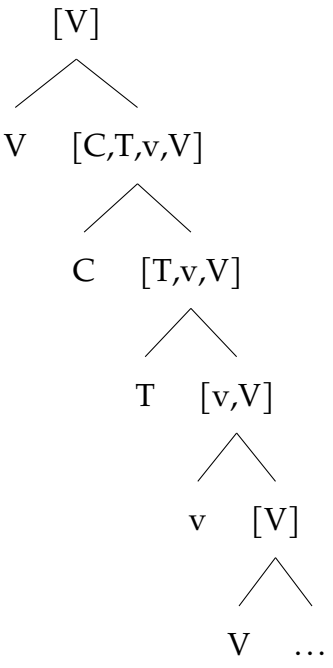
b. Default Horizon: A probe's horizon by default is the category of the X it is located on. This may be revised by positive evidence.

c. Category Inheritance: The category features of a phrase constituting part of an extended projection are inherited by higher components of that extended projection.

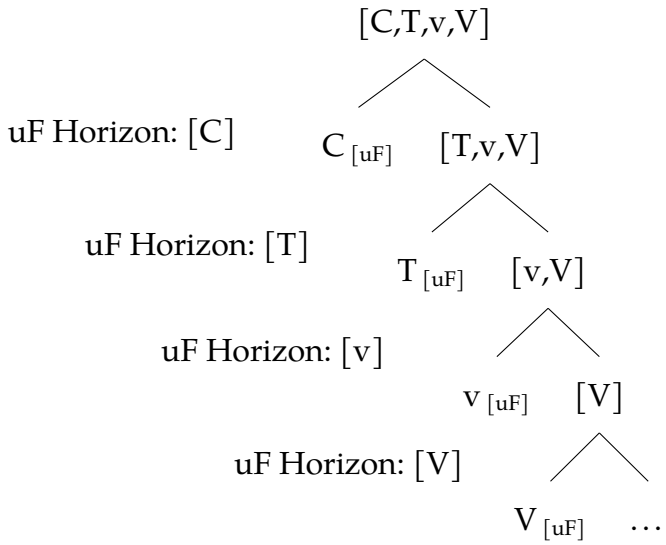
(252) **Category Inheritance (CI)**



(253) **No CI across distinct extended projections**



(254) **A probe's horizon is determined by its location (by default)**



The combined effect of these assumptions is the following. A clausal complement will be transparent, by default, to only those probes which are located higher in the functional sequence than the edge of the complement. If the clause is any bigger, the probe's horizon will be encountered at its very top node. The lower in an extended projection a probe is, the fewer kinds of complement clauses that will be transparent to its probing. The close con-

nection between height and locality of probing offers a potentially neat account differences in Swahili relatives. One could imagine that movement in relative clauses is triggered in part by a probe, independent of the [Λ] features, such as [uTOP]. The three possible locations for [uTOP] (C, T, AgrS) give corresponding horizons.

The key wrinkle in this story, inherent to the Horizons system, is what to do about unbounded instances of movement. Consider, for example, the probe that might be assumed to drive movement in amba RCs. If this [uTOP] is located on C, it would by default have a horizon of [C]. This is an unfortunate effect because it means that by default movement to Spec CP ought to be impossible out of CP-clauses.[14] It's for this reason that Keine employs a special kind of Horizon, underlying unbounded movement/agreement, which learners must acquire. This Horizon consists of a null category label, meaning that the probe will not encounter it in the course of searching.

(255) Null Horizon: A probe may have a horizon constituting an empty category label. This means that no category label will terminate probing early.

The availability of null horizons creates a problem for the Horizons system. If the choice of horizons for probes is essentially free, but constrained by the height at which it is located, any probe regardless of its height ought to be able to have a null horizon. The reason that the raising probe on T in English has a horizon is simply because learners haven't been present with positive evidence of raising being unbounded. The rationale for such a default could be computational efficiency: unbounded dependencies are the most computationally costly, so they are acquired only as a last resort. A prediction of this third factor constraint of null horizons is that null horizons are expected to be attested, in a limited way, for raising.

Even with this idea of null horizons being a last resort, it seems to me that the possibility of any probe having one misses a key generalisation about unbounded dependencies: they persistently target the clause periphery. This follows most easily in a system where the connection between height and locality is not mediated by null Horizons. It may be possible to make a Horizons system with the requisite level of restrictiveness, but it seems

14. It's important to appreciate that no notion of 'edge' exists in this system. A DP at embedded Spec CP is inaccessible to a higher probe with [C] horizon. It is assumed by Keine that probing proceeds in such a way the maximal projection is searched before its specifier.

to me more achievable under a timing/ordering-based solution.

One could entertain a 'Strict' Horizons system where every probe's Horizon was strictly determined by its location, with no possibility of null horizons. Clause-size would play an extremely important role in this system, because for a clause to transparent to a probe, it would be built to lower level in the functional sequence than the location of the probe. Even transparent, full-finite clausal complements could not be the same-size as main clauses. This would have knock on effects for how to model successive-cyclic movement.

We have now seen some alternative ways of deriving part of the Williams Cycle. Both of approaches reviewed can handle the core patterns that emerge from Swahili, but they each have theoretical costs or downsides which the current timing-based approach lacks. Before concluding the chapter, I want to briefly examine the limitations of trying to handle the SLG without some version of the Williams Cycle.

5.6 The limitations of standard solutions

In this section I review three approaches to the Size-Locality Generalisation which attempt to use a minimal, or more traditional, inventory of locality principles. To the extent that they can handle the data, they end having smuggle in assumptions which are either empirically unmotivated, or suspiciously duplicate the effects of the Williams Cycle.

5.6.1 Improper Movement

Improper movement (Chomsky, 1973; May, 1979; Chomsky, 1981), has previously been employed handle to ban on hyperraising in English. This account presupposes that movement out of CP has to land in Spec CP for independent reasons (subjacency, barriers, phases). The crucial restriction, the Ban on Improper Movement (BOIM), prevented movement from embedded Spec CP to Matrix Spec TP. This hinges on the fact that Spec TP is classified as an A-position, whereas Spec CP is an Ā-position.

(256) **The Ban on Improper Movement**

a. Movement is not possible from an Ā-position to an A-position.

b. *$[_{CP}$ $[_{TP}$ **Tom**$_i$ $[_{VP}$ seems $[_{CP}$ **t**$_i$ that $[_{TP}$ **t**$_i$ $[_{VP}$ **t**$_i$ likes cake]]]]]]

The logic of improper movement account may work, in some sense, for ruling out cases of hyperraising. It fares less well in light of the Height-Locality Generalisation. To handle the contrast between between CP relatives and TP relative is straightforward enough. We assume that Spec CP is an Ā-position, whereas Spec TP is an A-position. We also assume that movement across CP must move through Spec CP, according to subjacency/phases/barriers. As a result, movement out of CP complements will always need to land in a matrix CP. Movement out complements smaller than CP should, unless further assumptions are made, be possible to either Spec CP or Spec TP. The assumptions are summarised below, along with two contrasting derivations for attempting to move out of CP complements.

(257) **Applying Improper Movement to the Height-Locality Generalisation**

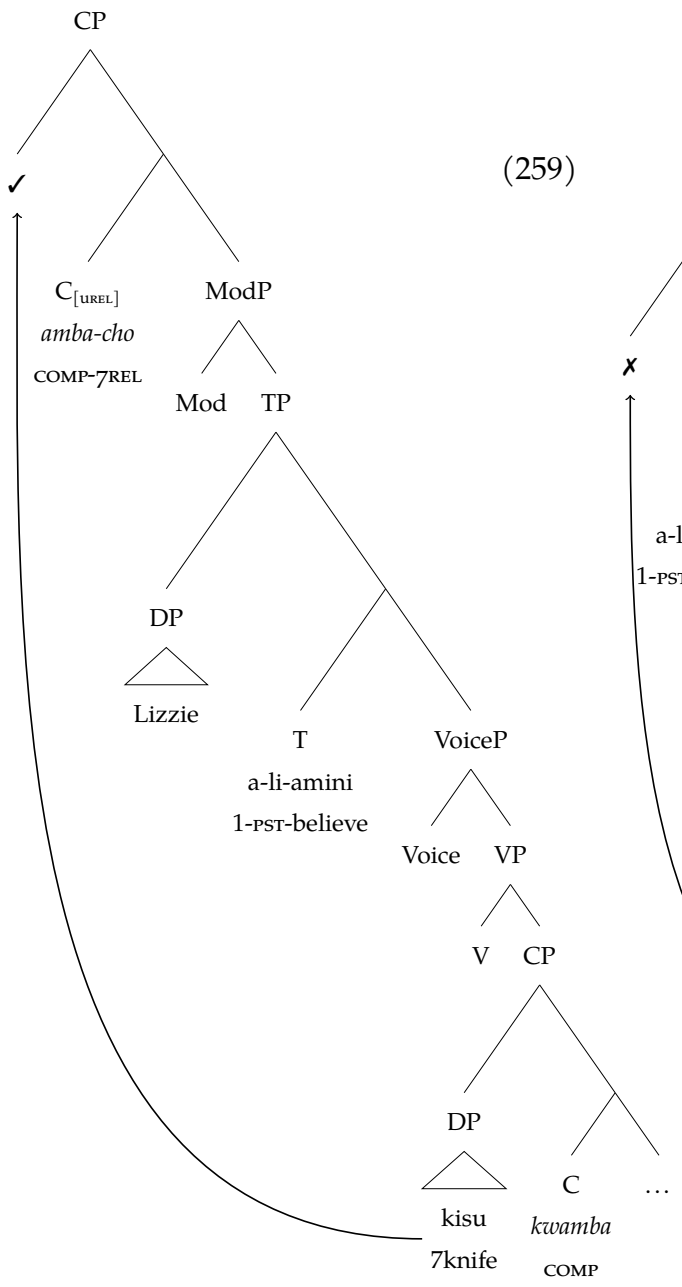
a. Spec CP: Ā-position.

b. Spec TP: A-position.

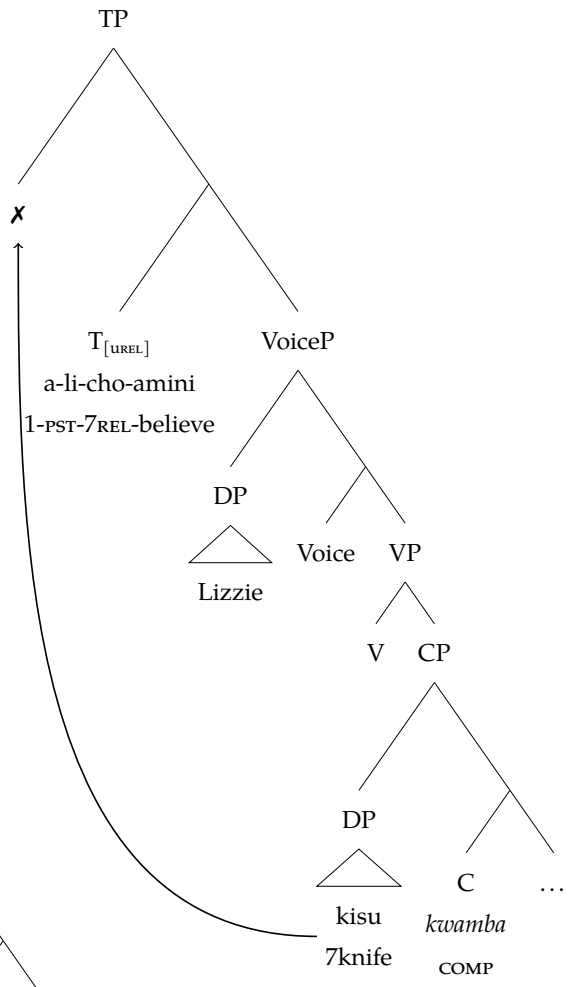
c. Subjacency: Movement over CP must land in Spec CP.

d. BOIM: No movement from an Ā-position to A-position.

(258)



(259)



The trouble for the Improper Movement approach concerns AgrSP relatives. It is innocent enough assume that Spec AgrSP is an A-position, alongside Spec TP. We then correctly predict that it is not possible form an AgrSP relative by movement out of a CP. The problem is that we expect the cross-clausal locality of these relatives to be identical to that of

their TP-sized counterparts. We have seen that, on the contrary, it only possible to move out of VoiceP-sized complements to form these relatives with long-distance movement.

(260) **The problematic contrast for Improper Movement**

a. Agnes ha-hitaji [**kiti** ni-na-cho-taka mimi [$_{\text{VoiceP}}$ Jini a-ki-tengeneze **t**]]
Agnes 1.NEG-need 7chair 1SG-PRS-7REL-want 1SG Jini 1-7-repair.SBJN
'Agnes doesn't need the chair that I want Jini to repair.'

b.* Agnes ha-hitaji **kiti** [ni-taka-cho mimi [$_{\text{VoiceP}}$ Jini a-ki-tengeneze **t**]]
Agnes 1.NEG-need 7chair 1SG-want-7REL 1SG Jini 1-7-repair.SBJN
'Agnes doesn't need the chair that I want Jini to repair.'

One might try to appeal to subjacency in a parallel manner to what we did before. That is, we might assume that: i) movement across AgrSP must land in Spec AgrSP and ii) Spec AgrSP is an Ā-position. One could then derive the restrictions on movement out of AspP and AgrSP as the consequence of a lower intermediate Ā-landing site. It should be quite obvious however that any such move introduces blatant contradictions into the analysis. If the lower Spec AgrSP must an be Ā-position, what stops the final landing site Spec AgrSP from being one too? If it could be, then the BOIM wouldn't apply and restrictions observed would be predicted not to exist.[15]

There is a deep tension between the Size-Locality Generalisation and an account in terms Improper Movement. The issue is that Improper movement forces a correlation between locality and positions that is fundamentally binary. It assumes that positions come in two types, A and Ā, and the BOIM produces two locality profiles as a result: movement to an A-position and movement to Ā-position. Swahili relatives show us three distinct long-distance movement locality profiles, corresponding to three possible landing sites for the restrictor of predicate abstraction.

15. Another contradiction concerns the addition of another possible intermediate landing site. Suppose we try trying to form a long-distance relative, with the final landing site as Spec TP - an A-position *ex hypothese*. If we try to form these by moving out of AspP or AgrSP complements, an intermediate landing site at Spec AgrSP will be required. If Spec AgrSP is an Ā-position, then we expect movement to be Spec TP to be ruled out by the BOIM.

5.6.2 Intervention

The failure of improper movement to account for the Height-Locality Generalisation might lead us to abandon the underlying intuition, that differences in the location of the final landing site are the ultimate source of locality distinctions between different movement dependencies. Within the improper movement approach there is the kernel of an alternative based on differing content of movement dependencies. Let's call this the Content Intuition.

(261) **The Content Intuition**

Selective opacity effects are the result of different movement dependencies being distinguished by semantics/featural content.

The most obvious way to implement this intuition is to appeal to some version of Relativised Minimality/Minimal Search (Rizzi, 1990; Chomsky, 1995). This reasoning has recently been applied to restrictions on raising in Zulu by Halpert (2019). Due to Zulu's similarity to Swahili, insofar as they are both Bantu languages, I want to dedicate some space outline key aspects of Halpert's account and how it could inspire an analysis of the Size-Locality Generalisation.

Halpert (2019) addresses the behaviour of raising in Zulu, which is impossible/highly restricted out of infinitives.[16] When raising occurs out of finite complements, the subject marking on the matrix predicate tracks either the noun class of the raised DP, or takes the default ku- form.

(262) **Attempting Raising in Zulu**

a. [$_{CP}$ ku-bonakala [$_{CP}$ ukuthi uZinhle u-zo-xova ujeqe]] **No raising ✓**

17-seems COMP AUG.1.Zinhle 1-FUT-make AUG.1.steam.bread

'It seems that Zinhle will make steamed bread.'

b. [$_{CP}$ uZinhle$_i$ u-bonakala [$_{CP}$ **t**$_i$ uku-(zo)-xova ujeqe]] **Raising ✗**

AUG.1.Zinhle 1-seems INF-FUT-make AUG.1.steam.bread

'It seems that Zinhle will make steamed bread.'

16. The Zulu infinitive marker (u)ku- is cognate with Swahili ku-, but the former appears to be compatible with other INFL prefixes.

Halpert proposes that the restriction against raising out of infinitives is an intervention effect. Raising is licensed by unvalued φ-features on the matrix T. Crucially, only infinitive clauses bear φ-features which features can satisfy the EPP requirement of Spec TP. Zulu, like Swahili, does not allow finite clausal subjects with a complementiser. By contrast, infinitival clauses are permitted in a pre-verbal position and control subject marking. The source of the restriction is thus that the edge of the infinitival clause is a more local satisfier of the matrix EPP than DPs embedded within it.

(263) **Infinitival subject**

[$_{\text{InfP}}$ uku-(zo)-fika k-ukusika] ku-ya-bonakala $\mathbf{t}_i$

INF-FUT-arrive 15/17ASS-14.AUG.winter 15/17-YA-seems

'Winter's arrival is evident/We can tell that winter is coming.'

One could imagine extending Halpert's logic to Swahili relatives in the following way. We would need to assume that the three types of relative clauses are formed by three different kinds of featural dependencies. All dependencies involve looking for a constituent with [F] possessed by DPs to undergo relativisation. The functional head bearing [Λ] in amba-less RCs has more specific requirements, wanting that constituent bearing [F] to also bear either [G] or [G, H]. It would have to be assumed that all of these requirements have to be satisfied.

(264) **Three different featural triggers for movement**

a. amba RC: [uF]

b. Type 1 amba-less RC: [uF, uG]

c. Type 2 amba-less RC: [uF, uG, uH]

Crucially, we would also need to assume that the clausal spine of complement clauses bears matching instances of some of the features participating in relativisation dependency. The smallest complements bear none of these features, meaning that the edge of these clauses do not intervene for any of the movement dependencies. The slightly larger AGR-only and ki-complements, by contrast, bear a feature [H] at their edge. This means that they intervene for the Type 2 amba-less dependency. The COMP-complements bear

[G, H] at their edge, meaning they they serve as interveners for both types of amba-less dependency.

(265) **Distribution of matching features in clausal spine**

a. C: [G, H] COMP-complements

b. Asp, AgrS: [H] ki-complements/AGR-only complements

c. Voice: [ ] ku-complements

Setting aside some technical problems, the major issue for this approach is finding independent motivation for the different relative clauses being formed by syntactic dependencies of differing featural content.[17] The relativised DP can be indefinite/definite and control subject marking (under the right conditions) in all three kinds of relatives. At least in the case of amba RCs and their type 1 amba-less counterparts, they do not appear to behave differently for weak crossover, reconstruction or the licensing of parasitic gaps. In other words, it is difficult to find empirical distinctions between the relative clauses that suggest featural differences in the trigger of movement.

5.6.3 Phases and missing featural triggers

Another way to keep the inventory the inventory of locality devices constrained relies on exploiting phases. This has most extensively pursued in the context of so-called mixed A/$\bar{\text{A}}$ dependencies: Longenbaugh (2017), Grano & Lasnik (2018), Chen (2023).

This approach has two basic ingredients. The first concerns phases. It is taken for movement to cross a phasal category (e.g. C), it must pass through the specifier of that category. Crucially it is further assumed that movement to phase edges is (always) featurally driven. The second ingredient concerns the nature of featural triggers. Following Van Urk (2015) it is assumed there are three types of movement triggers [A], [$\bar{\text{A}}$] and [A+$\bar{\text{A}}$], which correspond to three fundamental kinds of movement. Crucially, it is further assumed that in some languages (at least), [$\bar{\text{A}}$] and [A+$\bar{\text{A}}$] do not occur embedded phase heads. Combining these ingredients has the following effect: certain kinds of movement are not possible

17. One technical issue concerns the distribution of matching features. One would need a mechanism to ensure that the feature [H], for example, is not found anywhere in the matrix clausal spine. Otherwise the intervention effects with a featural trigger [uH]/[uG,uH] would occur in the matrix clause itself.

out of phasal domains because the relevant required featural triggers are missing.

(266) **Phases and missing triggers**

a. Movement across phasal categories (e.g. CP) passes through the edge.

b. Such movement is featurally driven.

c. There are three types of featural triggers: [A], [$\bar{A}$] and [A+$\bar{A}$]

d. In certain languages, embedded C lacks [A] and [A+$\bar{A}$]

e. In those languages [A] and [A+$\bar{A}$]-trigger movement cannot escape CP.

This kind of account could be applied to Swahili relatives in the following way. Suppose that the three types of relatives correspond to the three types of movement triggers, as indicated below.[18] Further assume that Swahili has two phasal categories in the clause C and LMod, and that these categories differ in the kinds of featural triggers they contain. In this way, by limiting the distribution of intermediate instance of [$\bar{A}$] and [A+$\bar{A}$], we constrain the locality of relatives formed using these featural triggers.

(267) **Application to Swahili relatives**

a. Amba RC: [$\bar{A}$], Amba-ess I: [A+$\bar{A}$] and Amba-less II: [A]

b. Phasal categories: C, LMod

c. Intermediate trigger distribution: C ([$\bar{A}$]), LMod ([$\bar{A}$],[A+$\bar{A}$])

d. Final trigger distribution: C ([$\bar{A}$]), T ([A+$\bar{A}$]), AgrS ([A])

The major limitation to this way of looking at clause-bound movement is that it does not in fact escape the need for something akin the BOIM. Thus in our sketched Swahili case, one could imagine a DP with pure [$\bar{A}$] and mixed [A+$\bar{A}$] features. Such a DP could move to intermediate Spec, CP using the [$\bar{A}$] and then move to matrix Spec, TP using [A+$\bar{A}$]. To rule out such derivations, one would have to invokes a version of the BOIM which essentially constrains the order in which differ featural triggers are satisfied by a single moving element. Clearly this does not follow from the assumptions about phases. To my mind this suggests that although it can be useful to distinguish movements according the type of probe, it doesn't ultimately lead to a satisfying account of clause-boundedness.

18. One could still assume that the relatives differ in structure, but this wouldn't be crucial.

Chapter 6

Weakening the Williams Cycle

6.1 Introduction

In the last chapter the Size-Locality Generalisation was characterised as a special case of a general restriction, informally called the Williams Cycle, which relates the height of movement in the functional sequence to its locality. I derived a strong version of Williams Cycle, the Generalised Ban on Improper Movement (GBOIM), from the timing of clausal embedding and restrictions imposed by a cyclicity condition. Although adequate for analysis of Swahili relatives, the major disadvantage of maintaining the GBOIM is that it rules out certain kinds of movement derivations which are commonly assumed to be possible.

(268) **Generalised Ban on Improper Movement (GBOIM)**
Movement to [Spec, XP] cannot proceed from [Spec, YP] or across YP, where Y is higher than X in the functional sequence.

The first problematic movement dependency involves the matrix thematic domain providing an intermediate landing site for cross-clausal movement out of sufficient large complements. Such movements are required under the assumption that there are clause-internal/vP phases (Chomsky 2000, 2001, Van Urk & Richards 2015, Van Urk 2015). Such proposals are motivated by a growing literature showing evidence for long-distance movement dependencies affecting matrix verb phrases, as well as the edges of embedded clauses.

(269) **Long low intermediate movement: e.g. through vP out of a CP-complement**
$[_{CP}\ [DP]_i \ldots [_{vP}\ [\mathbf{DP}]_i\ [v]\ [_{CP}\ [DP]_i \ldots [_{vP}\ [DP]_i\ [v]]]]]$

The second problematic movement dependency involves instances of final movement. Such movement can be divided into two types of raising. Raising-to-object, movement out of a TP-sized (or larger) complement that lands in the matrix thematic domain, has held a prominent status in accounting for accusative-with-infinitive constructions in English and similar languages (Postal 1974, Lasnik 1999).

(270) **Two kinds of long low final movement**

a. $[_{CP} \ldots [_{vP} \, [\mathbf{DP}]_i \, [v] \, [_{FP} \ldots [_{VoiceP} \ldots [DP]_i \ldots]]]]$ (Hyper)raising to object

b. $[_{CP} \ldots [_{TP} \, [\mathbf{DP}]_i \, [T] \, [_{vP} \, [_{CP} \ldots [_{VoiceP} \ldots [DP]_i \ldots]]]]$ Hyperraising to subject

In this chapter I want to take the existence of such movement dependencies at face value, and see whether we can make them compatible with the present derivation of the GBOIM. The idea in a nutshell is to leverage the specific sensitivity that the present version of the Extension Requirement has to featural triggers. If a movement is not driven by featural triggers, merging at a projection in a later cycle than when it was introduced will induce no representational changes relevant to the FER.

(271) **How to weaken the Williams Cycle**

Only movement driven by featural triggers conforms to the GBOIM.

Part of the chapter is dedicated to thinking through, quite programmatically, how movement could be featurally-free and yet obligatory. The basic idea is that movement is necessary in certain cases to ensure that structures sent to interfaces are legible. I put most effort into considering how this applies to linearization at PF, extending work by Fox & Pesetky (2005) and Richards (2010).

The structure of the chapter is as follows. §6.2 presents case studies of low intermediate movement from Dinka and Koryak. In §6.3 I outline in more detail the nature of featurally-free intermediate movement and its relationship to linearization. In §6.4 I look in more detail at the featural motivation for movement in Dinka, showing it to be compatible with the present proposal. Finally in §6.5 I briefly consider how problematic instances of raising could be purely LF-driven.

6.2 Low intermediate movement

In this subsection I focus on two case studies, those of Dinka (Western Nilotic) and Koryak (Chukotko-Kamchatkan), which illustrate the usefulness of assuming clausal internal/low intermediate movement.[1]

6.2.1 Movement through vP in Dinka

There are two kinds of evidence for movement through the vP in Dinka, as discussed by van Urk (2015, 2018, 2020) and van Urk & Richards (2015). One concerns the apparent lifting of a V2 requirement within the VP, and the other concerns the appearance of morphology marking the movement path. The basic patterns will be presented here, with certain complexities left to the subsequent section.

The word order effects concern verb second (V2), which van Urk (2015) shows to be operative at two levels of the clause: the CP and vP domains. We will focus our attention on the VP, where it is shown that a single DP must precede the non-finite verb.[2] This is modeled by van Urk as an instance of a functional head v with an EPP-requirement, i.e. that its specifier be occupied. This means that in transitive VPs, S O V is an obligatory order (272ab). The same requirement holds in ditransitive VPs, where either in the direct or applied object must occupy the immediately pre-verbal position (272cd).

(272) **Word order restrictions in Dinka with in-situ lexical verbs**

a. Permitted transitive word order
   S Aux $[_{VP}$ O V$]$

b. Restricted transitive order
   *S Aux $[_{VP}$ V O$]$

c. Permitted ditransitive orders
   S Aux $[_{VP}$ DO V IO $]/[_{VP}$ IO V DO $]$

1. Similar interactions between cross-clausal movement and embedding predicates have been observed in Defaka (Bennet et al 2012), Igbo (Amaechi & Georgi 2019), Asante Twi (Korsah & Murphy 2020) and Sason Arabic (Akkus 2022). See van Urk (2020) for a general overview of the literature on the reflexes of successive-cyclic movement.

2. Dinka is language with V to I movement. In the absence of auxiliaries, the verb precedes internal arguments and adjuncts. A word order restriction within the VP is still detectable using adjunct placement.

d. Restricted ditransitive orders
*S [$_{VP}$ V {DO IO/IO DO}]

e. More Restricted ditransitive orders
*S [$_{VP}$ {DO IO/IO DO} V]

The restrictions are illustrated concretely using ditransitives (Van Urk, 2015, ex.38, 39, 40, p.148-149). We can see in (273) two grammatical ways of forming a distransitive, with either *Àyén* or *cáa* 'milk' preceding the lexical verb. Ungrammaticality results from putting neither DP in the preverbal position (274), or both of them in that position (275).

(273) **One pre-verbal internal argument**
Yi̱in cé̱ [$_{vP}$ **Àyén** gàam cáa].
you PRF.SV **Ayen** give.NF milk
'You have given Ayen milk.'
Yi̱in cé̱ [$_{vP}$ **cáa** gàam Àyén].
you PRF.SV **milk** give.NF Ayen
'You have given milk to Ayen.'

(274) **Restriction against no pre-verbal internal arguments**
*Yi̱in cé̱ [$_{vP}$ ___ gàam cáa Àyén].
you PRF.SV give.NF milk Ayen
'You have given Ayen milk.'
*Yi̱in cé̱ [$_{vP}$ ___ gàam Àyén cáa].
you PRF.SV give.NF Ayen milk
'You have given Ayen milk.'

(275) **Restriction against more than one pre-verbal internal argument**
*Yi̱in cé̱ [$_{vP}$ **cáa Àyén** gàam].
you PRF.SV **milk Ayen** give.NF
'You have given Ayen milk.'
*Yi̱in cé̱ [$_{vP}$ **Àyén cáa** gàam].
you PRF.SV **Ayen milk** give.NF
'You have given Ayen milk.'

This robust requirement for an internal argument to precede the verb is suspended in context of movement dependencies (276abc). If one argument of a distransitive predicate undergoes movement to a pre-subject position, the other argument cannot occupy the pre-verbal position (276de). The position must remain empty. van Urk treats the lifting of the V2 requirement as superficial: the relevant position is being filled by the deleted lower copy of the moved internal argument. Other internal arguments cannot occupy a pre-verbal position because it is obligatorily being filled by the moving DP.

(276) **Word order in the context of short-distance movement**

a. Permitted transitive order
   O_{Wh} S [$_{VP}$ $\mathbf{t}_{wh}$ V]

b. Permitted ditransitive order
   DO_{Wh} S [$_{VP}$ $\mathbf{t}_{wh}$ V IO]

c. Permitted ditransitive order
   IO_{Wh} S [$_{VP}$ $\mathbf{t}_{wh}$ V DO]

d. Restricted ditransitive order
   *DO_{Wh} S [$_{VP}$ IO $\mathbf{t}_{wh}$ V]

e. Restricted ditransitive order
   *IO_{Wh} S [$_{VP}$ DO $\mathbf{t}_{wh}$ V]

The restrictions on word order in context of short-distance movement are illustrated concretely below, using short wh-extraction of direct objects (Van Urk, 2015, ex. 70ab, p.162). Such extraction is grammatical as in (277), where the pre-verbal position remains occupied. Placing the applied argument *Àyén* in this position leads to ungrammaticality in (278).[3]

(277) **Lifting of the V2 in VP requirement (Short Movement)**

Yè **ŋ̈ó̤** [$_{CP}$ cɨ̈i̤ môc [$_{vP}$ ___ yiɛ̈ɛ̤n Àyén]]?
be **what** PRF.OV man.GEN give.NF Ayen
'What has the man given Ayen?'

3. In these examples the CP-level V2 effect is being satisfied by the wh-extracted object. The external argument no long agrees with the auxiliary and is marked in Genitive case.

(278) **No overt pre-verbal DP within VP (Short Movement)**

*Yè ŋǫ́ [$_{CP}$ cíi môc [$_{vP}$ Àyén yiɛ̂ɛ̀n]]?

be **what** PRF.OV man.GEN Ayen give.NF

'What has the man given Ayen?'

The lifting of the V2 requirement is not restricted to the base position out which movement takes places. Crucially, this holds of all VPs which the movement crosses.[4] To see this effect at intermediate VPs, it is necessary that they bear DP and clausal arguments. van Urk provides examples using persuade-type and lexical causative predicates. Movement over these predicates affects the word order, giving an 'empty position effect', even though they are not themselves the base-position of the movement (279ab). This is expected if movement proceeds through the edge of all VPs in the movement path.

(279) **Long distance movement and word order of intermediate VPs**

a. Permitted *make*-predicate order

[$_{CP}$ DP$_{wh}$ … [$_{VP}$ **t**$_{wh}$ make O [$_{CP}$ … [$_{VP}$ **t**$_{wh}$ V O]]]]

b. Restricted *make*-predicate order

*[$_{CP}$ DP$_{wh}$ … [$_{VP}$ **t**$_{wh}$ O make [$_{CP}$ … [$_{VP}$ **t**$_{wh}$ V O]]]]

The restrictions on word order in the context of long-distance movement are illustrated below. These involve wh-extraction of a direct object out of the complement of a causative predicate (Van Urk, 2015, ex. 76ac, p.162). Like transitives and ditransitives, causatives which take a clausal and nominal internal argument nominally restrict the placement of the nominal to the pre-verbal position. When the nominal internal argument is extracted, the position before make must remain empty as in (280). It is not possible for the embedded subject to move into this position as (281).

(280) **Lifting of the V2 in VP requirement (Long Movement)**

Yè ŋǫ́ [$_{CP}$ cíi Áyèn [$_{vP}$ ___ cɔ̂ɔ̀k [$_{TP}$ dác Bôl [$_{vP}$ ___ yiɛ̂ɛ̀n

be **what** PRF.OV Ayen.GEN make.NF quickly.OV Bol.GEN give.NF

Dèŋ]]]]?

Deng

'What has Ayen made Bol give Deng quickly?'

4. This also applies to the CP-level V2 effect we have abstracted away from. Languages like German provide a more familiar example of superficially absent V2 patterns in long distance extraction (e.g. Thiersch 1978).

(281) **Restricting access to pre-verbal position of causative verb (Long Movement)**

*Yè ŋ̀ɔ́ [$_{CP}$ cíi Áyèn [$_{vP}$ Bòl] cɔ̂ɔk [$_{TP}$ dác [$_{vP}$ ___ yiêɛn
be **what** PRF.OV Ayen.GEN Bol make.NF quickly.OV give.NF
Dèeŋ]]]?
Deng
'What has Ayen made Bol give Deng quickly?'

Alongside the word order restrictions, van Urk (2015, 2018) observes that movement of a plural DP seems to suspended the requirement that vP edges are occupied by an empty elements. In these cases, a morpheme ké (homophonous with the 3PL pronoun), obligatorily appears in the pre-verbal position that cannot otherwise by occupied by any other DP. This occurs with the movement of plural objects over short and long distances, and with subjects only over long distances.[5] van Urk (2018) provides a detailed treatment of the obligatory instances of ké as realisations of the lower copies of the plural DP.

(282) **Structural contexts for ké-copying**

a. Short Plural O movement
[$_{CP}$ O_{PL} S [$_{vP}$ *(ké) V $\mathbf{t}_O$]]

b. Long Plural O movement
[$_{CP}$ O_{PL} … [$_{VP}$ *(ké) V [$_{CP}$ … [$_{VP}$ *(ké) V $\mathbf{t}_O$]]]]

c. Long Plural S movement
[$_{CP}$ S_{PL} … [$_{VP}$ *(ké) V [$_{CP}$ … $\mathbf{t}_S$ [$_{VP}$ (*ké) O V]]]]

The behaviour of ké-copying, in its three different structural contexts, is concretely illustrated below using wh-extraction of plural subjects and objects (Van Urk, 2015, ex.44a p215, 40b p.214, ex.51b p.218). In (283) we can see an example short distance movement of a plural object, in which ké is obligatorily present in the pre-lexical verb position. In (284) we have long distance wh-extraction of an object, where ké is left at the end of the base vP and the intermediate vP. Whereas the interaction between long movement and intermediate vP word order restrictions is visible only with a restricted class of embedding predicates, ké-copying appears much more widely with complements to familiar attitude

5. The asymmetry between subjects and objects in the base position comes down to the location of the EPP position. External arguments are introduced above it and therefore cannot satisfy it it in their own clause.

verbs like say and think. Long distance subject extraction behaves slightly differently, as we can see in (285). Whereas the intermediate ké is obligatory, having one in the base position is forbidden.

(283) **ké-copying with short distance O movement**
Yè **kɔ̂ɔc-kò** [$_{CP}$ cɟ̈i Bôl **ké** tɟ̈iŋ]?
be **people-which** PRF.OV Bol.GEN 3PL see.NF
'Which people has Bol seen?'

(284) **ké-copying with long distance O movement** (Van Urk 2018; ex. 14b)
Yè **kɔ̂ɔc-kò** [$_{CP}$ yɟ̈i Bôl [$_{vP}$ **ké** luêeel [$_{CP}$ è̤
be.3SG people-which be.OV Bol.GEN 3PL say.NF C
cɟ̈i Áyèn [$_{vP}$ **ké** tɟ̈iŋ]]]]?
PRF.OV Ayen.GEN 3PL see.NF
'Which people does Bol say Ayen has seen?'

(285) **ké-copying with long distance S movement**
Yè **kɔ̂ɔc-kò** [$_{CP}$ yṳ̀ṳkṳ̀ [$_{vP}$ **ké** tàak [$_{CP}$ càm [$_{vP}$ (***ké**) cuɟ̈in]]]]?
be **people-which** HAB.1PL 3PL think.NF eat.SV 3PL food
'Which people do we think are eating food?'

If van Urk's analysis of these Dinka patterns, or others in similar spirit, is correct, then there is a problem for maintaining the GBOIM. Movement out of CP and TP-sized clauses seems to have intermediate landing sites in the matrix thematic domain. The intermediate movement step is ruled out the current approach to the GBOIM by the Featural Extension Requirement, assuming as van Urk does that movement to phase edges is trigger by the same features as final steps of movement.

6.2.2 Movement through vP in Koryak

Another piece of evidence for movement through the vP concerns the effect that long-distance has on case-marking in Koryak matrix predicates, recently identified in Abramovitz (2021). I briefly introduce the relevant background about case in Koryak, before turning to long-distance movement patterns.

Koryak displays patterns of ergative-absolutive case-assignment, with no splits for e.g. tense or aspect. This means that the internal argument (O) of a transitive verb and the

single argument (S) of an intransitive verb are assigned absolutive case (286a). Only the external argument of a transitive verb (A) is assigned ergative case (286b). Subjects of intransitives are uniformly assigned absolutive case, regardless of whether the predicate involved is unergative or unaccusative (286c). Clausal complement-taking verbs behave like intransitives, with their single nominal argument also being assigned absolutive (286d).

(286) **The basics of case-marking in Koryak**

a. Absolutive assigned to O of transitive, and S of intransitive.

b. Ergative assigned to A of transitive.

c. Ergative assignment insensitive to thematic roles.

d. Subjects of verbs with clausal complements receive Absolutive.

The case marking of transitives, intransitives and verbs taking CP-complements are concretely illustrate in the data below (Abramovitz 2021; ex. 223, 244). In (287) the single argument of verbs like sing and hear must bear absolutive case. Similarly we can see in (288) that the first person subject of a hear-type embedding predicate is marked with absolutive. The external argument of the embedded *break*-predicate receives ergative case whereas the internal argument receives absolutive.

(287) **No ergative assignment in intransitives**

a. {ʔojat͡ɕek / *ʔojat͡ɕek-a} ∅-aŋaŋja-j
{man.ABS.SG / *man-ERG} 2/3.S/A.IND-sing-AOR
'The man sang.'

b. {ʔətʔ-ə-n / *ʔətʔ-a} ∅-viʔ-i
{dog-EP-ABS.SG / *dog-ERG} 2/3.S/A.IND-die-AOR
'The dog died.'

(288) **Subject of CP-complement taking verb receives ABS**

ɣəmmo t-ə-valom-ə-k, əno ʔewŋəto-na-k
1SG.ABS 1SG.S/A-EP-hear-EP-1SG.S that Hewngyto-OBL.SG-ERG

∅-j-ə-t͡ɕim-aw-nin kojŋ-o
2/3.S/A.IND-CAUS-EP-break-VBLZ-3SG.A > 3.O cup-ABS.PL
'I heard that Hewngyto broke cups.'

The ergative case of Koryak is a dependent ergative, being tightly connected to the appearance and case-marking of other DPs in certain structural domains. For example, the external argument of a transitive is assigned absolutive rather than ergative, if the verb assigns a lexical case (e.g. dative) to its internal argument. This is illustrated in (289) for the verb 'attack' which optionally assigns dative case to its internal argument (Abramovitz 2021; ex. 225). When the internal argument of attack is assigned dative, the external argument is assigned absolutive. When the same internal argument is assigned absolutive, the external argument must be assigned ergative.

(289) **Ergative assignment is sensitive to lower cases**

a. kajŋ-ə-n Ø-peŋŋ-e ʔəlva-ŋ
bear-EP-ABS.SG 2/3.S/A.IND-attack-AOR wild.reindeer-DAT
'The bear attacked the wild reindeer.'

b. kajŋ-a Ø-peŋŋ-ə-nen ʔəlve-ʔəl
bear-ERG 2/3.S/A.IND-attack-EP-3SG.A > 3.O wild.reindeer-ABS.SG
'The bear attacked the wild reindeer.'

c. *kajŋ-a Ø-peŋŋ-ə-nen ʔəlva-ŋ
bear-ERG 2/3.S/A.IND-attack-EP-3SG.A > 3.O wild.reindeer-DAT
intended: 'The bear attacked the wild reindeer.'

Having outlined the background on case-marking, let's turn to crucial cases of wh-movement. For information-seeking questions, Koryak displays obligatory wh-movement to the left edge of the clause. The case-marking of matrix subjects turns out to be sensitive to long-distance wh-movement, schematically illustrated in (290). Such subjects must be assigned ergative case, rather than their usual absolutive - what Abramovitz calls *absolutive blocking*.[6] The patterns of case marking are illustrated concretely below in (291), where the second person subject must be assigned ergative case in the presence of the wh-moved element (Abramovitz 2021; ex. 245). This behaviour is reminiscent of blocking of absolutive case in (289) above.

6. The fronted wh-word also controls matrix object agreement. This is potentially difficult to handle on the present assumptions. In principle one might try and handle it in the way that LDA in Tsez is handled in §6.5, but a number of issues about case, agreement and movement in Koryak would need to clarified.

(290) **Absolutive blocking with long-distance wh-movement**

a. $[_{CP}\ DP_{wh.ABS}\ S_{ERG}\ V\ [_{CP}\ \ldots \mathbf{t}_{wh}\ \ldots]\ ]$ ✓

b. $[_{CP}\ DP_{wh.ABS}\ S_{ABS}\ V\ [_{CP}\ \ldots \mathbf{t}_{wh}\ \ldots]\ ]$ ✗

(291) **Absolutive blocking**

jej-u$_i$	{ɣə-nan	/	*ɣətɕ͡tɕ͡i}	∅-valom-na-w,	əno
what-ABS.PL	{2SG-ERG	/	*2SG.ABS}	2/3.S/A.IND-hear-3.O-3PL	that

ʔewŋəto-na-k	∅-j-ə-tɕ͡im-aw-nin	t_i
Hewngyto-OBL.SG-ERG	2/3.S/A.IND-CAUS-EP-break-VBLZ-3SG.A > 3.O	

'What all did you hear that Hewngyto broke?'

Abramovitz shows that cases of wh-movement with absolutive blocking cannot be analysed as instance of wh-moving a proleptic argument of the embedding predicate. For example, if such an analysis were correct, it would be possible to form apparently long-distance questions in which an absolutive wh-word interpretatively relates to the internal argument of a verb which assigns a lexical case like dative. We can see in (292) that a verb like *want for* assigns dative to its internal argument (Abramovitz 2021; ex. 252a). The data in (293) show that in a long distance question relating to the embedded object position of such a verb, the wh-word cannot surface as absolutive (Abramovitz 2021; ex. 252b). In other words the wh-word behaves as if it originated embedded object position, and is not simply binding a null pronominal from a position in the higher clause.

(292) **'Want for' verb assigns a lexical dative**

qojalqot	∅-ko-ŋoʔ-ə-ŋ-∅	pet͡ɕɣ-ə-ŋ
Qojalqot.ABS.SG	2/3.S/A.IND-PRS-want.for-EP-PRS-3SG.S	food-EP-DAT

'Qojalqot wants for food.'

(293) **Long-distance extracted object of 'want for' must be dative not absolutive**

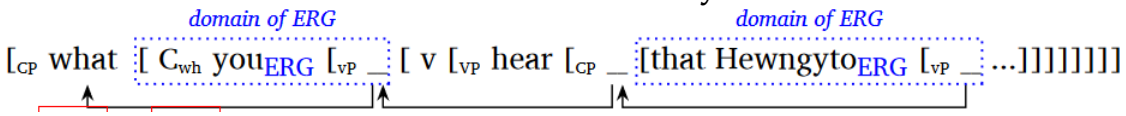
*jənnə	ʔewjava-na-k	∅-valom-nen,
what.ABS.SG	Hewjava-OBL.SG-ERG	2/3.S/A.IND-hear-3SG.A > 3.O

ɣəmmo	t-ə-ko-ŋoʔ-ə-ŋ?
1SG.ABS	1SG.S/A-EP-PRS-want.for-EP-PRS-1SG.S

intended: 'What did Hewjava hear that I want for?'

Abramovitz adopts a dependent approach to case (e.g. Marantz 1991), according to which ergative is assigned to a DP if it dominates a DP in the case domain which has not been assigned a lexical case. The relevant domain extends from C down to Spec vP, which is assumed to be phase edge forcing intermediate movement through itself. The source of the interaction between wh-movement and case-marking lies in the matrix vP-edge being within the domain of ergative case assignment. The movement of the wh-word through matrix vP-edge creates a configuration in which there is the crucial lower DP in the ergative case-domain. This is illustrated schematically below (Abramovitz 2021; ex. 272).

(294) **The interaction of case domains and successive cyclic movement**



Like Dinka, Koryak provides us with another plausible instance in which long distance movement has to stop off at a position low in the matrix clausal spine. This step is presently ruled out by the GBOIM, and in particular the Featural Extension Requirement. Again, it would be preferable for proponents of the Williams Cycle to *have the option* to accept Abramovitz's analysis of Koryak. In the next subsection I outline a way to do that.

6.3 The special nature of successive-cyclic movement

The way current syntactic theory hangs together, there is a tension between between Williams Cycle and low intermediate movement. This tension is not inesapable, but there is a price to pay for compatibility - at least with the present Level Embedding approach. The price is that successive-cyclic movement, at least to vP but perhaps more generally, is syntactically special - contrary to the spirit of Van Urk (2015).

6.3.1 Featurally-free movement to phase edges

The specialness can be implemented in a number of ways, all to the same basic effect. The easiest way to get as close as possible to van Urk's proposal is by assuming that featural triggers on phase heads are exempt from the Featural Extension Requirement. That is, they can be representationally altered at later cycles than when it was introduced. This approach raises a mechanistic issue: how precisely the triggers could in principle be exempt from the FER without undermining the FER in general.

(295) **A quick compatibility fix (to be revised)**

a. Movement to phase edges is triggered by features exempt from the FER.

b. Phase issue: Why are phase heads (e.g. v, C) special?

c. Mechanistic issue: How are features exempt from the FER?

To avoid such a mechanistic issue, I will instead assume (with an explanation to follow) that internal merge to phasal categories is not triggered by features.[7] If such movement

7. The Strict Cycle Condition may actually afford a similar looseness in forbidding only those operations *exclusively* affecting material introduced at an earlier cycle. Although an instance of Merge at vP is affecting at C-cycle is affecting material in an earlier cycle, the claim would be that it is not exclusively affected that material. On standard assumptions about phases, movement through Spec, vP actually feeds movement to Spec CP - the latter is not possible without the former. The intuition would be that this connection between the intermediate and final movement steps allows us to circumvent the Strict Cycle. That is, in merging a DP at Spec, VP in the C-cycle we are indirectly affecting matrix C as well - by facilitating a subsequent movement processes. Thus an approach to Williams Cycle like Poole (2022) may be compatible in principle with movement through vP. In the first version of this thesis I exploited this, but during the course of revisions it became clear that something like the FER would be more explicit.

does not representationally change features, it doesn't affact syntactic structure in a way that is relevant to Featural Extension Requirement. This means that it can apply at later cycles than when phasal categories are introduced.

(296) **Exempting successive cyclic movement from the FER**
Movement to phasal categories is featurally-free.

Movement being featurally-free does not make it *absolutely* free. For a given numeration of lexical items there may be in principle be a number of derivations that do not crash and satisfy interface requirements. Following Chomsky (1995), I assume that there is a strong preference for the most economical of those derivations, i.e. the one which employs the fewest operations which do not satisfy requirements of lexical items (featural triggers) or legibility at the interfaces. This is what we could call freedom within economy constraints.

(297) **Freedom within economy constraints**
Movement that does not satisfy the requirements of lexical items (featural triggers) or of the interfaces is uneconomical, and thus highly dispreferred.

In others words, if a functional head is merged without any featural triggers for movement, the only possible movement to it is that required to make syntactic structure legible to the interfaces. From a syntactic point of view, phasal categories like v and C are simply those categories born without featural triggers. That is part of what makes them special. I would like to suggest that, in addition to this, phasal categories bear a special relationship to cycles of PF-interpretation.

Having clarified what is special about movement to phase edges, what needs to be fixed down is a sense of how such movement can be driven by legibility conditions at the interfaces. I offer a sketch of a suitable approach, largely inspired by the Cyclic Linearisation approach of Fox & Pesetsky (2005).

6.3.2 Cyclic linearization and punctuated paths

The intuition behind cyclic linearisation is that the source of the punctuated paths is phases, understood as domain of linearisation processes. Movement through the edges of phases permits DPs avoid being linearised relative to other clausal material in that phase. The

syntax does not force such movements as such - they freely apply, but with a filter at PF. The filter concerns the nature of linearisation: if a DP is first merged in the embedded thematic domain, and then second merged in Spec, CP, multiple linearisation statements will be generated on the basis of c-command/sisterhood. Some of these statements will be contradictory, stating that the same element precedes and follows the same material in the matrix/embedded clauses. For example the matrix verb, or depending on the moved DP in question, the embedded subject.

(298) **The Cyclic Linearization Intuition**

a. The complement of v/C is linearized once vP/CP is complete.

b. DPs that do not move via v/C edges will create contradictory linearisation statements, e.g. $a < b$, $b < a$.

c. The Linearisation system does not tolerate, and has no way to resolve, contradictory linearisation statements.

To summarise, movement through phasal categories is driven in order to not commit too early to the linear status of certain elements.Elements that do not move to Spec, CP and Spec, vP are "frozen" in a quite different from the syntactic impenetrability considered by Chomsky (2001), Abels (2012) a.o. They simply have their linear information fixed, and once fixed, the linearization system cannot undo or contradict established linearization statements. Certain kinds of movement will inevitably create such statements if moved elements are linearized too early.[8] [9]

Cyclic Linearization, as Fox & Pesetsky (2005) present it, is not straightforwardly compatible with Parallel Derivation. Fox & Pesetsky assume that when vP is complete, i.e. when its specifier position is filled/when nothing more can be done, Spell-out occurs and structure is made visible to PF for linearization. On regular bottom up clausal embedding, this constrains movement out of a complement to V. If a DP at embedded Spec, CP does not move through matrix Spec, vP on its way to Spec, CP, contradictory linearisation

8. This has applications beyond punctuated paths for movement. Cyclic Linearisation can in principle provide an elegant account of e.g. Holmberg's Generalisation about object shift (Holmberg 1986, 1998).

9. We will see in the next section that movement of external arguments may not need to precede through a low phase edge local to its first merge site.

statements will be generated concerning that DP and the matrix V.[10]

If CP complements are embedded after the vP spell-out has occurred, movement out of CP should not be forced through matrix Spec, vP. This is because at the vP Spell-out stage, no linearisation statements have been generated relating matrix vP material and a DP within the embedded clause - there is no clause embedded within the vP at this stage. By the time the time a CP-clause is embedded, movement from embedded Spec, CP to matrix Spec, CP can proceed without stopping in Spec, vP. This is permitted because no linearisation statements have been generated up to this point between parts of the movement dependency and parts of the matrix vP. There is no contradiction to avoid.

(299) **Combining regular Cyclic Linearization and Parallel Derivation**
Movement out of CP to via matrix vP is no longer obligatory.

Suppose that we take the conclusion in (299) to be undesirable, particular in light of Dinka and Koryak. A possible move could be to introduce an asymmetry between CP and vP. Fox & Pesetsky assume that once each of these projections are complete, Spell-out is triggered and the structure is made visible/sent off to PF. Suppose instead that cycles of linearisation do not always coincide with cycles of Spell-Out: the complements of C and v are domains of linearization, but only the complement of C is domain for Spell-out.[11] This means that although linearization happens, in several stages within a single clause, these not all of these stages constitute domains for all processes at PF.

(300) **Tweaking Cyclic Linearization**

a. Spell-out is a precondition for linearization, but separate from it.

b. Only C denotes a cycle of Spell-out.

c. Spell-out occurs when no more operations can be done at the C-cycle, i.e. after

10. Fox & Pesetsky make certain crucial assumption about linearisation statements about a moved element. In particular, that linearisation statements are effectively calculated for the most recent instance of element merged multiple times relative to the current Spell-out cycle. When embedding from the bottom up, without Parallel Derivation, the most recent instance of moved DP will be the instance in embedded Spec, CP, relative to the vP Spell-out cycle.

11. We could imagine that the difference between languages like Dinka with obviously obligatory movement through the vP and languages like English could be the status of v. In English but not Dinla v would, like C, denote a cycle of Spell-out and linearization.

movement to Spec CP has occurred.

d. C and v each denotes a cycle of linearization.

e. Linearisation proceeds bottom-up, from embedded v to Embedded C, to embedded v … ultimately to matrix C.

The value in distinguishing Spell-out and Linearisation is this way is that when vP is complete, but clausal embedding hasn't occurred yet, linearization does not take place. This is because Spell-out itself will not be triggered for each CP until they themselves are complete. By the time that linearization of the matrix vP contents takes places, the embedded clause and its contents will be visible to this process. Unless a DP in Spec, CP is part of a chain going through matrix Spec, vP, that DP will have linear information established relative to the matrix vP contents, e.g. V $<$ DP. This information will ultimately contradict linear information established at the final cycle of linearisation, including DP $<$ V. The crucial consequences are summarised below in (301).

(301) **Crucial consequences of tweaked Cyclic Linearization**

a. The contents of the clause embedded inside matrix vP will be linearised relative to other material inside the matrix vP.

b. DPs moved from Spec, CP to Spec, CP not via matrix Spec, vP will create contradictory linearisation statements relative to material within the matrix vP.

c. Although free in the syntax, movement over vP must pass through its specifier.

Let's now return to the bigger picture of what's being proposed here. I have effectively distinguished what allows (certain) instances of movement apply (superficially) counter-cyclically, from what forces it in certain languages at least. What allows it, in compliance with the Featural Extension requirement, is something syntactically special about certain projections or cycles associated with those projections. In particular, movement to these projections does not violate the FER, because only to these projections is featurally free movement permitted. This syntactic property does not obviously reduce what forces movement through these projections. This latter issue has been taken to be the result of domains of linearisation, close in spirit to Fox & Pesetsky (2005).

(302) **The nature of (low) intermediate movement**

a. What allows it: only internal merge to Spec, vP and Spec, CP can be featurally-free, and is thus exempt from the Featural Extension Requirement.

b. What forces it: preventing moved DPs from being linearised too early and generating contradictory linearisation statements.

In the next subsection I address a loose-end of current approach to movement through vP, connected to the possibility of object agreement reflexes of that movement.

6.3.3 Constraints on object agreement reflexes of movement

Consider the derivation illustrated below in (303) in which movement proceeds out of embedded CP, via matrix Spec vP, and lands in Spec CP. Suppose that v bears [uφ], and that DPs occupying specifiers count as the most local suitable goals. Even if all these requirements are met, an Agree relation cannot be established between [uφ] and the DP moved out the embedded clause into its specifier. In order to embed a CP-complement, we have had to wait until the CP-cycle. By the time the CP-sized clause it is well past the v-cycle, the only cycle in which [uφ] could be representationally altered by a suitable goal.

(303) a. **Matrix clause, v-Cycle: [uφ] on v has no suitable goal**
$[_{vP}\ [v_{[u\varphi]}]\ ]$

b. **C-Cycle: CP-sized clause is embedded**
$[_{CP}\ \ldots [_{vP}\ [v_{[u\varphi]}]\ [_{CP}\ \ldots [_{vP}\ [DP]\ [v_{[u\varphi]}]]]]]$

c. **C-Cycle: DP moves through intermediate positions to matrix Spec CP**
$[_{CP}\ \mathbf{[DP]}_i\ \ldots [_{vP}\ \mathbf{[DP]}_i\ [v_{[u\varphi]}]\ [_{CP}\ \mathbf{[DP]}_i\ \ldots [_{vP}\ \mathbf{[DP]}_i\ [v_{[u\varphi]}]]]]]$

d. **C-Cycle: FER blocks Agree between DP in matrix Spec vP**
$^{*}[_{CP}\ \mathbf{[DP]}_i\ \ldots [_{vP}\ \mathbf{[DP]}_i\ [v_{[\varphi]}]\ [_{CP}\ \mathbf{[DP]}_i\ \ldots [_{vP}\ \mathbf{[DP]}_i\ [v_{[u\varphi]}]]]]]$

For successive cyclic movement to feed Agree relations, the relevant probes have to be introduced at the cycle at which the intermediate movement steps occur, or later. As a result we expect successive cyclic movement to feed C-level agreement, rather than traditional kinds of verbal agreement. In languages with agreement that exclusively targets

internal arguments, we do not expect such agreement to surface with movement through a low position. This prediction follows from Parallel Derivation and the FER.[12]

(304) **Predicted agreement reflexes of successive cyclic movement**

a. Possible: reflexes relating to matrix/embedded 'high' probes (e.g. on C)

b. Impossible: reflexes relating to matrix 'low' probes on (e.g. T/v)

There are potential counterexamples to this prediction, which Van Urk (2015) mentions in passing in support of φ-driven movement to Spec, vP. One case involves patterns of object agreement and movement in Hungarian. Van Urk cites data from Den Dikken (2009), display below in (305a), showing that apparent long distance focus fronting of an object personal pronoun can trigger person agreement in embedded predicates along the movement path. The availability of such person agreement is reiterated in Den Dikken (2018; 200, fn.5), though his focus there are on cases of definiteness agreement. In (305b) in embedding predicate definiteness agreement with the apparently moved wh-element.

(305) **Long distance dependencies and agreement in Hungarian**

a. Téged mondta-**lak** [$_{CP}$ hogy szeretné-**lek** [$_{CP}$ hogy elnök leygél]]
you.acc said-1sg→2 that would.like-1sg→2 that president be.2sg
'It is you that I said that I would like to be president.' Den Dikken (2009; 13)

b. Hány lány-t gondol-**sz**, hogy jön-nek a buliba?
how.many girl-acc think-2sg.indef that come-3pl the party.to
'It is you that I said that I would like to be president.' Den Dikken (2018; 196

Den Dikken (2018) argues extensively long distance dependencies like (305b) involve resumptive prolepsis, rather than genuine cross-clausal movement. The wh-element is base geneated in the higher clause, and agrees with the embedding predicate, and binds a null resumptive downstairs. Compared to sentences in which the matrix predicates do not agree with apparently moved element, Den Dikken (ibid; 13) reports that sentences

12. If this prediction holds, it is problematic even for approaches like Georgi (2014) in which successive-cyclic movement is driven edge features rather than regular Ā or φ-features. Parallel Derivation (and late embedding) seems to be crucial to getting something like Strict Cycle Condition to rule out these instances of agreement.

like (305b) are substantially better if their apparent base position is contained within a wh-island. If such contrasts extend to cases like (305a), we may be safe in concluding that they do not reflect agreement relations fed by intermediate movement through Spec, vP.

Let's wrap up this section. I have proposed that movement through the vP is permitted by FER, precisely because it is driven by requirements of the interfaces, rather than featural triggers. I have sketched out a way for this to work in terms of Cyclic Linearization. This approach makes predications about agreement-reflexes of movement which, if true, are entirely unexpected on many accounts of successive-cyclic movement. In the next subsection I address arguments that Van Urk (2015) makes in favour of featurally-driven movement to phase edges in Dinka.

6.4 Reconsidering feature-driven edge-movement in Dinka

Van Urk (2015) proposes that movement to intermediate positions is driven by exactly the same kinds of features that drives final steps of movement. There is clearly a tension then between the way I have tried to rule in movement through the vP, and the research program embodied in (306).

(306) **The Featural Uniformity Approach to Intermediate Movement**
Intermediate and final steps of movement are triggered by same kinds of features.

In this subsection I critically review, in a relatively involved way, the empirical motivation in Dinka given for Featural Uniformity. I show that there is, in fact, a clear asymmetry between movement to Spec, CP and Spec, vP in Dinka. This asymmetry is easiest to explain if movement to Spec, vP is driven purely by interface legibility.

6.4.1 V2 effects in the vP and their featural motivation

Let us recap the basic motivation for movement through the vP, outlined in more detail in §6.2.1. Ordinarily an internal argument DP must precede the verb, and when there are multiple internal arguments, either one (but only one) may occupy that pre-verbal position following auxiliaries. When one argument of a ditransitive is extracted, the pre-verbal position cannot be filled by the other argument. The pre-verbal position following auxiliaries must in certain cases be filled by an element ké/kéek, if the moved DP is plural. These effects hold of all vPs crossed over by the moved DP.

(307) **Recap: evidence for movement through Spec, vP in Dinka**

a. $[_{CP} \ldots [_{vP}\ DP_{DO/IO}\ V\ DP_{DO/IO}\ ]]$ V2 in vP - No movement

b. $[_{CP}\ \mathbf{DP}_{DO/IO} \ldots [_{vP}\ V\ DP_{DO/IO}\ \mathbf{t}\ ]]$ V1 in vP - DO/IO movement

c. $*[_{CP}\ \mathbf{DP}_{DO/IO} \ldots [_{vP}\ DP_{DO/IO}\ V\ \mathbf{t}\ ]]$ DO/IO remaining in vP cannot be pre-verbal

d. $[_{CP}\ \mathbf{DP}_{Pl} \ldots [_{vP}\ *(\text{ké})\ V\ DP\ \mathbf{t}\ ]]$ If moved DP is PL, ké/kéek appears before V

The featural motivation for movement to vP depends on two subtleties of the Dinka extraction patterns and V2 effects that I have so far set aside. These concern interactions

with PPs and with different kinds of embedded clauses. For the sake of space I restrict my attention to behaviour of PPs.

Low PPs such as locatives and instrumentals behave differently from regular DPs. They do not satisfy the V2 in the vP requirement. In a intransitive vP with such PPs, nothing will occupy the pre-verbal position. In a transitive or ditransitive vP, one of DPs must occupy this position. Consequently, when PPs are extracted we do not find an obligatory V1 effect - where possible another internal argument must occupy the pre-verbal position. With PPs containing a plural DP we still find ké-copying, suggesting they do move through the vP.

(308) **PPs and V2 effects in Dinka**

a.	S Aux $[_{VP}$ (*PP) V PP $]$	V1 in Intransitive VP
b.	S Aux $[_{VP}$ O V PP$]$	V2 in Transitive VP
c.	*S Aux $[_{VP}$ PP V O$]$	V2 in Transitive VP
d.	**PP** Aux S $[_{VP}$ O V **t**$]$	V2 in Transitive VP with PP extraction
e.	***PP** Aux S $[_{VP}$ V O **t**$]$	Impossible V1 in Transitive VP with PP extraction
f.	**PP**$_{PL}$ Aux S $[_{VP}$ *(ké) O V **t**$]$	ké-copying with plural instrumental extraction

Van Urk (2015) and Van Urk & Richards (2015) propose that the behaviour of PPs follows from the combination of probes/featural triggers to drive movement to Spec, vP. They assume that there are two probes $[u\bar{A}]$ and $[u\varphi]$ on v. The V2 requirement in the vP is the result of $[u\varphi]$ attracting a suitable goal DP with $[\varphi]$.[13] Crucially it is assumed that PPs that opaque to probing, meaning that any $[\varphi]$ features contained inside them cannot be accessed by v. In a vP without any accessible DPs nothing will be attracted - something that is permitted if Agree must be triggered but may fail (e.g. Preminger 2011, 2014).

(309) **Deriving PP and V2 interactions: the Featural Approach**

a. v is endowed with $[u\bar{A}]$ and $[u\varphi]$.

b. Best Match: An active probe P enters into an Agree relation with the closest syntactic object that matches in the most features (c.f. Coon & Bale 2014; 99)

13. Instead of φ-features, Van Urk & Richards (2015) assume that v is endowed with [uCase]. The choice isn't idle since Dinka is a language with object agreement - committing to the φ-feature approach achieves uniformity with C, but at the cost of mysteriously null exponence.

c. PPs are opaque to probing from [uφ].

d. Consequence: in a vP containing a DP and a PP with [Ā] , [uφ] will attract the DP and [uĀ] will attract the PP.

The most important reason to doubt the Featural Approach concerns the different properties PPs have at the CP and vP-level. To appreciate this, let's consider the behaviour of movement through intermediate Spec, CP - something we have so far set side.

6.4.2 V2 effects in the CP and their featural motivation

The basic empirical motivation for movement through Spec, CP in Dinka is that, like in German, an otherwise obligatory clausal V2 requirement is replaced with an obligatory V1 requirement in the context of long-distance movement.[14] The intuition, as outlined above in context of V2 in the verbal domain, is that the V2 requirement is never actually suspended - it is merely satisfied by a intermediate copy of moved DP. The basic contrast is represented schematically below using long object movement.

(310) **Evidence for movement through Spec, CP in Dinka: Obligatory V1**

a. $[_{CP} \ldots V\ [_{CP}\ DP_{Sbj}\ (AUX)\ V\ DP_{Obj}\ ]]$ Embedded V2 - No long movement

b. $[_{CP}\ \mathbf{DP}_{Obj} \ldots V\ [_{CP}\ AUX\ DP_{Sbj}\ V\ \mathbf{t}\ ]]$ Obligatory Embedded V1

c. *$[_{CP}\ \mathbf{DP}_{Obj} \ldots V\ [_{CP}\ DP_{Sbj}\ AUX\ V\ \mathbf{t}\ ]]$ Embedded subject cannot be clause intial

Two factors co-occur with the obligatory embedded V1. Even when there is no overt DP in clause initial position, where controllers for C-level agreement are usually located, the auxiliary displays φ-agreement with the moved DP. In addition to this connection with agreement, there is an English-like resistance to having overlapping Ā-dependencies. This means that, for example, long wh-movement is incompatible with topicalisation to embedded clause edge (ibid; 139), and wh-movement and topicalisation cannot occur to the same final position (ibid; 140).

14. Independently of extraction some complementisers permit V1 or V2, others require V2 and still others require V1 (van Urk 2015; 129-132).

(311) **Motivation for featurally-driven movement through Spec, CP in Dinka**

a. Moved DP controls C-level agreement/Voice morphology.

b. No overlapping $\bar{A}$-dependencies.

van Urk supposes support this movement being driven by a combination of [$\bar{A}$, φ], looking for the closest DP with some kind of [$\bar{A}$] property (e.g. TOP, REL, WH) and φ-features. Van Urk assumes that this connection between movement and agreement follows if the agreement probe is part of the trigger for movement.[15] The ban on overlapping dependencies is modelled as a kind of Agree-related Minimality (Rizzi 1997, 2004; Abels 2012): only the closest DP bearing any kind of [$\bar{A}$] feature can be attracted to the edge.[16]

(312) **Modelling featurally-driven movement through Spec, CP in Dinka**
[uφ] and [u$\bar{A}$] on intermediate C jointly drive movement to Spec, CP.

We have now seen V2 effects at the VP and CP level, and their putative motivation under a Featural Uniformity Approach. We are now in a position to appreciate the asymmetric behaviour of PPs that is unexpected on the Featural Uniformity Approach.

6.4.3 The Double Problem of PPs

The crucial observation is that, although PPs do not trigger V1 effects at the vP level, they do trigger them at the CP-level. This suggests that PPs do also move through Spec, CP but it raises questions about the precise source of the V2 effects. Since PPs are opaque to φ-probing, [uφ] on C should be able attract something independently of [u$\bar{A}$], exactly as happens at the v-level.

(313) **The Puzzle of PPs and CP-level V1**

a. **PP** … [$_{CP}$ Aux S O V **t**] Obligatory Clausal V1 w/ PP extraction

b. ***PP** … [$_{CP}$ S/O Aux V **t**] No DP may occupy the initial position

15. If C-agreement were a Spec-Head process, we would simply infer that the movement triggers agreement.
16. It must be assumed that embedded C in Dinka can only ever carry this underspecified [$\bar{A}$] feature. If it could also carry additional more specific triggers, we would expect multiple DPs to be carried to the edge.

van Urk has an explanation for this asymmetry that is tied to Dinka's Voice system (Van Urk 2015; 74-78, 171-172). Certain PPs (instrumentals, directionals, possessives) seem to be able to appear in a clausal inital position and control C-level agreement, but only in the presence of a suffix on a local auxiliary or verb. This suffix e/ne, which is termed Oblique Voice, is homophonous with a default preposition that normally occurs with these PPs. When such PPs occupy the clause initial position they cannot display the e/ne they normally would in their base-position. Van Urk proposes that the Oblique Voice suffix is just the preposition e/ne that has been syntactically incorporated into C. This process of incorporation renders the DP complement of the P visible to the φ-probe on C, which then attracts the DP to Spec, CP.

(314) **Oblique Voice marking: taking away intervening PP structure?**

a. S Aux O V [$_{PP}$ ne DP] Some low PPs feature P e/ne

b. (*ne) **DP** Aux*(-**ne**) S O V **t** Complement of PP can move to Spec, CP

c. Van Urk's analysis: i) P moves to C ii) The DP complement of the P is now visible to [uφ] on C iii) The DP complement moves to Spec, CP.

There are two objections that can be raised against appealing to Oblique Voice as van Urk does. On a theoretical/analytical level it is not clear how the incorporation of P to C creates transparency. Remerging P with C does not obviously remove, in any syntactic sense, the instance of P that was first merged with a DP. That instance of P will still exist downstairs and should still block φ-probes on v and C from reaching the DP complement of P. In other words, van Urk does not provide a theoretically explicit account of asymmetry of *prima facie* PPs at CP and vP level.

More importantly, there are PP adjuncts which cannot trigger Oblique Voice marking, but otherwise have the same characteristics as those that do. That is, they do not satisfy the V2 requirement at the vP level, but they do satisfy the CP-level V2 requirement. These PPs, mentioned by both Van Urk (2015) and Van Urk & Richards (2015), often seem to be locatives. A couple of concrete examples are given below. These kinds of examples suggest that PPs in Dinka do not always need to have their outer layer stripped away so that their complement can occupy Spec, CP.

(315) **Wh-adjunct movement** (Van Urk 2015; p133, ex. 9ef)

Yè **tɛ̈-nó** [$_{CP}$ *Op* yùu̇kù luêeel [$_{CP}$ è ___ cíi wɔ́ɔk càm ___]]?
be **place-which** HAB.1PL say.NF C PRF.OV we.GEN eat.NF
'Where do we say that we have eaten ___?'

*Yè **tɛ̈-nó** [$_{CP}$ *Op* yùu̇kù luêeel [$_{CP}$ è cuîin (à-)cíi wɔ́ɔk câam ___]]?
be **place-which** HAB.1PL say.NF C food (3S)-PRF.OV we.GEN eat.NF
'Where do we say that we have eaten food ___?'

(316) **Locative adjunct topicalization** (Van Urk & Richards 2015; 120, ex.12c)

Rɔ́k à-bíi Áyèn álèth ɣɔ́ɔc Bòl.
town 3SG-FUT.NS Ayen.GEN clothes buy.DTR Bol
'Ayen will buy Bol clothes at the town.'

Consider what this means in terms of feature driven analysis of movement to C. The locative PPs in question must be being attracted by the [uĀ] on C alone, since [uφ] cannot see inside them. Notice, crucially, that [uφ] on C does not get another chance to probe and attract something else. That is, it must behave fundamentally differently from how [uφ] on v is characterised. In that case the probe will try and fail to access the structure inside the PP, and then try probing again once this fails. This all suggests that Van Urk (2015)'s argument that movement to Spec, vP and Spec, CP work in precisely the same way is too strong. Some kind of asymmetry has to be conceded.[17]

I propose that following asymmetry in (317) captures van Urk's basic insights. In short the idea is that there is isn't a unified source of V2 effects in Dinka. The clausal level one is driven by featural requirements of C; probing at least by some kind of [Ā]. By contrast movement to Spec, vP is driven legibility requirements at PF, ultimately concerning linearization. This difference ought to address different status that PPs have at each edge.

(317) **Rethinking the featural status of movement in Dinka**

a. Movement to intermediate and final Spec, CP is minimally driven by [Ā].

b. Movement to Spec, vP is only driven by PF-legibility requirements.

In the next subsection I offer a way of deriving V2 in the VP that builds on our discussion of PF-legibility conditions in §6.3.

17. Intuitively this is also suggested by the fact that ke-copying only ever happens at the vP-level.

6.4.4 Deriving V2 in the VP without featural triggers

Here I want to sketch an extension of the Cyclic Linearization intuition outlined above. With an additional ingredient, a notion of distinctness borrowed from Richards (2010), I believe this can derive V2 effects in Dinka (with and without successive cyclic movement). Crucially we do not need to invoke featural triggers as Van Urk does, and can therefore maintain an approach to successive cyclic movement compatible with the Williams Cycle.

Let's start by outlining the new ingredient. Richards (2010) explores the idea that sufficiently similar syntactic objects cannot be too close to each other. That is, some kind of syntactic equivalent to the Obligatory Contour Principle (Odden XXXX) in phonology. Richards takes this to be a fundamental property of the linearization system, that precedence relations require the elements related to be non-identical.[18] This might not seem that constraining, unless we limit what the linearization system sees. Suppose that the system cannot see roots or featural information, e.g. number. It only sees categorial information. Suppose further that the linearization takes places before vocabulary insertion, meaning that the input to phonology cannot be used either to distinguish syntactic objects.

(318) **The Distinctness Intuition**

a. Linearization system crashes on generating a $<$ a (a precedes a).

b. Linearization system only sees syntactic category labels.

c. Linearization precedes Vocabulary Insertion (Arregi & Nevins 2012).

Consider a simple transitive VP with two DPs. One of them could be singular, the other plural. Suppose that VP, that is the *whole thematic domain*, constitutes a domain for linearization. It is thus the complement to a phase head which we will call v.[19] Abstracting away from a number of important details, appreciate that making the assumptions in (318) will lead the linearization system to generate the fatal a $<$ a statement. The restriction imposed is essentially that no more than one instance of the same category may occur in a given linearization domain.

18. This is arguably a conceptual point about spatial relations. What would it even mean for a to precede b, if a and b were the same entity (and not e.g. distinct parts of the same entity)?

19. This is crucially different from Van Urk's assumption, along with many others, that the lower phase boundary occurs within the thematic domain. I return to this issue in due course.

(319) **Illustrating a distinctness problem**

a. [$_{vP}$ v [$_{VP}$ [$_{DP}$ The dogs] [[$_{V}$ snatch] [$_{DP}$ the pizza]]]] Linearization Domain

b. What linearization sees: [[DP] [V [DP]]]

c. Fatal linearization statement generated: DP $<$ DP

Suppose this feature of linearization serves as a kind of output effability condition of syntactic structures. How could we built VPs with multiple DPs, for example, while creating linearly legible structures? Richards suggests that grammars employ different strategies for creating distinctness. I focus on just one strategy here - movement - setting aside for the moment matters of timing. Suppose that, just as we discussed above, movement to the edge of VP and CP domains prevents a DP being linearized in that domain. Again suppose that low parts of a chain are not visible to linearization.[20]

(320) **Movement and distinctness**

a. DPs at the edge of the linearization domain are not linearized in that domain.

b. Assumption: Lower parts of a chain are not visible to linearization.

c. Consequence: there is a pressure to move instances of same category into separate linearization domains.

For illustrative purposes consider a situation in which the external argument DP moves the edge, Spec, vP and then linearization statements are generated. Given the assumptions above, the linearization system will only see one DP within the domain and thus not generate the fatal linearization statement.

(321) **Illustrating a distinctness solution**

a. [$_{vP}$ [$_{DP}$ The dogs] v [$_{VP}$ **t** [[$_{V}$ snatch] [$_{DP}$ the pizza]]]]

b. What linearization sees: [[V [DP]]]

This basic relationship between movement and distinctness is what I want to exploit to derive V2 effects in Dinka. It is internal argument DPs in Dinka that move to Spec,

20. While something like this assumption must be made to get any cyclic linearization account of the ground, it is clear that this is a simplifying assumption. It does seem that lower parts of movement chains are pronounced in some cases, and thus factored into linearization (e.g. Nunes 2004, Van Urk 2018, Scott 2021).

vP, to avoid generate fatal linearization statements. These statements would be generated not just when there are multiple DP internal arguments. They would also be generated in the presence of external and single internal argument. This is why we find V2 effects in simple transitive VPs but not intransitive ones.[21] PPs do not need to move to Spec, vP because there is no danger of the linearization system confusing PPs for DPs.

(322) **The source of V2 in the VP in Dinka in a nutshell**

a. Internal and external arguments are not distinct within the thematic domain.

b. Assumption: Only internal arguments can move to Spec, vP.

c. PPs are categorially distinct from DPs, and thus distinct for linearization.

The nutshell view needs to be enriched to address a number of obvious questions. The first is why PPs cannot move to Spec, vP unless they are going to ultimately land in Spec, CP. I believe this goes back to the assumption made in §6.3.1 that movement without a featural or interface motivation is uneconomical. A single PP within a VP does not suffer from a distinctness problem, so movement to Spec, vP does not make the structure anymore legible to the interfaces.[22]

(323) **Why is Spec, vP never a final landing site for PPs?**
Such movement does not satisfy interface requirements, i.e. there is no distinctness problem, making it uneconomical and thus strongly dispreferred.

The second question concerns the restriction on external arguments accessing Spec, vP. The puzzle here is a somewhat Dinka-specific one, in the sense that this restriction is required (all other assumptions being equal) to derive the V2 in the VP effect. If external arguments could move to Spec, vP then that would obviate the need to move internal arguments there. The peculiarity of Dinka, and other languges with V2 in the vP, is the relative location of lower phasal projection vP and the external argument introducing projection VoiceP. In particular, I assume that movement is subject to a Spec-to-Spec Anti-locality

21. This is also why, analytically, it's important that the linearization/phasal domain includes the external argument. We need something to force the movement with resorting to featural triggers.

22. Unless, that is, we want the ultimate landing side to be higher than other arguments originating in the vP. Then the cyclic linearization logic will force us to move the PP through all the edges to its final destination, so that it does not get linearized too early and create contradictory linearization statements.

requirement (e.g. Erlewine 2016). This means that movement must cross one maximal projection distinct from its launching site. The result is that external arguments are too close to Spec, vP to reach it.

(324) **Why can external arguments not land in Spec, vP?**

a. Assumption: Movement is subject to a Spec-to-Spec Anti-locality requirement (e.g. Erlewine 2016)

b. The external argument is too too close to Spec, vP to move it.

The third question concerns the contents of the thematic domain, once something has moved to Spec, vP. In a distransitive VP, one of the internal arguments needs to occupy a pre-verbal position, Spec, vP, for reasons of distinctness (and restrictions on external argument movement). This will still leave two DPs, the external argument and the remain internal argument within thematic domain. How does this not yield a distinctness violation? The answer concerns the timing of transfer and linearization discussed in §6.3.2. The complement of v is not, in fact, linearized as soon as vP is complete. Only C denotes a cycle of transfer to PF, after which structure is linearised bottom up in cycles delineated by v and C. This means that there still time once vP is complete for the external argument to move to e.g. Spec, TP. By the time that linearization of the complement of v takes place, there will just be a single DP remaining inside.

(325) **What stops distinctness violations in ditransitive VPs?**

a. The vP is not linearized until CP is complete.

b. After vP is complete, there is time for Ext Arg to move Spec, TP.

c. Only a single unmoved Int Arg DP will be left in the thematic domain.

To rule in cases of low intermediate movement, whilst keeping the present derivation of the Williams Cycle, it has been necessary to appeal to movement driven by legibility requirements at the interfaces. This movement does not involve representationally changing features, and thus can happen at later cycles when when landing sites are introduced without violating the Featural Extension Requirement. I now want to briefly consider whether the same basic logic can be extended to cases of low final movement.

6.5 Tentative extension to low final movement

In this section I consider how we could extend the basic solution suggested to make low intermediate movement unproblematic for the Williams Cycle. Rather than appealing to legibility at PF, I suggest appealing to semantic composition

6.5.1 The problem of hyperraising

In retrospect it is surprising to see the impossibility of raising, to subject or object, out of finite clauses as an key problem for something like Improper Movement or the Williams Cycle to address. Plausible cases of hyperraising, i.e. raising of finite or CP-sized clauses, are increasingly identified in a diverse range of languages.[23] One strategy, that has been suggested to me, would involve restricting the GBOIM to classic cases of $\bar{A}$-movement, such as topicalisation, relativisation and wh-movement. This would leave varieties of raising relatively unrestricted, which may turn out to be the crosslinguistic norm.

(326) **A first pass solution**
The GBOIM applies only to $\bar{A}$-movement.

This way of weakening the Williams Cycle does not ultimately strike me as right course of action. Although there are plenty of instances of hyperraising, allowing A-movements to GBOIM-free by virtue of being A-movements risks overgenerating. After all, raising in some languages is still clause-bound, as are instances of A-type scrambling in Hindi (CITATION) and Japanese (CITATION). There is also the general theoretical issue how one could, in a principled fashion, separate out $\bar{A}$-movements from A-movements for different treatment according to some version of the Extension Requirement. We run the risk of reifying ever more the distinction, in terms of e.g. $[\bar{A}]$ and $[A]$-features, which would be theoretical preferable to dissolve if possible.

I believe there is plausible intuition here, but that it isn't specifically about $\bar{A}$-movement being GBOIM-compliant and A-movement not. Instead I suggest that a subset of what we descriptively call A-movements are exempt from the GBOIM. They are exempt for the same basic reason that movement through phase edges may be exempt: the movement is

23. See for example the recent view empirical cases to date in Zyman (2023) and Lee & Yip (2024).

driven by interface legibility. While it could conceivably involve the same linearization-based motivation sketched above, I want to suggest a further motivation from the LF-branch. Some movement is driven purely to ensure type match, or the saturation of a function's arguments. This is inspired by recent work on the semantics of clausal complementation connected to putative instances of hyperraising (e.g. Moulton 2019, Bondarenko 2020, Driemiel & Kouneli 2024). The basic idea explored in these works is that the availability of hyperraising is connected to complement clauses being type $< v, t >$.

(327) **How is low final movement compatible with the Williams Cycle?**
Low final movement in some languages is *exclusively driven* by interface legibility conditions. For example, movement just to ensure matching semantic types.

If this approach is on the right track, it suggests that there ought to be two empirical correlates to hyperraising. On the one hand there should be a sensitivity to properties of the matrix predicate, perhaps that hyperraising only occurs with a particular semantic class of predicates or that when it does occur, there is some additional change in meaning. On the other hand, there should be some sensitivity to properties of the complement clause, perhaps to a particular complementiser or kind of verbal morphology. Parts of this dual signature are suggested in existing work on hyperraising of individual languages.

(328) **The dual sensitivity of purely semantically-driven hyperraising**

a. Matrix predicate type: semantic class, argument-introducing morphology

b. Embedded clause type: complementisers, clause structure, verbal morphology

Passamaquoddy (Algonquian) has patterns of prima facie hyperraising-to-object which have been discussed by Bruening (2001, 2009), LeSourd (2019) and Grishin (2022, 2023).[24]

24. Similar patterns have been observed in other Algonquian languages, e.g. Innuk-Amun (Branigan & McKenzie 2002). An important clarification is needed here concerning the distinction between long-distance agreement and hyperraising. Both of these phenomena involve the matrix predicate agreeing in number with a DP within the embedded clause. This DP is also relevant to patterns of obviation in the higher clause, even though may not overtly surface there. The hyperraising pattern specifically concerns the cases where only the highest embedded argument can control aspects of the matrix predicate agreement/obviation. Given the tight constraints on Agree imposed by the FER, regardless of how movement is driven, there are potentially tricky issues in analysing the patterns of agreement.

The appearance of HRtO is sensitive to both properties of the embedding predicate and the embedded clause. In the most thorough study of these patterns to date, Grishin (2023) identifies a semantic class of predicates that take situation or event complements (in the terminology of Wurmbrand & Lohninger 2022). He also shows the specific role played by a particular morphosyntactic class of complements, called *subordinatives* in the Algonquiuan literature. Such complements are morphosyntactically impoverished compared to other classes of complement clauses in the language.

(329) **Constraints on hyperraising-to-object in Passamaquoddy**

a. HRtO signalled by matrix agreement/obviation patterns.

b. HRtO restricted to verbs taking situation/event complements.

c. HRtO restricted to subordinative (TP-sized) complements.

Patterns of hyperraising to subject in Cantonese and Vietnamese, recently discussed by Lee & Yip (2024), also display an intriguing sensitivity to properties of the matrix predicate. The kinds of predicates that permit hyperraising are all attitude predicates which encode *indirect evidentiality* (ibid; 8). That is, the source of the speaker's information about embedded proposition is indirect, and the speaker is not comitted to the truth of embedded proposition. Thus Cantonese verbs like *zidou* 'know' do not permit hyperraising, whereas verbs like *gugai* 'guess' do. Complements of hyperraising predicates can bear tense/aspect marking and show other indications that they are not particularly truncated.

(330) **Constraints on hyperraising-to-subject in Cantonese and Vietnamese**
HRtS requires the embedding predicate to encode indirect evidence.

In the next section I want to briefly consider the implications of this approach to hyperraising for more garden-variety instances of raising-to-object in English.

6.5.2 Raising-to-object in English

A more simple kind of objection has been raised against the GBOIM using familiar patterns concerning English infinitives. These are the *accusativus cum infinitivo* (ACI)-complements, the standard generative analysis of which is raising-to-object (Postal 1974, Lasnik & Saito 1993).

The construction featuring ACI complements has a couple of key features. The first is that there is a DP, following the matrix verb, which can only take an accusative form. The second is that this DP is interpreted as the thematic subject of the infinitive complement that verb takes. Given that accusative case is otherwise displayed only on internal arguments of verbs in English, this is the initial motivation for thinking that the post-verbal DP bears a close structural relationship with the matrix verb. Another very suggestive feature of these constructions, observed by Postal (1974), is that matrix adverbs and particles can follow the accusative-marking DP.

(331) **Introducing ACI complements**

a. V DP_{ACC} (PP/AdvP/Prt) *to* V DP

b. I believe him to be a coward.

(332) **Adverbs and particles may follow the ACI DP**

a. I believe **Boris** [with all my heart] to be a coward.

b. I made **Boris** [out] to be a coward.

Suppose that we accept the standard analysis of ACI-constructions with raising to object.[25] That is, movement of the accusative-marked DP from the embedded infinitive to somewhere below TP in the matrix clause. Given what has so far been said about raising being featurally-free in some languages, one might wonder whether we could apply the same reasoning here. That is, movement to e.g. Spec, vP out of an infinitival complement is permitted because it is driven interface legibility.

(333) $[_{TP}$ [I] $[_{VoiceP}$ believe $[_{vP}$ [him] $[_{YP}$ to $[_{VoiceP} \ldots$ **t** be a coward $\ldots]]]]]$

There is salient issue for this kind analysis. If the movement to Spec, vP is featurally free, then it ought to be possible for it proceed out of a CP-sized complement. It shouldn't matter how long one has to wait to do the movement, since there would be no featural

25. Not all alternative analysis of ACI constructions are straightfoward to adopt under the GBOIM. Neeleman & Payne (2020) propose that there is rightward movement of the complement to the matrix predicate. Depending on the analysis of this rightward movement it might well violate the FER.

triggers to trouble the FER with. Yet we can see below in (334) that English robustly disallows instances of hyperraising-to-object. How to handle absence of hyperraising to object in English depends on the details of interface legibility analysis. If the movement is driven by reasons semantic composition, it could be that only infinitival clauses are of relevant semantic type. There is parallel here with Passamaquoddy: RtO is permitted out of finite clauses, unlike English, but only the most truncated kind complement.

(334) **No hyperraising to object in English**

a. I expected with good reason that he would leave.

b. *I expected him with good reason would leave.

If we want to preserve the idea that ACI complements are derived by featurally-driven movement, we could adopt the alternative in (335b), which resembles the analysis of ACI complements proposed by Lasnik & Saito (1991). This involves expanding the number of projections between subject position and the thematic domain, and increasing the height of 'verb movement'. This gives room for a DP to move into a post-verbal which is at the same height or higher in the functional sequence as the edge of the infinitive. The general logic here is to reject to assumption that infinitives are always the same size as the projection hosting subjects (e.g. TP).

(335) **GBOIM compliant raising-to-object**

$[_{TP}$ [I] $[_{XP}$ believe $[_{YP}$ [him] $[_{VoiceP}$ $[_{vP}$ $[_{YP}$ to $[_{VoiceP}$ … **t** be a coward …]]]]]]]

The viability of trying to reduce all low final exceptions to the GBOIM ultimately depends on the careful syntactic and semantic analysis of cases of hyperraising. Clearly this is work to be done, and what I have offered here is merely a direction of travel. This direction seems worthwhile nonetheless, because it offers a chance at a unified account of all exceptions to the GBOIM as featurally-free instances of movement. Making a lot hinge of the distinction between feature-driven and feature-free movement offers us to way weaken the Williams Cycle, without undermining the central patterns that motivate it.

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