Non-finite Complementation: A case study of Bùlì

by

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Abstract

This dissertation analyzes a number topical issues in Bùlì syntax as a way of contributing to both the theoretical and typological literature in the area of clausal complementation, control, serial verb constructions, and temporal markers. Among the questions addressed are (1) Does Bùlì possess non-finite clauses? (2) How should serial verb constructions be analyzed? (3) Are the temporal remoteness markers in Bùlì tense markers? This dissertation represents an attempt to provide partial answers to these questions for Bùlì, a Mabia (Gur) language spoken in Sandema in the Upper East Region of Ghana. While the main concern of the dissertation is Universal Grammar (UG) and linguistic typology, I have, in the discussions, provided a substantial amount of descriptive as well as analytical material concerning these aspects of the grammar of Bùlì. The main claim of the dissertation is that Bùlì possesses two kinds of non-finite complements: (1) Non-finite complements with obligatory overt pronominal subjects that must be co-indexed with matrix argument, (2) Non-finite complements at allow full DPs in their subject position. Also, it reviews the properties of serial verb constructions and argues that they are best analyzed as instances of coordination. Finally with regards to the temporal remoteness markers, it argues that they are optional tenses.

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Chapter 1

Introduction

Non-finite complementation constructions have presented intriguing and challenging puzzles for linguistic theory in general and generative grammar in particular. This dissertation focuses on two of them: what is the size of the non-finite clause and what is responsible for control phenomena in such clauses?

It has long been observed that non-finite clauses (the bracketed part of (1-a)) disallow overt subjects in many languages, and depend on another argument in the matrix clause for reference. This contrasts with the behavior of the embedded finite clause in (1-b)) which allows an overt subject 'he' that could either depend on the matrix subject 'John' or another salient entity in the discourse for its reference.

(1) a. John$_i$ remembered [*he$_{i/j}$ to buy a book]
b. John$_i$ remembered [that he$_{i/j}$ bought a book]

The most widely accepted views of clausal complementation and the phenomenon of control (1-a) have been developed mostly on the basis of research on a small number of typologically similar languages. The fact that overt subjects are generally banned in non-finite complements (1-a) in these languages, for example, has been taken by some as evidence that infinitives are bare VPs, i.e. lacking a syntactic subject altogether (Bresnan, 1978; 1982; Chierchia, 1984; Dowty ,1985; Wurmbrand, 2003; Jackendoff and Culicover, 2003 among others). Another family of approaches

(Chomsky, 198; Manzini 1983; Landau, 2000; 200; 2013; Hornstein, 1999; 2001 among others) recognizes the presence of a syntactic subject in infinitives —but attributes its non-overtness either to licensing properties particular to a null pronoun (PRO) or to the pronunciation of lower copies in movement-produced chains (in theories where control is a result of movement). Because of the phonological invisibility of the subject of many infinitival clauses in well-studied languages, the true nature of this element (including its very existence) remains a largely unresolved research question.

This dissertation presents a case study of non-finite clauses in Bùlì, which I believe may provide partial answers to these questions. Bùlì is a language in which the controlled element is overt and lexicalized in a demonstrably non-finite clause. I will use the facts of Bùlì to argue that non-finite clauses are at least as big as a TP with an embedded subject (Rosenbaum, 1967; 1970; Chomsky and Lasnik, 1993; Hornstein, 1999; Landau, 1999), and that it is completely reasonable to pin the phenomenon of obligatory control or control in general on a real syntactic subject. An overview of the dissertation is presented in the following section.

1.1 Overview of dissertation

While many of the chapters of the dissertation can be read in isolation, the dissertation as a whole is organized into four parts: the first part (Chapter 2) is concerned with the morphosyntax of pronouns; the second and most substantial part (Chapters 3-5) investigates finite and non-finite clauses; the third part (Chapter 6) examines serial verb constructions (SVCs); and the fourth part (Chapter 7) looks at temporal remoteness markers (TRMs). The following subsections summarize the main points of each chapter.

1.1.1 Chapter 2

I start by providing an overview of the morphosyntax of pronouns, showing that Bùlì presents empirical support for treating pronouns as DPs, and in particular, for pronouns as determiners with an elided NP. Secondly, I argue that distributional

properties of pronouns in the language show that Bùlì has pro-DP and pro-ϕP pronoun types, along the lines of Dechaine and Wiltschko (2002). The classification of pronouns into pro-DP and pro-ϕP explains their distribution and treatment in the syntax. This chapter lays the foundation for the distribution of pronouns in the subjects of non-finite clauses in Chapter 4.

1.1.2 Chapter 3

I take up the topic of tonal inflections and finiteness in this chapter. The chapter provides a broad overview of relevant background information on the Bùlì verbal domain and clause structure. I argue that Bùlì requires a more articulated structure for TP, including two functional heads that I will call INFL1 and INFL2. INFL1 corresponds to the standard IP and is the locus of the EPP. INFL2, on the other hand, is the locus of generalized finite/non-finite marking on the clause. I demonstrate that this more articulated structure for TP is key to the explanation of the inflectional properties of verbs in Bùlì, as well as a variety of syntactic phenomena relevant to clause embedding. In particular, the split articulated structure is crucial to understanding the sources of tones and the various tonal patterns we observe.

1.1.3 Chapter 4

In this chapter, I focus on embedded clauses and argue for the existence of non-finite clauses in Bùlì. Certain classes of embedded clauses show different tonal patterns from finite clauses. I argue that these clauses are non-finite. In particular, INFL2 in these clauses is marked with a distinct non-finite [M] tone. In addition, such clauses exhibit an array of properties often associated with non-finite clauses in languages with overt non-finite marking. However, what makes the non-finite clauses that we discuss in Bùlì different is that they require an overt pronominal subject with an obligatory c-commanding argument as their antecedent in the matrix clause.

1.1.4 Chapter 5

This chapter builds on the conclusions from Chapter 4, where it was noted that control sentences in Bùlì show overt controlees without any focus requirement of the sort found in other languages where overt controlees have been found. I present an account of how non-finite clauses and their overt pronominal subjects are to be analyzed in Bùlì. I propose that the overt pronominal subject (the controlee) is a bound pronoun. As a bound element, it starts its life in the syntax as an index or variable, with no phi-features (Kratzer, 1998; Heim and Kratzer, 1998; von Stechow, 2003; Schlenker, 2003; Heim, 2008), or as a minimal pronoun (Kratzer, 2009; Landau, 2015). As an index lacking features in the syntax, it has to be bound. Its form at PF reflects the features it inherits from its binder, the controller. Thus, though the controlee has the same form as a referential pronoun, its genesis is different from that of a referential pronoun. Namely, it starts the derivation with no features at all, while its referential counterpart starts the derivation with all of its features present.

1.1.5 Chapter 6

This chapter is concerned with the description and analysis of serial verb constructions (SVCs). I review the properties of SVCs in Bùlì and argue that they are instances of coordination. In doing so, I am echoing analyses of SVCs which consider the predicates in SVCs to be independent lexical verbs capable of introducing and theta-marking their own arguments.

1.1.6 Chapter 7

In the final chapter, I investigate in detail both the syntax and semantics of temporal remoteness markers (TRMs) found in Bùlì. These are optional morphemes which indicate the relative degree of pastness of a situation (from the utterance time). I argue that these TRMs are optional tenses, thus making the language an optional tense language.

1.2 Overview of Bùlì

1.2.1 Genetic affiliation and dialectal differences

Bùlì is a vulnerable language of the Gur (Mabia) group of languages in the larger Niger-Congo family spoken as a first language by about a 100,000 people who live mostly in Sandema in the Upper East Region of Ghana, West Africa. It has three main dialects: Central, Southern and Northern dialects. The thesis focuses on the Central dialect though there are plans to extend the research to cover both the Southern and Northern dialects.

1.2.2 Previous works

A comprehensive description of the grammar of Bùlì does not exist. Publications concerning the the language include dictionaries by Mélançon and Prost (1972), Kröger (1992), a collection of papers by (Kenstowicz and Akanlig-Pare, 2002), masters theses and PhD dissertations by (Akanlig-Pare, 1994; Sulemana, 2012) and (Akanlig-Pare, 2005; Hiraiwa 2005) respectively, and a limited number of articles, including Akanlig-Pare (1997,1999), Schwartz (2003), Hiraiwa (2005), and Sulemana (2019a,b; 2020). Publications in Bùlì include a volume of folktales (Schott 1993), a New Testament translation, and an abridged version of the constitution of the Republic of Ghana. Bùlì is thus understudied from both the descriptive and theoretical standpoints and in great need of further investigation. As will be shown below, Bùlì has a number of grammatical properties that have not been observed before, including complex interactions in the domain of clausal complementation. Moreover, the complementation system has never been investigated in detail which this project aims to do.

Chapter 2

The morphosyntax of pronouns

It has been observed that natural language has a variety of pronouns which differ cross-linguistically in their properties and behavior. Based on the distributional properties of pronouns in French, Kayne (1975) for instance, classifies French pronouns as either strong or deficient (clitics pronouns). Cardinaletti and Starke (1999) and Aboh (2004), among others, propose a tripartite division of pronouns into strong, weak, and clitics. Like (Postal, 1966; Abney, 1987; Ritter, 1995), there have been several proposals to treat pronouns in structural terms as determiners. This allows for the properties of these different classes of pronouns to be explained in structural terms: it is proposed that strong pronouns have a more articulated internal structure, similar to full DPs, while deficient pronouns and clitic pronouns have a less articulated DP structure. In his analysis of the pronominal system of Gungbe, Aboh (2004) argues that strong pronouns have an articulated structure similar to that of lexical DPs, with all projected functional material. Weak and clitic pronouns, on the other hand, have a less articulated structure. While strong pronouns are inserted as NPs within the structure of the DP, deficient pronouns are inserted into Num or D. In other words, deficient pronouns lack the NP projection and all functional material that modifies it.

Although these theories succeed in assimilating pronouns to determiners, they fall short with respect to their distribution in the syntax: if all pronouns (strong and deficient) are DPs why are they treated differently in the syntax?

In this chapter, I will first show that Bùlì presents empirical support for pronouns as DPs, and in particular, for pronouns as determiners with an elided NP (Elbourne, 2001). Second, I will argue that distributional properties of pronouns in the language show that Bùlì has pro-DP and pro-ϕP pronoun types, along the lines of Dechaine and Wiltschko (2002). The classification of pronouns into pro-DP and pro-ϕP explains their distribution and treatment in the syntax. As we shall see in Chapter 3, these distinctions go a long way toward explaining the distribution of pronouns in the subjects of non-finite clauses: while pro-ϕPs are permitted as subjects of non-finite clauses, pro-DPs are excluded. I will argue that this distribution is attributable to the tendency of pro-ϕPs to be treated as variables.

I will lay out these claims in more detail in the following sections. Section 3.1 consists of the basic analysis of pronouns as determiners. In section 3.3, I discuss the pronominal system cross-linguistically and argue that the distributional properties of Bùlì pronouns indicate a division into strong and weak (Kayne, 1975; Cardinaletti, 1994; Cardinaletti and Starke, 1999; Aboh, 2004). In section 3.4 I argue that the distributional properties of pronouns can be accounted for along the lines of Dechaine and Wiltschko (2002), and in section 3.5, I summarize, concluding that this analysis has implications for the distribution of pronouns in non-finite clauses.

2.1 Pronouns as determiners

There have been several proposals which consider pronouns as determiners (Postal, 1966; Abney, 1987; Elbourne, 2001). Abney (1987) argues that pronouns are of the syntactic category determiner. He points to examples such as (1) where pronouns appear in determiner positions.

(1) a. We linguists
    b. You troops

The fact that in some languages the form of pronouns and determiners is identical lends support to these proposals. In German, for instance, the form for the third

person pronoun *him* and the determiner *the* can be the same, as shown in example (2) below.

(2) German (Elbourne 2001:245)

a. Hans sieht **den** Mann.
Hans sees the man
'Hans sees the man.'

b. Hans sieht **den.**
Hans sees him
'Hans sees him'.

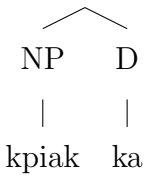
Nouns in Bùlì show a systematic correspondence (or match) between the last syllable of the definite form and the pronoun, as shown in Table 2.1 below. Based on this, Sulemana (2020) proposed that the pronouns/noun classes are generated by right truncation from the definite form. The definite form is generated first and then the stem is truncated to create the pronoun. (See Sulemana (2020) for details and implementation of this idea within a constraint based framework).

Table 2.1: Pronoun-definite correspondence

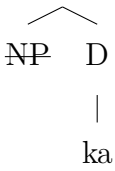
Noun	Definite	Pronoun	
kpīak	kpīaká	ka	fowl
bàŋ	bàŋkă	ka	lizard
zúk	zúkkú	ku	head
dòk	dòkkŭ	ku	room
bēlī	bēnní	di	river
yérī	yénní	di	house
lām	lāmmú	bu	meat
ná:b	ná:mú	bu	cow
mà	màwă	wa	mother
nà:b	nà:wă	wa	chief

This proposal resembles Elbourne's (2001) NP-Deletion theory, where pronouns (E-type) are definite articles followed by deleting the NP in the phonology. Under this view, both determiners and pronouns are DPs, as in (3), but the structure of the pronoun is missing an NP as in (3-b).

(3) a.



b.



2.2 The strong-weak distinction

Cross-linguistic studies into the properties of pronouns in natural language have shown that pronouns fall into at least two distinct classes: the so-called strong and deficient (weak or clitic) personal pronouns. Kayne (1975) establishes a bipartite division of French pronouns—strong and deficient (or clitic)—based on their distributional properties. Cardinaletti and Starke (1999) and Aboh (2004) argue for a tripartite division of pronouns—strong, weak and clitics—based on their morphological and distributional properties.

I show in this section that the distribution of pronouns in Bùlì provides support for the presence of two kinds of pronouns: strong and deficient (weak) pronouns. I argue that the distributional properties of these pronouns are best accounted for along the lines of Dechaine and Wiltschko (2002). Specifically, I argue that strong pronouns are pro-DPs while weak pronouns are pro-ϕP.

2.2.1 Bùlì personal pronouns

Table 2.2 is an inventory of the personal pronouns in Bùlì. The second column shows the strong pronouns, while the third column shows the deficient pronouns.

Table 2.2: Strong pronouns

Pers/Num/Cl	Strong forms	Deficient forms
1sg	mí	ǹ (mə)
2sg	fí	fì (fə)
3sg.cl1	wá	wà
3sg.cl2	dí	dì
3sg.cl3	ká	kà
3sg.cl4	kú	kù
3sg.cl5	bú	bù
1pl	támà	tì
2pl	námà	nì
3pl.cl1	bá	bà
3pl.cl2	sí	sì
3pl.cl3	tí	tì
3pl.cl4	ŋá	ŋà

Certain observations can be made with respect to the Bùlì personal pronouns: strong forms have high tone while deficient forms have low tone. There are three forms of personal pronouns in the first person singular. The pronouns in parentheses in the deficient form column (first and second person) can only appear as complement to a verb (4-a)-(4-b). The pronoun *ǹ* is the weak form that appears only in subject position (4-c)-(4-d). The strong forms of the pronoun can appear in both subject and object positions (4-c)-(4-d).

(4) a. Asouk nàgì mə̄/fə̄
Asouk hit 1SG/2SG
'Asouk hit me/you'

b. *mə̄/fə̄ nágí Asouk
1SG/2SGsg hit Asouk
'I/you hit Asouk'

c. ǹ nàgí Asouk
1SG hit Asouk
'I hit Asouk'

d. *Asouk nàgì ǹ
Asouk hit 1SG
'Asouk hit me'

e. mí nágí Asouk
1SG hit Asouk
'I hit Asouk'

f. Asouk nàgì mǐ
Asouk hit 1SG
'Asouk hit me'

In the third person singular, there are five distinct pronouns, while the third person plural has four distinct pronouns. The first and second person plural pronouns are the only bisyllabic pronouns, and are formed with the plural maker *ma*. Evidence that pronouns in Bùlì can be divided into strong and weak is presented in the next section.

2.2.2 The distribution of pronouns

In the discussion of the distribution of pronouns, I will rely on the diagnostics from (Kayne, 1975; Ritter, 1995; Cardinaletti and Starke, 1999; Aboh, 2004) to demonstrate the strong/deficient distinction in Bùlì. In this regard, I will discuss their ability to be clefted, focused or topicalized, their ability to occur in coordinate structures, their ability to occur in isolation in response to questions, and their ability to be modified.

I will illustrate these differences using the first person pronouns, while noting that these distinctions apply to all the strong and deficient forms. I will first consider their ability to be clefted/focused/topicalized. As demonstrated in example (5) below, strong pronouns may be clefted/focused/topicalized, while their deficient counterparts may not (5). This is similar to the strong/weak distinctions in Gungbe. Example (6-a) shows that strong pronouns can occur in a focus position while weak pronouns cannot (6-b).

(5) a. Ká mí ati Asouk nàgì
KA 1SG ATI Asouk hit
'It is me that Asouk hit'

b. *Ká ǹ ati Asouk nàgì
KA 1SG ATI Asouk hit
'It is me that Asouk hit'

c. Asouk nàg ká mí
Asouk hit KA 1SG
'Asouk hit ME'

d. *Asouk nàg ká mə̄
Asouk hit KA 1SG
'Asouk hit ME'

(6) a. nyɛ̀ wɛ̀ Dótù ná yrɔ́
1S-sg foc Dotu Fut call

b. *mi wɛ̀ Dótù ná yrɔ́
1W-sg foc Dotu Fut call
'Dotu will call ME' (Aboh: 2004:138)

Secondly, only strong pronouns are allowed in coordination (7-a), while their deficient counterparts are excluded (7-b). Similar observations are made for other languages, including French (Kayne, 1975), Italian (Cardinaletti, 1994; Cardinaletti and Starke, 1999), Gungbe (Aboh, 2004), and Wolof (Torrence, 2012; Martinovic, 2015) where strong pronouns can be coordinated while weak pronouns cannot.

(7) a. Mí ālī̄ Asouk dà gbăŋ
1SG ALI Asouk buy book
'Asouk and I bought a book'

b. *Ǹ ālī̄ Asouk dà gbăŋ
1SG ALI Asouk buy book
'Asouk and I bought a book'

A third property that distinguishes strong pronouns from their deficient counterparts is their ability to be modified by the focus marker *nyī̄:nī̄* 'only' while deficient pronouns cannot (8).

(8) a. Mí nyī̄:nī̄ àlì dà gbăŋ
1SG only ALI buy book
'Only I bought a book'

b. *Ǹ nyī:nī àlì dà gbǎŋ
1SG only ALI buy book
'Only I bought a book'

Finally, example (9) below demonstrates that strong pronouns can be used as fragment answers, while their deficient counterparts cannot.

(9) a. ká wānā ati Asouk nàgì:
KA who ATI Asouk hit
'Who did Asouk hit?'

b. (ká) mí
KA 1SG
'ME'

c. **(ká) ń
KA 1SG
'ME'

The properties of these different classes of pronouns have often been explained in structural terms: it is proposed that strong pronouns have a more articulated internal structure, similar to full DPs, while deficient pronouns and clitics are missing some projections. Cardinaletti and Starke (1999), for instance, argued that strong pronouns have more internal structure and are morphologically richer than their deficient counterparts, which are missing certain functional projections. In his analysis of the pronominal system of Gungbe, Aboh (2004) argues that strong pronouns have an articulated structure similar to that of lexical DPs, with all associated functional material projected. Weak and clitic pronouns on the other hand have a less articulated structure. Because strong pronouns are like lexical DPs, with an articulated DP structure, they are able to occur in all positions where lexical DPs are allowed. Therefore, strong pronouns have the ability to be focused/clefted, to be used in coordination, and to occur as fragment answers to questions. Deficient pronouns, on the other hand, are less articulated and thus lack some functional material (Ritter, 1995; Aboh, 2004). Aboh (2004), for instance, argues that in Gungbe, strong pronouns are NPs embedded in a DP layer, while deficient pronouns are either inserted in Num or

D without the NP layer.

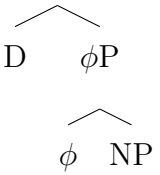
What all these accounts have in common is the idea that pronouns are uniformly DPs, with strong pronouns having more structure than their weak counterparts. If all pronouns (strong and deficient) are uniformly DPs, why are they treated differently in the syntax? We turn to answer this question in the next section.

2.3 pro-DP and pro-ϕP

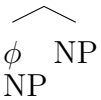
Pronouns do not all have the same syntactic as well as morphological distribution, as seen above for Bùlì and other languages. The distinction between strong and weak pronouns exists for many languages, as do the restrictions on their distribution. Despite this, most existing accounts propose to treat all pronouns as DPs with different internal syntax. This does not, however, solve the problem of their distribution. If they are all DPs the syntax should treat them as such. This, as we have seen, is not the case.

In response to this, Dechaine and Wiltschko (2002) propose that pronouns are not uniformly DPs, and instead have different syntactic categories. Specifically, they argue that languages can have three pronoun types: pro-DP, pro-ϕP and pro-NP, with each of these associated with a different syntactic projection. Pro-DP pronouns have a full DP structure with all functional projections present (10-a). Each subconstituent of pro-DP can subsequently function as a pronoun, yielding pro-ϕP (10-b) and pro-NP (10-c). Pro-ϕP pronouns are missing a D layer, and as such they have neither the syntax of determiners nor that of nouns. These pronouns simply spell out ϕ-features and have the semantics of variables. Finally, pro-NP pronouns lack both a D and a ϕ projection in the syntax and they have the syntax of lexical nouns. Although all of these are instances of pronouns, they will be treated differently in the syntax.

(10) a.



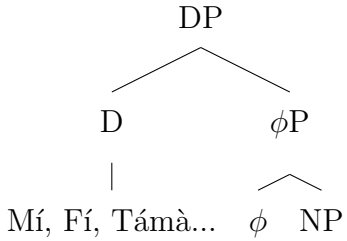
b.



c.

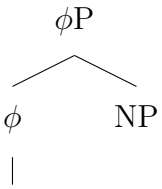
I propose that strong pronouns in Bùlì have the structure of pro-DPs as in (11), and thus are predicted to have the syntax of full determiner phrases. This, I argue, explains their distribution in the syntax. They can occur in all positions where lexical DPs are allowed: they can be focused/clefted, they can be coordinated, they can be modified, and they are allowed to occur as fragment answers to questions.

(11) Strong pronouns



I argue that weak pronouns, on the other hand, have the structure of pro-ϕP (12). This results in their being restricted in their distribution. Although they are allowed in argument positions, they are excluded from all other positions where pro-DPs are allowed.

(12) Weak pronouns



ǹ, fù, Tì...

Further evidence for this proposal comes from binding: while pro-ϕP can be used as a bound variable (13-a), pro-DPs cannot (13-b).

(13) a. wāiwāi$_i$ kàn yā: wà$_i$ mà
noone neg love 3SG mother
'No one loves his mother'

'No x st x loves x's mother'

b. *wāiwāi$_i$ kàn yā: wá$_i$ mà
noone neg love 3SG mother
'No one loves his mother'

'*No x st x loves x's mother'

This distinction can be explained if we assume with Dechaine and Wiltschko (2002) that strong pronouns have the structure of DPs. Pro-DPs are definite since they function as R-expressions and are subject to condition C for the purposes of binding. Also, only pro-ϕP pronouns are permitted, as subjects of non-finite clauses in Bùlì as we shall see later. I will suggest that this distribution is attributable to the tendency of pro-ϕP to be treated as a variable. This proposal is not far-fetched since there have been several proposals to treat PRO as a "reference variable" (Sigursson, 2008) or a "minimal pronoun" (Kratzer, 2009; Landau, 2015).

2.4 Conclusion

I showed in this chapter that Bùlì presents some empirical support for the proposal that pronouns are syntactically DPs. In particular, I presented evidence for the argument that pronouns are determiners with an elided NP (Elbourne 2001). Additionally,

I argue that the distributional properties of pronouns in the language suggest that Bùlì has pro-DP and pro-ϕP pronoun types, along the lines of Dechaine and Wiltschko (2002). The classification of pronouns into pro-DP and pro-ϕP explains their distribution and treatment in the syntax. These distinctions are not only relevant for accounting for the distributional properties of these pronouns, but they also lay the foundation for the discussion of the distribution of pronouns in the subjects of non-finite clauses. As we will see, pro-ϕP pronouns are permitted as subjects of non-finite clauses, pro-DPs pronouns are excluded. I will propose that this distribution can be attributed to tendency of pro-ϕP pronouns to be treated as variables.

Chapter 3

Tonal inflections and finiteness

Like so many terms in linguistics, there are different views on how to test the existence of 'finiteness' in a language. Traditionally, finiteness in a clause is determined based on verbal morphology: finite verbs are inflected for tense and agreement. Viewed from this perspective, labels like finiteness and non-finiteness seem not to be of any use, since there appears to be no morphological marking of tense and agreement on the verb in Bùlì. In this chapter, I analyze Bùlì verb forms and argue that the observed properties, especially regarding tone, are best understood if they are associated with finiteness. Assuming finiteness in the language, I argue, will aid in the explanation of some syntactic phenomena in the areas of clause embedding.

This chapter provides a broad overview of relevant background information on the Bùlì verbal domain and clause structure. I will argue that Bùlì requires a more articulated structure for TP, namely, a projection of both INFL1 and INFL2. INFL1 corresponds to the standard IP and is the locus of the EPP. INFL2, on the other hand, is the locus of a generalized finite/non-finite marking on the clause. I show that this more articulated structure for TP is key in the explanation of the inflectional properties of verbs in Bùlì, as well as a variety of syntactic phenomena in the areas of clause embedding.

I begin in sections 3.1 and 3.2 with tone and tonal processes, a crucial component of the grammar of the language. Clause structure and verbal inflection is discussed in section 3.3. I present my proposal and account of the data in section 3.4. In section

3.5, I consider temporal remoteness markers and argue that the current proposal can easily be extended to cover them and their effects on tonal patterns on the verb. I compare my proposal to an earlier proposal in section 3.6, noting the similarities and differences between the two approaches, and section 3.7 concludes the chapter.

3.1 Tone

Bùlì has three contrastive tones: High (H), Mid (M) and Low (L) (Kroger, 1992; Akanlig-Pare and Kenstowicz, 2003; Kenstowicz, 2004; Akanlig-Pare, 2005). Examples that illustrate the contrastive status of tones are given below in Table 3.1. The occurrence of these tones is not restricted by syllable type.

Table 3.1: Tonal contrast

LOW	MID	HIGH
kɔ̀k 'ghost'	kɔ̄k 'feather'	kɔ́k 'mahogany'
sìuk 'a kind of fish'	s̄iuk 'navel'	síuk 'path'
bà'lizard'		bá'bangle'

3.2 Tonal processes

In Bùlì tones on lexical items are affected by surrounding tones. As such, in order to identify the underlying tones of lexical items in constructions, it is important to examine the tonal processes present in the language. As a step toward this, l will introduce the various tone rules and phonological processes in the following sections.

3.2.1 Low tone spreading (LTS)

In addition to these level tones, the language also exhibits a contour tone. This tone is predictable. When a high-tone (H) syllable follows a low-tone(L) syllable, the H is realized as a rising tone. The definite morpheme is a high tone (Sulemana, 2020). When it follows a low-tone (L) root, the syllable bearing the H tone of the definite

is therefore realized with a rising contour (1-a). No contour tones are observed when the definite morpheme follows a mid-tone (1-b) or high-tone root (1-c).

(1) a. Noun+DEF
bì:kǎ
language.DEF

'the language'

b. Noun+DEF
lāmmú
meat.DEF

'the meat'

c. Noun+DEF
gbáŋká
book.DEF

'the book'

Akanlig-Pare and Kenstowicz (2003) and Akanlig-Pare (2005) take this as evidence for the existence of a Low Tone Spreading (LTS) rule in Bùlì; (see also Schwartz (2003)). This rule states that a Low tone spreads onto a following High tone. The existence of this rule accounts for the surface contour, which is underlyingly absent in the language. LTS is possible across morphemes as well as phrasal boundaries as shown in (2).

(2) a. nà:b + náŋ → nà:b nǎŋ
chief + leg → chief leg
'leg of a chief'

b. màŋ + náŋ → màŋ nǎŋ
lean + leg → lean leg
'leaned on a leg'

In isolation, *nà:b* 'chief' has a low tone and *náŋ* 'leg' has a high tone. Example (2-a) demonstrates that when they are combined into a possessive construction, *náŋ* 'leg' appears with a rising tone. The low tone of *nà:b* spreads onto the high tone of *náŋ*.

A similar result is observed for (2-b) which involves a verb and an object[1].

3.2.2 Rising tone absorption (RTA)

In other instances, LTS fails to apply where we would expect it to. Consider the examples in (3).

(3) a. Noun.DEF
bí:ká
child.DEF

'the child'

b. POSS NOUN.DEF
wà bì:ká
3SG child.DEF

'his child'

In (3-a), the noun and the definite morpheme both bear high tones. When the possessive pronoun *wà*, which bears a low tone, precedes the noun with a high tone, the high tone of the noun changes to a low tone (3-b).

Given the presence of the LTS, the expected outcome for an example where a low tone precedes a high tone, as in */wà bí:ká/*, is **[wà bǐ:ká]*, where the first high tone is realized as a rising contour similar to (1-a). In contrast, what we observe is a low tone now on the syllable which previously bore the high tone (3-b). Additionally, even though a high tone follows a low tone in (3-b), LTS doesn't apply to create a rising tone on the final syllable with a high tone **[wà bì:kă]*. These cases are analyzed as involving a second tonal rule, namely Rising Tone Absorption (RTA) (Akanlig-Pare and Kenstowicz, 2003): the high portion of a LH contour is delinked when followed by another high tone. The interaction of LTS and RTA accounts for (3-b). Crucially, LTS is ordered before RTA and there is no iteration of LTS. The outcome of this rule ordering is the counter-feeding opacity observed in (3-b). Consider an illustration of

[1]The fact that tone spreading occurs in all these cases raises interesting questions regarding tone spreading and prosodic boundaries in Bùlì. Although these are interesting questions I leave them for future studies.

this in (4) below.

(4) POSS NOUN.DEF

Input: /wà bí:ká/

LTS /wà bǐ:ká/

RTA /wà bì:ká/

Output: wà bì:ká

LTS applies to the input, creating a rising contour on the first high syllable. This is then followed by RTA which results in deletion of the high part of the contour. The result is the low tone on the previously high-tone syllable. Since these rules are ordered and non iterative, LTS is unable to apply a second time, even though the condition for its application is met. The failure of LTS rule to iterate in these cases creates rule opacity, with underlying low tones spreading while low tones created as a result of RTA do not spread. This rule opacity is an expected outcome of the rules and their strict order (Akanlig-Pare and Kenstowicz, 2003).[2]

3.2.3 Tone copying

There are nominal and verbal roots in Bùlì that have a CVC syllable structure. Sometimes vowels are epenthesized as a repair process to an ill-formed CVC root. In these cases, the epenthetic vowel copies the tone of the root.

The relevance of the above tonal processes will be made clearer in the next section when I investigate the tonal patterns on verbs. I will show that that when the various tonal processes are undone in sentences, the tone on the verb alternates between [H], [L] and [M]. I will argue that these alternations represent a distinction between finite and non-finite forms of the verb.

[2]See Sulemana (2017) for an OT approach to the problem of tonal opacity.

Table 3.2: Plural definite

Root	Epenthesis	Tone copy	
bēl	bēl-i	bēlī	river
bír	bír-i	bírí	seed
kūl	kūl-i	kūlī	go home
bōr	bōr-i	bōrī	sow
sàr	sàr-i	sàrì	frog
kùr	kùr-i	kùrì	hoe

3.3 Clause structure and morphosyntax of the verb phrase

Before progressing onto my analysis of an articulated TP, it is necessary to present a general overview of some of the relevant properties of Bùlì.

3.3.1 Word order

Bùlì is generally considered to be a canonical SVO language. As illustrated in (5)-(6), complements follow their heads in both matrix and embedded clauses.

(5) *Main clause*

Asouk dìgì lāmmú.
Asouk cook meat.DEF

'Asouk cooked the meat'

(6) *Embedded clause*

Asibi wìen āyīn Asouk dìgì lāmmú.
Asibi say C Asouk cook meat.DEF

'Asibi said that Asouk cooked the meat'

3.3.2 The verb

Nouns and verbs have been shown to have distinct phonological behavior (Postal, 1968; Kenstowicz and Kisseberth, 1977; Smith, 2011). In Spanish, for instance, stress

location is contrastive for nouns but not for verbs (Harris, 1983; Garrett, 1996). In Mono, a Niger-Congo language, nouns have lexically specified tonal shapes, while tone patterns on verbs are predictable from their inflectional forms (Olson, 2005). Another language with more tonal contrast on nouns than verbs is Gā (Paster, 2000). In Bùlì, unlike nouns, verbs do not contrast lexically for tone. Instead, verbs have default mid tones but on the surface their tonal patterns can vary, depending on several factors. We begin with a relatively simple case of tonal patterns in the perfective aspect.

3.3.3 Perfective

In the perfective aspect, the tonal pattern for first and second person differs from that of third person (7). While first and second person has a low-high [LH] pattern, third person has a low-low [LL] tonal pattern. Note that the subject pronouns in (7) are all weak pronouns, and as such they bear low tones.

(7) a. ǹ kàrím gbáŋ.
1SG. read book
'I read a book'

b. fì kàrím gbáŋ
2SG. read book
'You read a book'

c. wà kàrìm gbǎŋ.
3SG. read book
'S/he read a book'

By contrast, when the subject pronouns are strong, the tonal pattern in the first and second person changes to [HH], while that of the third person remains [LL], as demonstrated in (8) below. A low tone is still observed when the subject is lexical with a high tone (8-d)

(8) a. Mí kárím gbáŋ.
1SG. read book
'I read a book'

b. Fí kárím gbáŋ.
2SG. read book
'You read a book'

c. Wá kàrìm gbăŋ.
3SG. read book
'S/he read a book'

d. Bí:ká kàrìm gbăŋ.
child.DEF read book
'The child read a book'

Recalling the discussion of tonal processes in the language (LTS and RTA), we conclude that in the first and second persons, the verb in the perfective aspect has a high tone [*kárím*] while in the third person it has a low tone [*kàrìm*]. The low tone of the subject will spread onto the following high tone of the verb to create a rising tone on the first syllable /*ǹ kărím*/. Because the second syllable contains a high tone, RTA applies creating a low tone on the first syllable of the verb /*ǹ kàrím*/. Evidence for this analysis comes from the absence of the [LH] pattern in first and second persons when strong pronouns are used, as in (8-a)-(8-b), and also the lack of LTS from the first syllable of the verb to the second syllable to create a rising tone /*kàrĭ̌m*/.

As noted earlier, derived low tones do not undergo LTS, creating a problem of opacity. In addition to examples (8-c)-(8-d) providing evidence for the fact that the low tone on the verb is not from the subject, as one might think, the fact that this tone can undergo LTS onto a direct object to create a rising contour also confirms that the low tone is underlying in the structure. Before addressing the question of the sources of these underlying [H] and [L] tones on the verb, I will consider other constructions in which the tonal patterns are affected.

3.3.4 Imperfective

The language marks imperfective aspect with a preverbal particle *à*[3]. In the imperfective aspect, the verb surfaces with its default mid tone (9).

[3]When present, the same form can be used to express the generic 'I read' as well the progressive 'I am reading'.

(9) a. mí à kārī̀m gbáŋ.
1SG. IMPF read book
'I read a book'

b. fí à kārī̀m gbáŋ.
2SG. IMPF read book
'You read a book'

c. wà à kārī̀m gbáŋ.
3SG. IMPF read book
'S/he reads a book'

d. Bí:ká à kārī̀m gbáŋ.
child.DEF IMPF read book
'The child reads a book'

3.3.5 Progressive

The progressive consists of the bimorphemic form *bo-ro* followed by the imperfective aspect (10).

(10) a. ǹ bò-ró à kārī̀m gbáŋ.
1SG. BE-LOC IMPF read book
'I am reading a book'

b. fì bò-ró à kārī̀m gbáŋ.
2SG. BE-LOC IMPF read book
'You are reading a book'

c. wà bò-rò à kārī̀m gbáŋ.
3SG. BE-LOC IMPF read book
'S/he is reading a book'

d. Bí:ká bò-rò à kārī̀m gbáŋ.
child.DEF BE-LOC IMPF read book
'The child is reading a book'

The progressive morpheme assumes the [LH] and [LL] tonal patterns of the verb in perfective aspect, while the main verb preceded by the imperfective aspect bears the underlying mid tone.

3.3.6 Progressive as a locative

In typologically unrelated languages, it has been observed that progressives and locative constructions are related. Progressives in many of these languages have often been analyzed as involving a bi-clausal structure, where the second clause is often considered either a complement or an adjunct (Polinsky and Comrie, 2002; Laka, 2006; Salanova, 2007; Coon, 2010; Matinović and Schwarzer, 2017). I argue in the following paragraphs that the progressive in Bùlì consists of the predicate *bō* 'be' which takes two arguments: a locative phrase argument and an imperfective clause serving as the second argument of *bō*.

Several considerations suggest that the progressive is a locative construction. First, the verb *bō* always merges with a Locative constituent and must be string adjacent to it. This requirement can be satisfied by having a locative constituent directly following it in the sentence, as in (11)-(12) or with *-ro*, a proform. The proform, *-ro*, is an anaphoric preposition, which takes the universe or contextual referent as its antecedent when there is no overt linguistic antecedent in the sentence (13).

(11) a. Asouk bò dɔ̀k.
Asouk BE room
'Asouk is in the room'

b. Asouk bò yābā
Asouk BE market
'Asouk is at the market'

c. Asouk bò dùlá
Asouk BE there
'Asouk is over there'

(12) a. Gbáŋká bò Asouk dʒ̄iḡ̱.
book.DEF BE Asouk place
'The book is with Asouk'

b. *Gbáŋká bò Asouk.
book.DEF BE Asouk
'The book is with Asouk'

c. Gbáŋka bò dʒ̄iḡ̱.
book.DEF BE place

'The book is somewhere'

(13) a. Ná:wén bò-rò.
god BE-LOC
'God exists'

b. Lām bò-rò.
meat BE-LOC
'Meat is available'

c. Bí:ká bò-rò.
child.DEF BE-LOC
'The child is around'

The proform *-ro* and locative constituents are in complementary distribution (14).

(14) a. Lām bò-rò (*yènní pō).
meat BE-LOC house.DEF in
'Meat is available (in the house)'

b. Lām bò-(*rò) yènní pō (*ro).
meat BE-LOC house.DEF in LOC
'Meat is available (in the house)'

c. Bí:ká bò-rò (*dɔ̀k).
child.DEF BE-LOC room
'The child is around (*in the room)'

d. Bí:ká bò-(*rò) dɔ̀k (*rò).
child.DEF BE-LOC room LOC
'The child is in the room'

-Ro can also be used with other verbs to indicate location (15).

(15) a. Asouk kpì:rì kpă:m ɲò lēŋká pō.
Asouk pour oil put container.DEF in
'Asouk poured oil into the container'

b. Asouk kpì:rì kpă:m ɲò-rò.
Asouk pour oil put-LOC
'Asouk poured oil into it'

c. *Asouk kpì:rì kpă:m ɲò.
Asouk pour oil put

'Asouk poured oil into it

Finally, when a locative phrase is present in the progressive sentence, it may replace *-ro* (16).

(16) a. Asouk bò-ró à dīgī̄ lāmmú dɔ̀kkŭ pō.
Asouk BE-LOC IMPF cook meat.DEF room.DEF in
'Asouk is cooking the meat in the room'

b. Asouk bò dɔ̀kkŭ pō à dīgī̄ lāmmú.
Asouk BE room.DEF in IMPF cook meat.DEF
'Asouk is cooking the meat in the room'

c. *Asouk bò-rō dɔ̀kkŭ pō à dīgī̄ lāmmú.
Asouk BE-LOC room.DEF in IMPF cook meat.DEF
'Asouk is cooking the meat in the room'

We see that *bo* must immediately precede a locative phrase. When this is not possible, *ro* satisfies the locative need of *bo*.

We have therefore seen that in the progressive, *bo* is the main predicate subcategorizing for two arguments: 1) a locative phrase, which can either be as shown in (11)-(12) or the proform *-ro*, as in (13); and 2) an aspectual phrase.

One might argue that the aspectual phrase in the progressive is an adjunct, and not a complement. However, we have reason to believe that it is indeed a complement, albeit a reduced one. This evidence comes from the fact that extraction is possible from the aspectual phrase in (17-a) and that anaphors can be licensed in the aspectual phrase in (17-b).

(17) a. (ká) bʷā (ātì) Asouk bò-rò à dīgī̄ dɔ̀kkŭ pō:?
Q what ATI Asouk BE-LOC IMPF cook room.DEF in
'What is Asouk cooking in the room?'

b. Bísáŋá bò-rò à nāgī̄ chá:b dɔ̀kkŭ pō
children BE-LOC IMPF hit each-other room.DEF in
'The children are hitting each other in the room'

c. (ká) bʷā *(ātì) bí:ká dìgì:
Q what ATI child.DEF cook.PST
'What is it that the child cooked?'

3.3.7 Future

To show that an event will occur in the future, Bùlì employs the marker *àlí*, as in (18). Note that this morpheme, like the aspectual marker, triggers a mid tone on the following verb.

(18) a. mí (à)lí kārīm gbáŋ.
1SG. FUT read book
'I will read a book'

b. fí (à)lí kārīm gbáŋ.
2SG. FUT read book
'You will read a book'

c. wá (à)lí kārīm gbáŋ.
3SG. FUT read book
'S/he will read a book'

3.3.8 Negation

Negation is marked by two morphemes: a preverbal marker NEG1 that is sensitive to the aspectual properties of the predicate, and a sentence final particle *(y)ā*, which I gloss as NEG2 (19)-(20).

(19) Perfective + negation

a. mí àn dìgí lām ā
1SG. NEG1 cook meat NEG2
'I didn't cook meat'

b. fí àn dìgí lām ā
2SG. NEG1 cook meat NEG2
'You didn't cook meat'

c. wà àn dìgí lām ā
3SG. NEG1 cook meat NEG2
'S/he didn't cook meat'

(20) Imperfective + negation

a. mí kàn dīgī lām ā
1SG. NEG1 cook meat NEG2

'I don't cook meat'

b. fí kàn dīgī lām ā
2SG. NEG1 cook meat NEG2
'You don't cook meat'

c. wá kàn dīgī lām ā
3SG. NEG1 cook meat NEG2
'S/he doesn't cook meat'

The surface tone on the verb when negation is present is [LH] for all persons in the perfective. In the negative imperfective, however, the tone on the verb is [M] (20).

There are several notable properties of NEG2[4] relevant to this discussion. One is that it is not always overtly realized in negative sentences. Example (21) below demonstrates examples where NEG2 fails to be overtly realized, even though a negative meaning is intended.

(21) a. Asouk àn dìgí lāmmù (*yā)
Asouk NEG1 cook meat.DEF NEG2
'Asouk didn't cook the meat'

b. Asouk kàn dīgī lāmmù (*yā)
Asouk NEG1 cook meat.DEF NEG2
'Asouk doesn't cook the meat'

Another notable fact about NEG2 is that it cannot mark negation by itself (22).

(22) a. *Asouk dìg lām ā
Asouk cook meat NEG2
'Asouk didn't/doesn't cook meat'

b. *Asouk yérí yā
Asouk house NEG2
'Asouk is not at home/Asouk doesn't have a house'

Additionally, NEG2 occurs in sentence final position, following both VP and TP level

[4]I assume that NEG2 is always present, but may be realized in different ways, including a null form in certain phonological environments.

adverbs (23).

(23) a. Asouk àn dìgí lām (*a) yénní ŋāːŋ ā
Asouk NEG1 cook meat NEG2 house back NEG2
'Asouk didn't cook meat behind the house'

b. Asouk àn dìgí lām (*a) dā:mwá
Asouk NEG1 cook meat NEG2 two.days.ago
'Asouk didn't cook meat the day before yesterday'

Finally, NEG2 must be local to the clause that hosts NEG1 (24).

(24) a. núr wāi àlì kàn ɲā bí:ká lā dìg lām (*a)
man REL.PRO ALI NEG1 see child.DEF LA cook meat NEG2
'The man who didn't see the child cooked meat'

b. Asouk wìen āyī̄n núr wāi àlì kàn ɲā bí:ká lā dìgì lām (*a)
Asouk say C man REL.PRO ALI NEG1 see child.DEF LA cook meat NEG2
'Asouk said the man who didn't see the child cooked meat'

c. Asouk wìen āyī̄n núr wāi àlì ɲā bí:ká lā àn dìgí lām a
Asouk say C man REL.PRO ALI see child.DEF LA NEG1 cook meat NEG2
'Asouk said the man who saw the child didn't cook meat'

In examples (24-a)-(24-b), NEG1 is in the relative clause as a result placing NEG2 at the end of the main clause is ungrammatical. However, NEG2 is possible at the end of the clause when NEG1 is on the main clause verb (24-c).

To summarize, I demonstrated above that when the various tonal processes are undone, the tone on the verb alternates between [H], [L] and [M], depending on a variety of factors, including person, as well as preverbal morphemes like aspect, future, and negation. The following table gives a summary of tonal patterns on verbs in Bùlì. I present an analysis of these patterns in the following section.

Table 3.3: Verbal inflection

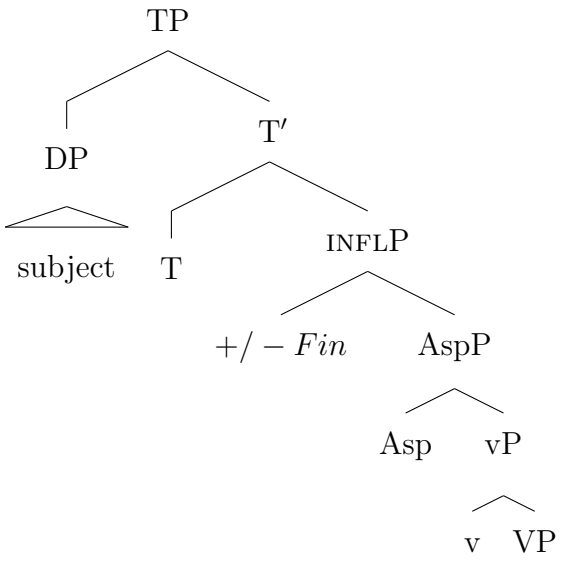
	Person	Tone pattern		
Perfective	1,2	nágí	H	hit
	3	nàgì	L	hit
Imperfective	1,2,3	à nāgī	M	hits
Future	1,2,3	àlì nāgī	M	will hit
Perfective + negation	1, 2, 3	àn nágí	H	didn't hit
Imperfective + negation	1,2,3	kàn nāgī	M	does not hit

3.4 Proposal

3.4.1 Articulated TP structure

Before proceeding with the analysis, certain proposals and assumptions are in order. First, I propose that Bùlì has a more articulated structure for TP, where TP consists of both a projection of INFL1 and INFL2. INFL1 corresponds to the standard IP and is the locus of the EPP, although I will continue to use T as the label for this head. INFL2, on the other hand, is the locus of a generalized finite/non-finite marking, and will be labeled as INFL. Under this view, I will assume a structure along the lines of (25) for simple clauses in Bùlì.

(25) a.



In (25) v is a complement to Aspect, which is in turn the complement of INFL, which marks the clause as either finite or non-finite. Finite clauses are marked with [H]

tone, while their non-finite counterparts have [M] tone.

3.4.2 Head movement: *+FIN* movement and intervention

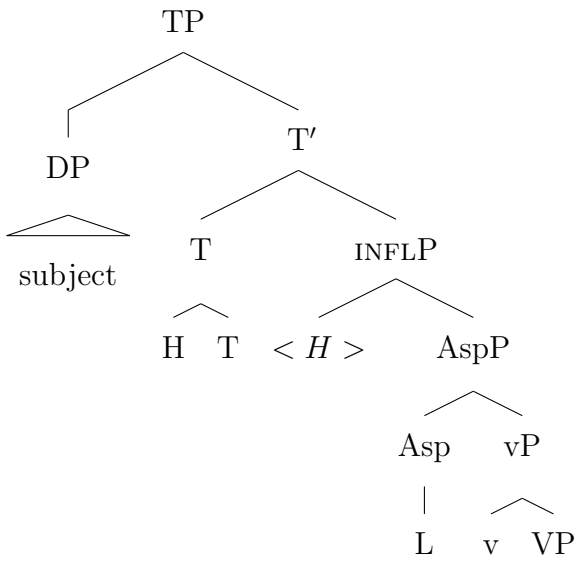
Secondly, I assume that INFL undergoes head movement to T. Head movement is among the typology of movement operations identified cross-linguistically. Even though it is widely accepted as a syntactic operation, obeying constraints like the Head Movement Constraint (Travis, 1984) and Relativized Minimality (Rizzi, 1990), diagnosing it is particularly challenging. The relative order of morphemes, like negation and adverbials, is often relied upon as a diagnostic cue to indicate head movement. However, in some cases, overt heads can move to terminal nodes with zero exponence. A case in point is yes/no questions in English (26). On this view, in (26-b), T^0 moves to C^0 but C^0 is realized as a null morpheme.

(26) a. He can sleep.
b. Can he sleep ?

Identifying head movement is particularly tasking in languages that lack overt exponence of heads, or when these heads are occupied by tones, since tones can appear displaced from positions where they are generated.

I argue that head movement is in part responsible for the tonal patterns that we observed above. Specifically, I argue that the [+FIN] morpheme realized by the [H] tone undergoes head movement to T, which is string vacuous in cases where there is no overt tense, as shown in the structure in (27). [H] movement is short and heads like negation can intervene to block this movement, a point which I will further discuss below.

(27)



Additionally, I propose the morphosyntactic rules in (28) below[5].

(28) Morphosyntactic Rule

a. [+FIN] → ø/[-participant]—

b. Default: → M

This morphosyntactic rule requires that [H] delete when it immediately follows a [-participant] (28-a), and that a default [M] tone is inserted when the inflectional morphemes cannot appear on the verb (28-b).

These proposals have broad implications for our understanding of the grammar of Bùlì. For example, the split articulated structure addresses the broad question of the sources of tones and the various tonal patterns we observe. Taken together, these proposals address the question of how to explain the behavior of certain clauses in embedded contexts in the next chapter.

For the remainder of this section, I will illustrate how these proposals function together to explain the tonal patterns on verbs in Bùlì. For the tonal patterns for perfective aspect, I use the examples shown in (29) where the direct object is an

[5]The analysis builds on Akanlig-Pare and Kenstowicz (2003) and Kenstowicz (2006).

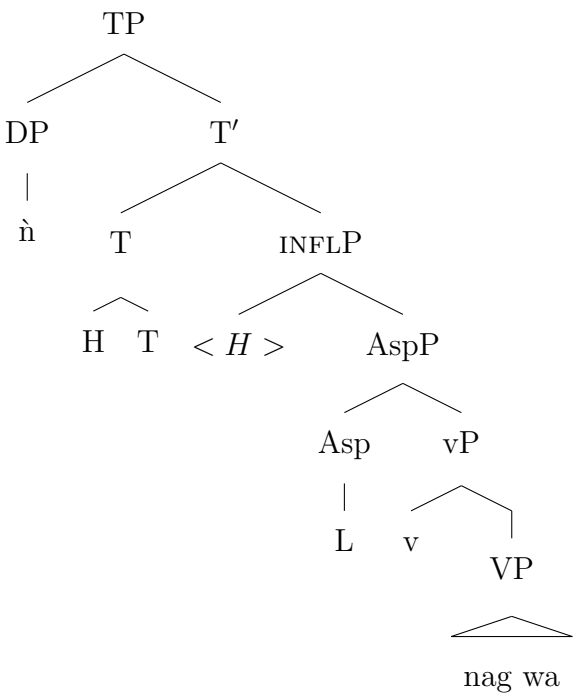
enclitic on the verb.

(29) a. ǹ/fì nàgí-wà
1SG./2SG. hit-3SG
'I/you hit him'

b. wà nàgì-wā
3SG. hit-3SG
'He hit him'

A sentence like (29-a) will have a representation like (30).

(30) a.



Aspect is headed by a [L] tone . The clause, being finite, has the [HL] tone sequence in INFL, which raises to T. The subject in this case is the first person with a [L] tone. When we apply the Morphosyntactic Rules above: [+FIN] deletion doesn't apply because the subject is [+participant]. As a result, the [H] surfaces in the derivation and is mapped onto the verb in the phonology.

(31) a. morphosyntax

i. Underlying: ǹ [[$\mathbf{H}_{\text{FIN}}$] [L_{ASP}]] nag-wa

ii. [+FIN] Deletion (not applicable) : ǹ [[$\mathbf{H}_{\text{FIN}}$] [L_{ASP}]] nag-wa

b. phonology

i. Tone Association: ǹ [[H_{FIN}] [L_{ASP}]] n**á**g-wà

ii. Epenthesis: ǹ nág**i**-wà

iii. Tone Copy: ǹ nág**í**-wà

iv. LTS: ǹ **nă**gí-wà

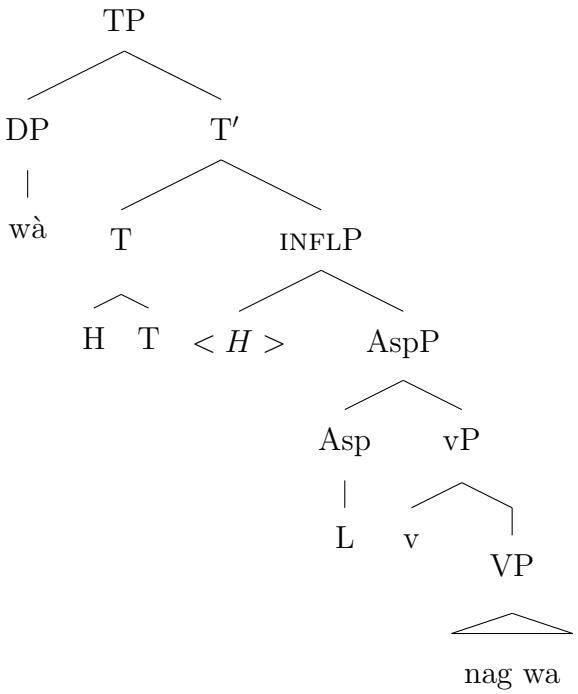
v. RTA: ǹ n**à**gí-wà

vi. Output: ǹ n**à**gí-wà 'I hit him'

The sequence of morphemes sent to the phonology is as in (31-b). Crucially, the [H] of finiteness associates with the verb, and the low of aspect associates with the enclitic object. There is epenthesis of [i] which copies the [H] tone of the verb. The LTS and RTA rules apply resulting in the output at the end of the derivation in (31-b).

Next, we consider a derivation involving the third person subject (32).

(32) a.



This has the same structure as (30). Aspect is headed by a [L] tone. The clause, being finite, has the [H] tone in INFL, which raises to T. The subject is third person with a [L] tone. When we apply the morphosyntactic rules above, because the subject is [-participant] and it immediately precedes the [+FIN] morpheme, [+FIN] deletion applies, deleting the [H] in the derivation (33-a).

(33) a. morphosyntax

i. Underlying: wà [[$\mathbf{H}_{\text{FIN}}$] [L_{ASP}]] nag-wa

ii. [+FIN] Deletion: wà [L_{ASP}]] nag-wa

b. phonology

i. Tone Association: wà [L_{ASP}]] **nà**g-wa

ii. Epenthesis: wà nàg**i**-wa

iii. Tone Copy: wà nàg**ì**-wa

iv. LTS(not applicable): wà nàgì-wa

v. RTA(not applicable): ǹ nàgì-wa

vi. Default Mid: wà nàgì-w**ā**

vii. Output: wà nàgì-wā 'He hit him'

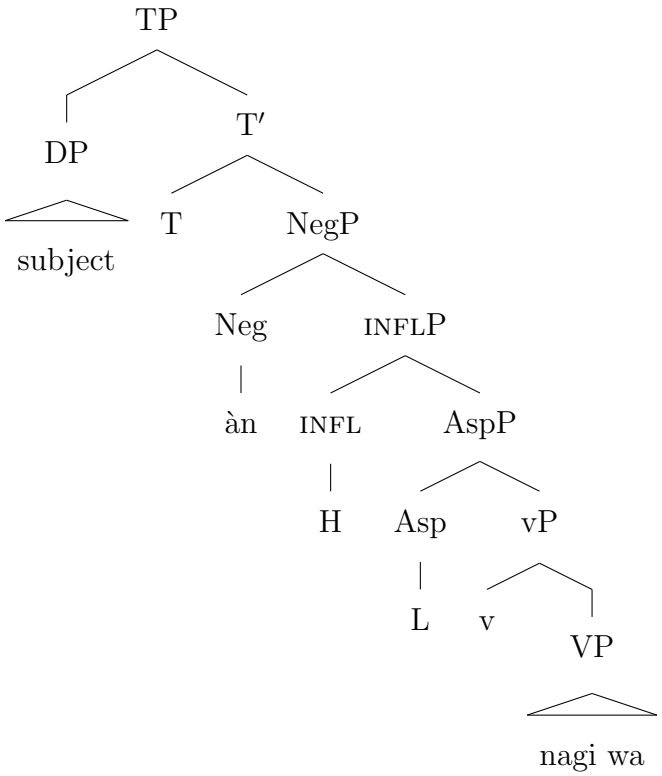
In the phonology (33-b), the [L] tone of aspect associates with the verb, followed by epenthesis and tone copying. However, LTS and RTA do not apply here and, so the default rule of mid tone is invoked to supply the enclitic with a tone, giving rise to the output we observe.

In the imperfective and future forms, the verb surfaces with the default [M], regardless of person Table 3.3. We can now see that the imperfective and future morphemes appear in the *Asp* slot, hence the uniform Low tone on these morphemes. And finally, when the [+FIN] morpheme is present in the first and second persons, we expect that it will be unable to associate with the verb across the overt head in *Asp*, and as a result, it deletes and the verb is assigned Mid tone.

3.4.3 INFL and negation

In the presence of negation, as noted earlier, the verb has a [H] tone in the perfective for all persons (cf. 3.3). This can be straightforwardly accounted for in the following way under the current proposal. First, we know that negation is above Infl (34-a). Consequently, movement of *INFL* to T is blocked by the intervening negation head. The order of morphemes will be as in (34-c), and phonological processes will apply to this structure.

(34) a.



b. morphosyntax

i. Underlying: Fì àn [[H_{FIN}] [L_{ASP}]] nag-wa

c. phonology

i. Tone Association: Fì àn [[H_{FIN}] [L_{ASP}]] **ná**g-w**à**

ii. Epenthesis: Fì àn nág**i**-wà

iii. Tone Copy: Fì àn nág**í**-wà

iv. LTS: Fì àn **nǎ**gí-wà

v. RTA: Fì àn **nà**gí-wà

vi. Output: Fì àn nàgí-wà 'You didn't hit him'

The [H] tone of [+FIN] associates with the verb and the [L] tone of aspect associates with the enclitic. The various rules from epenthesis to RTA apply, to produce the outcome in (34-c).

3.5 Temporal remoteness markers (TRMs)

Another group of morphemes that affect the tonal patterns of verbs are Temporal Remoteness Markers (TRMs). These are tenses that serve to specify the degree of pastness of a situation or an event. I refer to these markers as *Current past* (CUR), *Immediate past* (IMM), and *Remote past* (REM), respectively (more on the syntax and semantics of these morphemes in Chapter 6). In this section, I discuss the tonal patterns on the verb when these morphemes are present.

The verb surfaces with a [L] tone when it is preceded by these morphemes in all persons (35)-(37).

(35) a. ǹ **pō:m** nàgì bì:ká
1SG. CUR hit child.DEF
'I hit the child earlier today'

b. ǹ **dī̄em** nàgì bì:ká
1SG. IMM hit child.DEF
'I hit the child yesterday'

c. ǹ **dā:m** nàgì bì:ká
1SG. REM hit child.DEF
'I hit the child at least two days ago'

(36) a. Fì **pō:m** nàgì bì:ká
2SG. CUR hit child.DEF
'You hit the child earlier today'

b. Fì **dī̄em** nàgì bì:ká
2SG. IMM hit child.DEF
'You hit the child yesterday'

c. Fì **dā:m** nàgì bì:ká
2SG. REM hit child.DEF
'You hit the child at least two days ago'

(37) a. Wà **pō:m** nàgì bì:ká
3SG. CUR hit child.DEF
'He hit the child earlier today'

b. Wà **dī̄em** nàgì bì:ká
3SG. IMM hit child.DEF

'He hit the child yesterday'

c. Wà **dā:m** nàgì bì:ká
3SG. REM hit child.DEF
'He hit the child at least two days ago'

However, when negation is present in a clause along with the TRMs, the verb surfaces with a different pattern for *dīem* and *dā:m* as opposed to *pō:m* (38)-(40).

(38) a. Mí àn **pō:m** nàgì bì:ká
1SG. NEG1 CUR hit child.DEF
'I didn't hit the child earlier today'

b. Mí **dīem** àn nàgí bí:ká
1SG. IMM NEG1 hit child.DEF
'I didn't hit the child yesterday'

c. Mí **dā:m** àn nàgí bí:ká
1SG. REM NEG1 hit child.DEF
'I didn't hit the child at least two days ago'

(39) a. Fì àn **pō:m** nàgì bì:ká
2SG. NEG1 CUR hit child.DEF
'You didn't hit the child earlier today'

b. Fì **dīem** àn nàgí bí:ká
2SG. IMM NEG1 hit child.DEF
'You didn't hit the child yesterday'

c. Fì **dā:m** àn nàgí bí:ká
2SG. REM NEG1 hit child.DEF
'You didn't hit the child at least two days ago'

(40) a. Wà àn **pō:m** nàgì bì:ká
3SG. NEG1 CUR hit child.DEF
'He didn't hit the child earlier today'

b. Wà **dīem** àn nàgí bí:ká
3SG. IMM NEG1 hit child.DEF
'He didn't hit the child yesterday'

c. Wà **dā:m** àn nàgí bí:ká
3SG. REM NEG1 hit child.DEF
'He didn't hit the child at least two days ago'

Note also that negation is ordered differently with *pō:m* vs. *dī̄em* and *dā:m*. In these sentences, the tone on the verb is [L] for *pō:m* and [H] for *dī̄em* and *dā:m*. The same tone patterns are observed for all persons. Table 3.4 summarizes the results of these patterns.

Table 3.4: Verbal inflection:TRMs and Negation

	Person	Tone pattern		
TRMs	1,2,3	pō:m nàgì	L	hit
		dī̄em nàgì	L	hit
		dā:m nàgì	L	hit
TRMs+negation	1,2,3	àn pō:m nàgì	L	hit
TRMs+negation	1,2,3	dī̄em & dā:m àn nàgí	H	hit

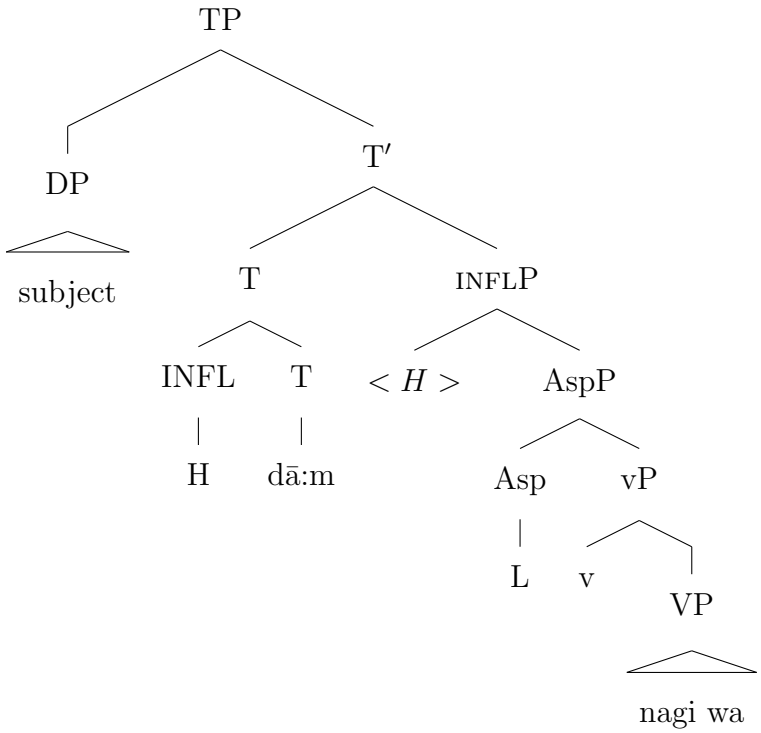
The current analysis can account for these observed patterns. The specific facts to explain are how the presence of TRMs prevents the [H] of INFL from surfacing on the verb, and how the presence of negation blocks the deletion of this morpheme in the presence of *dī̄em* and *dā:m*. I argue that these phenomena can be explained by the interaction of the above described head movement and phonological processes. Specifically, the tone surfaces as [L] when INFL is able to move to the node hosting the TRMs. When negation is present, it intervenes between T and INFL, resulting in INFL remaining in-situ. It is in these cases that the [H] tone surfaces on the verb.

3.5.1 *INFL* and TRMs

The verb surfaces with a Low tone when the TRMs are present, as summarized in table 3.4 above.

My account of these data runs as follows: *dī̄em* and *dā:m*, when present, are T. INFL moves to and adjoins to T, resulting in the following order of morphemes: [Subj INFL T Asp VP]. From this position, the [H] tone of *INFL* cannot associate to the verb because the TRM intervenes between it and the verb. As a result, it will be deleted in the phonology and the L tone of *Asp* will map to the verb (41-b)- (41-c).

(41) a.



b. morphosyntax

i. Underlying: Fì [H_{INFL}] dā:m [[L_{ASP}]] nag-wa

c. phonology

i. Tone Association: Fì [H_{INFL}] dā:m [[L_{ASP}]] **nà**g-wa

ii. Default Mid: Fì dā:m nàg-w**ā**

iii. Epenthesis: Fì dā:m nàg**i**-wā

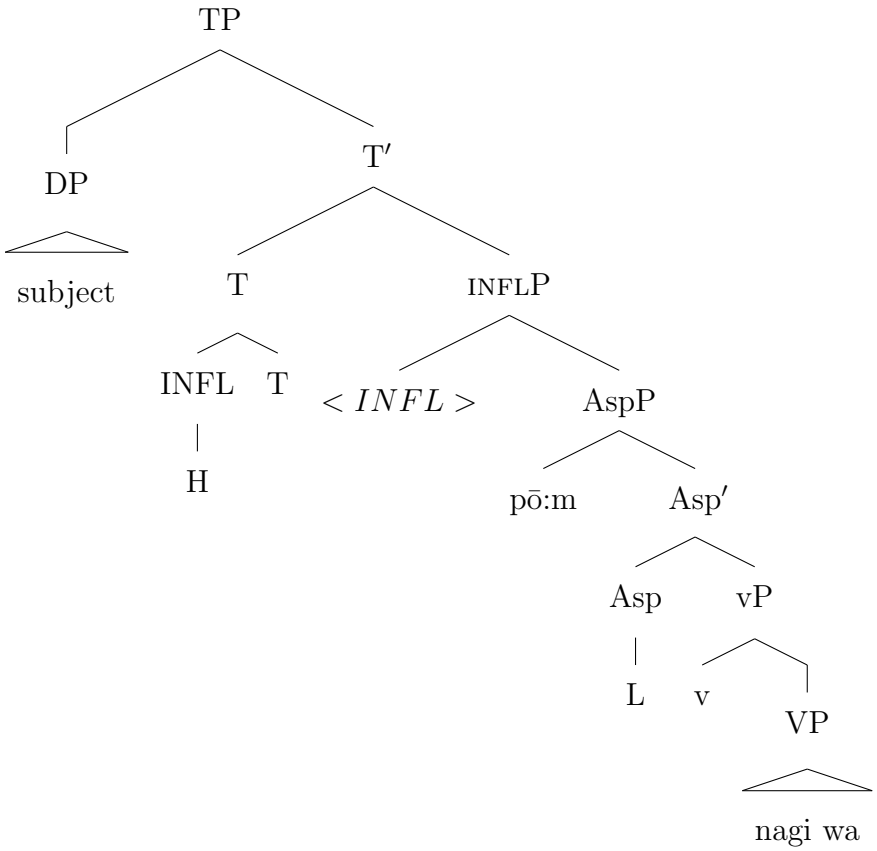
iii. Tone Copy: Fì dā:m nàg**ì**-wā

iv. Output: Fì dā:m nàgì-wā

'You hit him'

Unlike *dīem* and *dā:m*, the TRM *pō:m* occupies a lower position (I assume between aspect and negation). This can easily be verified by the position of negation, which precedes *pō:m* but follows *dīem* and *dā:m*, as shown in (38)-(40) above.

(42) a.



b. morphosyntax

i. Underlying: Fì [[H_{INFL}] pō:m [L_{ASP}]] nag-wa

c. phonology

i. Tone Association: Fì [[H_{INFL}] pō:m [L_{ASP}]] **nà**g-wa

ii. Default Mid: Fì pō:m nàg-**wā**

iii. Epenthesis: Fì pō:m nàg**ɪ**-wā

iii. Tone Copy: Fì pō:m nàg**ì**-wā

iv. Output: Fì pō:m nàgì-wā

'You hit him earlier today'

(43) wà pō:m à nāgī bí:ká
3SG. CUR IMPF hit child.DEF
'He was hitting the child earlier today'

We can see in (42-a) that *pō:m* intervenes between *INFL* and *Asp*, so that only the Low tone of *Asp* is available to associate with the verb. Example (43) shows that

pō:m is above *Asp*. Note that *INFL* movement will be vacuous in this structure and it will get deleted in the phonology (42-b)-(42-c).

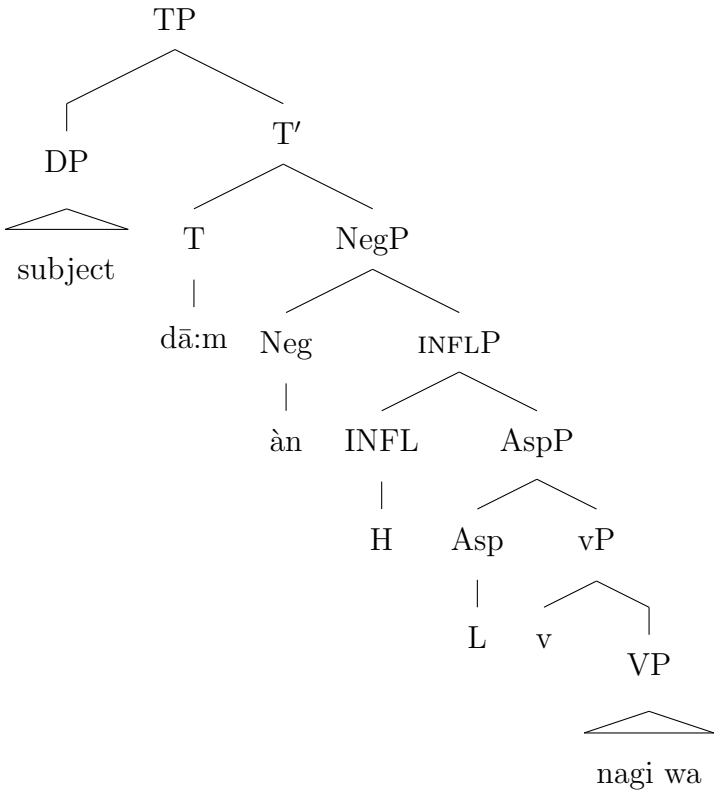
Regardless of person and the TRM, the [H] from T cannot map onto the verb because the TRM is intervening, which results in the uniform [L] tone for all persons when TRMs are present.

3.5.2 *INFL*, TRMs, and negation

In the presence of negation, different tonal patterns are observed for *dīem* and *dā:m* on the one hand, and *pō:m* on the other (cf. table 3.4). In the presence of *dīem* and *dā:m*, the verb has a [H] tone. When the TRM is *pō:m*, the verb has a [L] tone as before.

This can be straightforwardly accounted for under the current analysis. Negation, as noted before, is above *INFL* and below Tense (44-a).

(44) a.



b. morphosyntax

i. Underlying: Fì dā:m àn [[H_{INFL}] [L_{ASP}]] nag-wa

c. phonology

i. Tone Association: Fì dā:m àn [[H_{INFL}] [L_{ASP}]] **ná**g-w**à**

ii. Epenthesis: Fì dā:m àn nág**i**-wà

iii. Tone Copy: Fì dā:m àn nág**í**-wà

iv. LTS: Fì dā:m àn **nǎ**gí-wà

v. RTA: Fì dā:m àn **nà**gí-wà

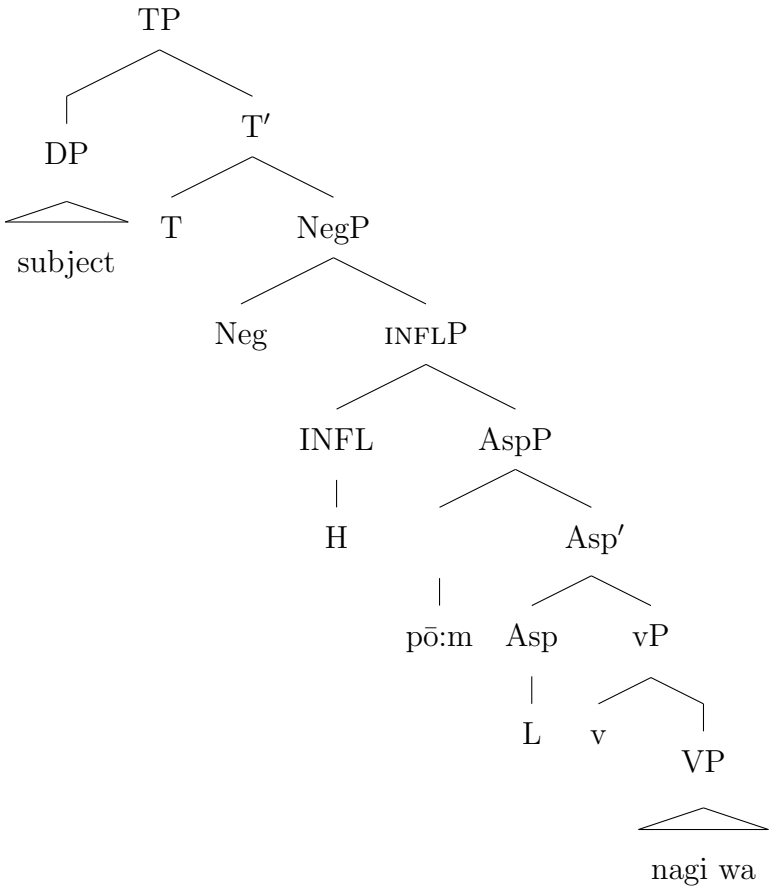
vi. Output: Fì dā:m àn nàgí-wà

'You didn't hit him at least two days ago'

INFL movement to T is blocked by the intervening NEG head. In the phonology, *INFL* will associate with the verb and the derivation will continue as before. Crucially, negation blocks the movement of *INFL*, which therefore remains in-situ and is mapped onto the verb in the phonology, where the usual phonological processes apply.

We observe a different pattern when the TRM is *pō:m*, namely a [L] tone being realized on the verb. In example (45-a), we can see that *pō:m* is between INFL and Asp, , and negation is above INFL.

(45) a.



b. morphosyntax

i. Underlying: Fì àn [[H_{INFL}] pō:m [L_{ASP}]] nag-wa

c. phonology

i. Tone Association: Fì àn [[H_{INFL}] pō:m [L_{ASP}]] **nà**g-wa

ii. Default Mid: Fì àn pō:m nàg-**wā**

iii. Epenthesis: Fì àn pō:m nàg**ɪ**-wā

iii. Tone Copy: Fì àn pō:m nàg**ì**-wā

iv. Output: Fì àn pō:m nàgì-wā

'You didn't hit him earlier today'

Movement of *INFL* is blocked because negation is present, which results in *INFL* remaining in situ. However, *INFL* is unable to associate with the verb because *pō:m* intervenes between the two. Thus, the Low tone of *Asp* is mapped to the verb and *INFL* is deleted.

3.5.3 Negation

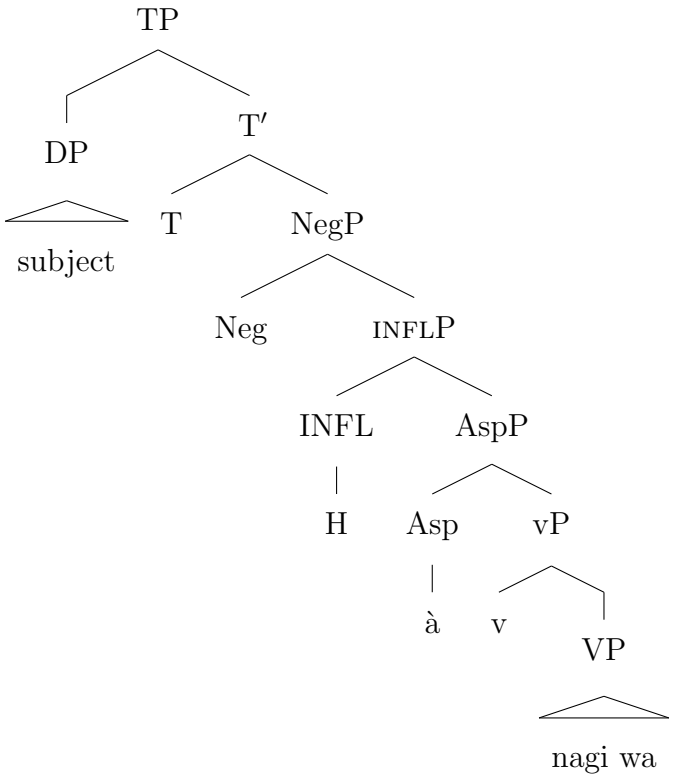
Negation is sensitive to the aspect, and as a result two forms of preverbal negation are observed: *àn* and *kàn* (46). The puzzle here concerns the mechanism under which negation is realized as either *àn* or *kàn*.

(46) a. mí àn dìgí lām ā
1SG. NEG1 cook meat NEG2
'I didn't cook meat'

b. mí kàn dīgī̄ lām ā
1SG. NEG1 cook meat NEG2
'I don't cook meat'

In order to account for this distribution, I propose a post-syntactic operation: *Merger Under Adjacency* (Bobaljik, 1994). Terminal nodes can be adjoined to each other postsyntactically, provided that the nodes are structurally adjacent after linearization. Negation is realized as *kàn* when it is structurally adjacent to the imperfect aspectual marker. In a negative imperfective sentence, *Neg* and *Asp* are adjacent in the relevant sense, and hence undergo *Merger Under Adjacency* in the post-syntactic component (47). Supra-segmentals like tone don't intervene for this purpose. Thus the [H] of *INFL* doesn't intervene. In the end, what we have after linearization is (47-b)

(47) a.



b. morphosyntax

i. Underlying: fì NEG ASP nag-wa

ii. fì kàn nag-wa

c. phonology

i. Default Mid: fì kàn nāg-wā

ii. Epenthesis: fì kàn nāgi-wā

iii. Tone Copy: fì kàn nāgī-wā

iv. Output: fì kàn nāgī-wā 'You don't hit him'

In instances where the imperfective is absent, as in (46-a) above, or an overt morpheme like *pō:m* intervenes between Neg and imperfective aspect (48), the default form *àn* is used.

(48) mí àn *pō:m* à dīgī lām ā
1SG. NEG1 CUR IMPF cook meat NEG2
'I was not cooking meat'

3.6 Tone as an inflectional morpheme

The source of tones in finite clauses can be understood if they are inflectional morphemes that are uniformly present in finite clauses. Specifically, I have argued that positing the presence of an INFLP associated with a [H] tone, combined with independently motivated morphosyntactic and phonological rules, accounts for the variation in tonal pattern observed in Bùlì.

The idea that tonal inflections exist in the structure of the clause is not novel. Indeed, Kenstowicz (2004) proposes to explain tonal patterns as a reflex of an inflectional particle present in matrix clauses. He postulates the presence of an INFL node preceding the verb, consisting of an [Agr] morpheme bearing a [HL] tone and Tns-Asp morpheme with a [L].

(49) a. $[\text{Agr}_{\text{HL}}\ \text{Tns-Asp}_{\text{L}}]_{\text{INFL}}$ Verb

b. AGR $\rightarrow$ ø/[-participant]—

c. Default: $\rightarrow$ M

A morphosyntactic rule, which I follow here, deletes the Agr morpheme when it immediately follows [-participant] (49-b). Finally, a default mid tone appears when the inflectional tones cannot appear on the verb (49-c). Although I adopt the morphosyntactic rule introduced above, I would like to note some key differences between Kenstowicz's account and the proposal here. First, what Kenstowicz calls an "Agr" morpheme corresponds to what I call the [+FIN] marker hosting the [H] tone. This marker is present in all finite clauses and raises to T whenever possible. As we have shown, negation blocks this movement. Secondly, what he calls "Tns-Asp" is simply aspect [L] in the current proposal, as tense and aspect occupy different projections.

3.7 Conclusion

In this chapter, we discussed tone, tonal processes, and the morphosyntax of the verbal domain. We concentrated on word order and inflectional properties of the verb, including preverbal material like aspect, future marking, negation, and temporal markers, as well as the effects these morphemes have on tonal patterns on the verb.

I argued for a more articulated structure for TP in Bùlì, consisting of both INFL1 and INFL2. INFL1 corresponds to the standard IP and is the locus of the EPP. INFL2, on the other hand, is the locus of a generalized finite/non-finite marking on the clause. I argued that the observed properties, especially regarding tone, are best understood if they are associated with the category of finiteness.

I showed that these proposals have broad implications for our understanding of the grammar of Bùlì. For example, the split articulated structure addresses the broad question of the sources of tones and the various tonal patterns we observe. Taken together, these proposals address the question of how to explain and differentiate the behavior of certain clauses in embedded contexts, to which I now turn in the following chapter.

Chapter 4

Sentential complementation: the finite-non-finite distinction

In the presence or absence of preverbal material including aspect, future marking, negation, and temporal remoteness markers, verbal predicates in Bùlì display a tonal alternation between High, Low and Mid. These alternations were explained in Chapter 2 as resulting from the presence of a [H] tone corresponding to a category of finiteness in the clausal spine. Specifically, I explained this by positing a more articulated structure for TP divided into a projection of INFL1 and INFL2 in the language. Whereas INFL1 corresponds to the standard IP and is the locus of the EPP, INFL2 is the locus of a generalized finite/non-finite marking on the clause.

In this chapter, I focus on embedded clauses and argue for the presence of non-finite clauses in Bùlì. As I will show, certain classes of embedded clauses show different tonal patterns from those discussed in the preceding chapter. I argue that these clauses are non-finite. INFL2 in these clauses is marked with a distinct non-finite [M] tone. In addition, it exhibits properties often associated with non-finite clauses in languages with overt non-finite marking. However, the non-finite clauses that we will discuss require an overt pronominal subject with an obligatory c-commanding argument as their antecedent in the matrix clause.

The rest of the chapter is organized as follows: Section 4.1 discusses the complementizer system of the language. A discussion of the finite-non-finite distinction is

presented in Section 4.2, and in Section 4.3, I discuss the pronominal subject of the non-finite clauses and argue that despite its overtness, it must be controlled.

4.1 The Bùlì complementizer system

Bùlì possesses three phonologically visible complementizers *āyīn*, *āsī* and *ātī*, and, arguably, a null complementizer ∅, that are used to embed sentences. I will concentrate on the distribution and function of each complementizer in the following subsections.

4.1.1 The *āyīn* complementizer

The complementizer *āyīn* is the most common complementizer found with embedding predicates in Bùlì[1]. It is found with verbs like *weini* 'say', *wom* 'hear', *ta-siaka* 'believe' etc. Examples of this complementizer are given in (1).

(1) a. Asouk wèin āyīn Asibi dà gbăŋ
Asouk say C Asibi buy book
'Asouk said that Asibi bought a book.'

b. Asouk wòm āyīn Asibi bàsì
Asouk hear C Asibi leave

[1]It is possible sometimes to use *āyīn* as in (i) without any verb. The predicate of the higher clause in this usage must be understood as "say" (i-a) however, and not for instance as "hear" (i-b) or "believe" (i-c).

(i) a. Asouk āyīn Asibi dà gbăŋ
Asouk C Asibi buy book
'Asouk said that Asibi bought a book.'

b. #Asouk āyīn Asibi dà gbăŋ
Asouk C Asibi buy book
intended 'Asouk heard that Asibi bought a book.'

c. #Asouk āyīn Asibi dà gbăŋ
Asouk C Asibi buy book
intended 'Asouk believes that Asibi bought a book.'

We could explain (i) by appealing to the source of the complementizer. In a number of African languages the complementizer of the verb of saying is derived from a verb meaning 'say': Akan (Christaller, 1875), West Dangla (Frajzyngier, 1996). I would like to propose that the complementizer *āyīn* is derived from the verb *weini* 'say' in Bùlì. Even though the complementizer over time has undergone some phonological changes, its original meaning remains when it is not embedded under any verb as in (i).

'Asouk heard that Asibi left.'

c. Núrma tà-sīaká āyīn Asouk bàsì
people.DEF.PLU have-agreement C Asouk leave
'The people believe that Asouk left.'

4.1.2 The *āsī* complementizer

Another complementizer found with embedding predicates in Bùlì is *āsī*, as in (2). This complementizer is found with different embedding constructions including declaratives, embedded questions, and conditionals.

(2) a. Asouk bà āsī Asibi dà gbǎŋ
Asouk forget C Asibi buy book
'Asouk forgot that Asibi bought a book.'

b. Kù à-ɲɛ̄ āsī Asouk chèŋ sūkū:
it ASP-seem C Asouk go school
'It seems that Asouk went to schoo.l'

c. Asouk bègì āsī Asibi dà gbǎŋ a
Asouk ask C Asibi buy book PRT
'Asouk asked whether Asibi bought a book.'

d. Āsī Asouk din jàm Asibi àlí dā gbáŋ
C Asouk DIN come Asibi FUT buy book
' If Asouk comes, Asibi will buy a book.'

4.1.3 The *āti* complementizer

The *āti* complementizer is found in a wide range of embedded constructions in Bùlì, including declaratives and causatives, as in (3).

(3) a. Kù àfɛ̄ ātī Asouk dā gbáŋ
It neccessary C Asouk buy book
'It is necessary for Asouk to buy a book.'

b. Kù nālā ātī Asouk dā gbáŋ
it good C Asouk buy book
'It is good for Asouk to buy a book.'

c. Asouk bàsì ātī Asibi lɔ̀
Asouk make C Asouk fall
'Asouk made Asibi fall.'

This complementizer is also found with A-bar constructions (4). I concentrate here on that fact that it can be used to introduce embedded sentences.

(4) a. ká wānā ātì Asouk àyā:lī:
Q who C Asouk love
'Who does Asouk love?'

b. Bí:k kāi ātì Asouk àyā:lī lā
child REL.PRO C Asouk want DET
'The child that Asouk loves.'

4.1.4 The null complementizer

Finally, I turn to the null complementizer in Bùlì. I assume the presence of this complementizer because of constructions like (5).

(5) a. Asouk wèin Asibi à dīgī lām
Asouk say Asibi IMPF cook meat
'Asouk said Asibi cooks meat.'

b. Asouk pàchìm Asibi àlì dā gbáŋ
Asouk think Asibi FUT buy book
'Asouk thinks Asibi will buy a book.'

(6) a. Asouk wèin ká gbáŋ ātī wà dà
Asouk say FOC book C 3SG buy
'Asouk said it was a book that he bought.'

b. Asouk pàchìm ká gbáŋ ātī wà dà
Asouk think FOC book C 3SG buy
'Asouk thought it was a book that he bought.'

This complementizer allows for the range of operations that overt complementizers allow when present in constructions, including embedded declaratives and focus as in (6).

Having shown that there are four different complementizers in Bùlì, I will argue in the next section that three of these complementizers introduce finite clauses, while *ati* can be used to introduce non-finite clauses.

4.2 The finite-non-finite distinction

Let us begin by considering the sentences in (7)-(8) below. With the exception of a pause, represented by the comma between the matrix and embedded clauses in the (a) examples, the sentences contain the same lexical items.

(7) a. Asouk$_i$ tìerì, wà$_{i/j}$ dà gbǎŋ
Asouk remember 3SG buy book
'Asouk remembered that he bought a book.'

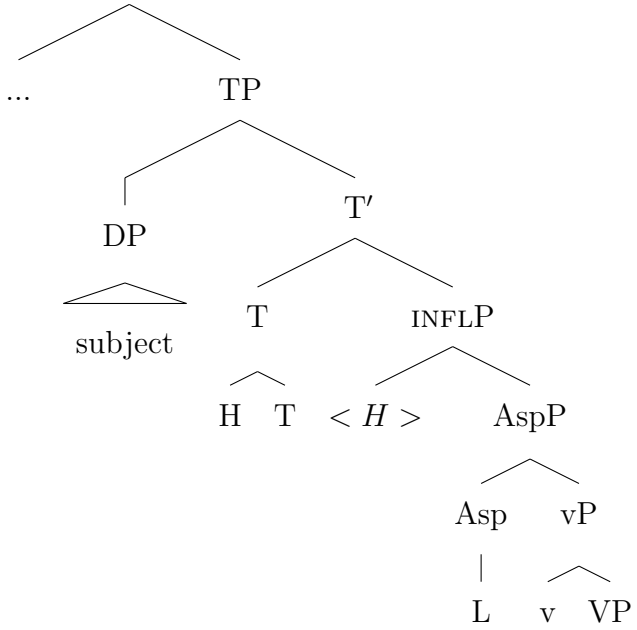
b. Asouk$_i$ tìerì wà$_{i/*j}$ dā gbáŋ
Asouk remember 3SG buy book
'Asouk remembered to buy a book.'

(8) a. Asouk$_i$ sìak, wà$_{i/j}$ dà gbǎŋ
Asouk agree 3SG buy book
'Asouk agreed that he bought a book.'

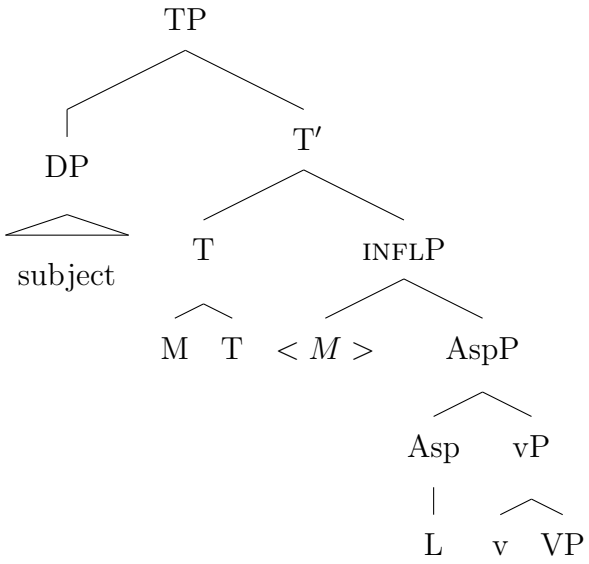
b. Asouk$_i$ sìak wà$_{i/*j}$ dā gbáŋ
Asouk agree 3SG buy book
'Asouk agreed to buy a book.'

The tone on the verb in the embedded clause is [L] in the (a) examples, while the (b) examples have a [M] tone. The (a) examples thus have the tonal patterns of finite clauses, as discussed in the previous chapter, and correspond to the structure in (9-a). I argue that the (b) examples, on the other hand, involve non-finite sentences with the structure in (9-b). The appearance of the [M] here marks the clause as non-finite. As a reminder, the reason the [L] tone of aspect does not appear on the verb is the priority given to tone mapping from left to right as extensively discussed in the previous chapter.

(9) a.



b.



In this section, I present various arguments in support of this distinction. Before proceeding, however, I will first establish that the tonal patterns are different compared to finite clauses. As we have discussed at length in the preceding chapter, in finite clauses, a third person subject in the absence of preverbal material triggers a [L] tone on the verb. This is the case for all 3rd person arguments in matrix as well as embedded clauses, and for different DP subjects, including R-expressions and pronouns, regardless of the tone on the argument (10).

(10) a. Asibi dà gbăŋ
Asibi buy book
'Asibi bought a book.'

b. wà dà gbăŋ
3SG buy book
'S/he bought a book.'

c. bí:ká dà gbăŋ
child.DEF 3SG buy book
'S/he bought a book.'

d. Asouk pàchìm Asibi dà gbăŋ
Asouk think Asibi buy book
'Asouk thought Asibi bought a book.'

e. Asouk pàchìm wà dà gbăŋ
Asouk think 3SG buy book
'Asouk thought he bought a book.'

As noted above, the embedded clauses in (7-b) and (8-b) bear [M] tones. In addition, the (a) examples in (7) and (8) behave like finite clauses, by allowing free reference of the embedded subject, while the embedded subject in (7-b) and (8-b) must be dependent on a matrix argument. This conjunction of properties is not coincidental, as I will show, and they correspond to the finite-non-finite distinctions I am proposing.

The first argument for treating the embedded clauses in (7-b) and (8-b) above as non-finite clauses comes from future time interpretation. In finite clauses, both matrix and embedded, the future marker is required for future interpretations (11).

(11) a. Asibi àlí dā gbáŋ chúm
Asibi FUT buy book tomorrow
'Asibi will buy a book tomorrow.'

b. *Asibi dà gbăŋ chúm
Asibi buy book tomorrow
'Asibi will buy a book tomorrow.'

c. Asouk pàchìm Asibi *(àlí) dā gbáŋ chúm
Asouk think Asibi FUT buy book tomorrow
'Asouk thought Asibi will buy a book tomorrow.'

In example (12), however, a future interpretation is possible without an overt future marker. The examples in (12)-(13) show that not only is a future interpretation possible without overt future marking, the future marker is excluded from all the non-finite clauses (13).

(12) a. Asouk$_i$ sìak wà$_i$/$_{*j}$ dā gbáŋ chúm
Asouk agree 3SG buy book tomorrow
'Asouk agreed to buy a book tomorrow.'

b. Mi à-yā: Asouk dā gbáŋ chúm
1SG ASP-want Asouk buy book tomorrow
'I want Asouk to buy a book tomorrow.'

c. Asouk$_i$ sìak āyīn wà$_i$/$_j$ *(àlí) dā gbáŋ chúm
Asouk agree C 3SG FUT buy book tomorrow
'Asouk agreed that he will buy a book tomorrow.'

(13) a. *Asouk sìak wà$_i$/$_{*j}$ àlí dā gbáŋ chúm
Asouk agree 3SG FUT buy book tomorrow
'Asouk agreed to buy a book tomorrow.'

b. *Mi$_i$ à-yā: Asouk àlí dā gbáŋ chúm
1SG ASP-want Asouk FUT buy book tomorrow
'I want Asouk to buy a book tomorrow.'

The inability of the future marker to appear in non-finite clauses reminds us of non-finite clauses in Mandarin, which cannot take modals/tense markers like *hui* 'will' (Li, 1990). Consider the following Mandarin examples from (Li, 1990:22) in (14). The future marker is not possible in non-finite clauses in both Bùlì and Mandarin because non-finite clauses in general exclude tense markers. The situation is, however, different with finite clauses in general, as shown in (11) above and (12-c) in Bùlì, and (14-b) for Mandarin.

(14) a. *wo quan/bi ta [hui lai]
I persuade/force he will come
'I tried to persuade him to come.'

b. I gaosu ta [huoche hui kai]
I tell him train will leave

‘ I told him that the train will leave.’

Second, while the imperfective marker *à* is allowed in finite clauses (15-a), it is excluded in non-finite clauses (15-b).

(15) a. Asouk$_i$ sìak, wà$_{i/j}$ à dā gbáŋsà
Asouk agree 3SG ASP buy books
‘Asouk agreed that he buys books.’

b. *Asouk$_i$ sìak wà$_{i/*j}$ à dā gbáŋsà
Asouk agree 3SG ASP buy books
‘Asouk agreed to buy books.’

Another argument for the finite/non-finite distinction comes from subject questions. Subject wh-questions in finite clauses require the obligatory presence of *àlì* (16).

(16) a. (Ká) wānā *(àlì) dā gbáŋ á
Q who ALI buy book PRT
‘Who bought a book?’

b. Asouk pàchìm ka wānā *(àlì) dā gbáŋ á
Asouk think Q who ALI buy book PRT
‘Who does Asouk think bought a book?’

Although it is possible to question the subject of a non-finite complement (17-a)-(17-c), questioning the subject requires the obligatory absence of *àlí*. The ungrammaticality of example (17-c) shows that it is not possible to question the controlled subject of the non-finite clause, another difference between finite and non-finite clauses.

(17) a. Mi à-yā: ká wānā (*àlì) dā gbáŋ á
1SG ASP-want Q who ALI buy book PRT
‘Who do I want for him to buy a book?’

b. Kù à-fɛ̄ ātī ká wānā (*àlì) dā gbáŋ á
It ASP-necessary C Q who ALI buy book PRT
‘Who is it necessary for him to buy a book?’

c. *Asouk sìak ká wānā dā gbáŋsà
Asouk agree Q who buy books

Is it possible that what we are questioning in (17-a)-(17-b) are arguments of the matrix predicates rather than subjects of the complement clauses? As a result, *àlí* might not be required, since extracting a non-subject doesn't require *àlí*. This is indeed a possible analysis, especially for (17-a). There is, however, evidence that these arguments are subjects of the complement clauses, which will mean that the absence of *àlí* could not be attributed to questioning a non-subject argument.

Bùlì employs resumptive pronouns in long distance extraction of a subject (18-a) but not an object (18-b).

(18) a. (ká) wānā *(āti̖) fi̖ pá꞉-chi̖m *(wà) àli̖ di̖g lāmmú꞉
Q who ATI 2SG think 3SG ALI cook meat.DEF
'Who do you think cooked the meat?'

b. (ká) b^{w}ā *(āti̖) fi̖ pá꞉-chi̖m Asouk di̖gi̖꞉ (*bu)
Q what ATI 2SG think Asouk cook 3SG
'What do you think Asouk cooked?'

If the questioned arguments in (17) above are objects, they should pattern with object extraction, and if they are subjects, they should pattern with long distance subject extraction. As shown in (19), they pattern with long distance subject extraction by requiring a resumptive pronoun.

(19) a. (ká) wānā *(āti̖) mi̖$_i$ à-yā: *(wà) (*àlì) dā gbáŋ á
Q who ATI 1SG ASP-want 3SG ALI buy book PRT
'Who do I want for him to buy a book?'

b. (ká) wānā *(āti̖) nà꞉wà tè síuk *(wà) (*àlì) dā gbáŋ á
Q who ATI chief.DEF give path 3SG ALI buy book PRT
'*Who did the chief give permission for to buy a book?'

c. (ká) wānā *(āti̖) kù à-fɛ̄ ātī *(wà) (*àlì) dā gbáŋ á
Q who ATI It ASP-necessary C 3SG ALI buy book PRT
'Who is it necessary for him to buy a book?'

The final argument for the finite/non-finite distinction comes from n-word licensing. It has been noted that NPIs and n-words differ, in that NPIs can be licensed across the border of a clause, but n-words cannot (20).

(20) a. *Gianni non ha dichiarato che ha visto niente
Gianni NEG has declared that has seen n-word

b. Gianni non ha dichiarato che ha visto alcunché
Gianni NEG has declared that has seen anything
'Gianni did not declare that he saw anything.' (Zeijlstra, 2007)

A closer examination, however, reveals that n-words can be licensed across the border of non-finite clauses (21).

(21) Gianni non ha dichiarato di aver visto niente[2]
Gianni NEG have.3sg declared of to.have seen n-word

'Gianni has not declared to have seen anything' (Italian)

A similar observation is made for Hebrew (22).[3]

(22) a. Dani lo zaxar liknot šum-davar
Dani NEG remember to-buy n-word
'Dani didn't remember to buy anything.'

b. *Dani lo zaxar se-hu kana šum-davar
Dani NEG remember that-he bought n-word
'Dany didn't remember that he bought anything.'

N-words in Bùlì are formed by reduplicating indefinite nouns and must always occur with negation, regardless of their position (23).

(23) a. Asouk *(àn) dīg jā:-jā:b *(ā)
Asouk NEG1 cook thing-thing NEG2
'Asouk didn't cook anything.'

b. wāi-wāi *(àn) dīg lām *(ā)
someone-someone NEG1 cook meat NEG2
'Nobody cooked meat.'

c. wāi-wāi *(àn) dīg jāab-jāab *(a)
someone-someone NEG1 cook thing-thing NEG2

[2]I thank Stanislao Zompí for these data.
[3]I thank Moysh Bar-Lev for these data.

'Nobody cooked anything.'

As in Italian, Hebrew, and many other languages, n-words can also be licensed across a non-finite clause boundary in Bùlı, but not across a finite clause boundary (24).

(24) a. *Asouk àn tīeri āsī wà dìg jāab-jāab *(ā)
Asouk NEG1 remember C 3SG cook thing-thing NEG2
'Asouk didn't remember that he cooked anything.'

b. Asouk àn tīeri wà dīg jāab-jāab *(ā)
Asouk NEG1 remember 3SG cook thing-thing NEG2
'Asouk didn't remember to cook anything.'

In sum, as shown above, certain embedded clauses behave differently from matrix and embedded clauses in the area of tonal patterns, future interpretation, aspect, subject wh-questions and NPI licensing. These, I argue, reflect the finite/non-finite distinction in Bùlì.

When these diagnostics are applied to embedded clauses, two different kinds of non-finite clauses emerge: the first kind, which I call *non-finite obligatory control* (non-finite-OC) clauses is illustrated in (25)-(26). In these examples, the embedded clause must have a pronominal subject, which must be coindexed with a matrix argument.

(25) **Non-finite-OC Complement: Subject-coindexation**

a. Asouk$_i$ tìerì [*(wà$_i$/$_{*j}$) dā gbáŋ]
Asouk remember 3SG buy book
'Asouk remembered to buy a book.'

b. Núrmà zèrì [*(bà$_i$/$_{*j}$) dā gbáŋ]
People.DEF.PL refuse 3PL buy book
'The people refused to buy a book.'

(26) **Non-finite-OC Complement: Object-coindexation**

a. Mi tùlìm Asouk$_i$ zúk [*(wà$_i$/$_{*j}$) dā gbáŋ]
1SG turn Asouk head 3SG buy book
'I convinced Asouk to buy a book.'

b. Mi tùlìm núrmà$_i$ zúk [*(bà$_i$/$_{*j}$) dā gbáŋ]
1SG turn people.DEF.PL head 3PL buy book
'I convinced the people to buy a book.'

The second kind, which I call the *non-finite non obligatory control* (non-finite-NOC) complement, as illustrated in (27)-(28), allows a full DP in the subject of the embedded clause. This further distinguishes between those clauses that are not introduced by complementizers (27) and those requiring complementizers (28).

(27) **Non-finite-NOC Complement without COMP**

a. Mi à-yā: Asouk dā gbáŋ
1SG asp-want Asouk buy book
'I want Asouk to buy a book.'

b. Nà:wă tè síuk Asouk dā gbáŋ
chief.DEF give path Asouk buy book
'The chief gave permission for Asouk to buy a book.'

c. Kù màgsì Asouk dā gbáŋ
it right Asouk buy book
'It is right for Asouk to buy a book.'

(28) **Non-finite-NOC Complement with COMP**

a. Kù à-fɛ̄ ātī Asouk dā gbáŋ
It ASP-necessary C Asouk buy book
'It is necessary for Asouk to buy a book.'

b. Kù nālā ātī Asouk dā gbáŋ
it good C Asouk buy book
'It is good for Asouk to buy a book.'

In the next section, I will concentrate on the non-finite-OC complements. I argue that these clauses require a pronominal subject, which covaries with the number and class of the matrix argument that it is coindexed with. As such, despite its overtness, this pronominal displays all the properties often attributed to PRO.

4.2.1 Tense properties of non-finite clauses

Non-finite clauses can differ in their temporal specifications, and one important difference concerns tense. Since Stowell (1982), researchers have classified infinitives into either tensed or tenseless, with tensed infinitives having the effect of specifying the event as 'unrealized', whereas tenseless infinitives rely on the matrix predicate for their temporal specifications. Adopting these tense diagnostics, I will show that non-finite clauses can be classified into tensed and non-tensed.

Constructions illustrating this distinction are shown in (29)-(30).

(29) a. Asouk$_i$ tìerì [*(wà$_i$/$_{*j}$) dā gbáŋ chúm]
Asouk remember 3SG buy book tomorrow
'Asouk remembered to buy a book tomorrow'

b. Núrmà dīem à gōmsī [*(bà$_i$/$_{*j}$) tū ná:wă chùm]
People.DEF.PL IMM ASP prepare 3PL meet chief tomorrow
'The people were preparing (yesterday) to meet the chief tomorrow.'

c. Asouk$_i$ sìak wà$_i$/$_{*j}$ dā gbáŋ chúm
Asouk agree 3SG buy book tomorrow
'Asouk agreed to buy a book tomorrow.'

As illustrated by the adverbial *chúm* 'tomorrow', embedded non-finite clauses can have adverbials whose temporal specification is different from that of the matrix verb. Asouk has not yet bought the book at the point at which he remembers to do so in (29-a). Similarly, the preparation was a day earlier than the meeting of the chief in (29-b). In (29-c), Asouk does not yet buy the book; he only agreed to doing so.

In contrast, the understood tense of the embedded clauses in (30) is dependent on the matrix verb: the event of not buying the book and not going to the farm happened at the time of forgetting and hating, respectively. Thus, the embedded clauses in (29) are considered tensed, while those in (30) are tenseless.

(30) a. Asouk$_i$ bà [*(wà$_i$/$_{*j}$) dā gbáŋ (*chúm)]
Asouk forget 3SG buy book tomorrow
'Asouk forgot to buy a book'

b. Núrmà à kīsī̄ [*(bà$_i$/$_{*j}$) chē tálìm (*chùm)]
People.DEF.PL ASP hate 3PL go farm tomorrow
'The people hate to go to the farm (*tomorrow).'

4.3 Obligatory controlled subjects

In the previous section, I argued that certain clauses in Bùlì are non-finite. However, unlike 'regular' non-finite clauses, non-finite clauses of Bùlì require pronominal subjects. In this section, I will argue that the pronominal in the embedded clauses of non-finite-OC clauses is a subject and must be controlled by a matrix argument. As noted, subjects of the non-finite-OC clauses must be co-indexed with a matrix argument. In (31) and (32) repeated from (25)-(26) above, co-indexation is with a matrix subject in (31), while in (32), it is with a matrix object. Note that the pronominal also covaries with the number and class of the matrix argument it is coindexed with.

(31) a. Asouk$_i$ tìerì *(wà$_i$/$_{*j}$) dā gbáŋ
Asouk remember 3SG buy book
'Asouk remembered to buy a book.'

b. Nurma$_i$ bàŋ *(bà$_i$/$_{*j}$) kpārī̄ tóukú
People.DEF.PL forget 3PL lock door
'The people forgot to lock the door.'

(32) a. Mì tùlìm Asouk$_i$ zúk *(wà$_i$/$_{*j}$) bāsī̄ dēlā
1sg turn Asouk head 3SG leave here
'I convinced Asouk to leave.'

b. Núr-wá fɛ̀ bísáŋá$_i$ *(bà$_i$/$_{*j}$) bāsī̄ dēlā
man.DEF force children 3PL leave here
'The man forced the children to leave.'

Although the subjects of these non-finite clauses are overt, diagnostics from Williams (1980), Hornstein (1999), and Landau (2013) regarding signature properties of PRO suggest that the overt pronominal behaves like 'PRO' except for its overtness.

First, like PRO, and unlike pronouns, the subjects of these clauses must find their antecedent in the immediately higher clause (33).

(33) **Long-distance binding of this pronominal is not possible**.

a. Asouk$_i$ nỳa āsī núrmà$_j$ tìeri *wà$_{i/}$bà$_j$ dā gbáŋ
Asouk realize C people.DEF.PL remember 3SG/3PL buy book
'Asouk realized that the people remembered to buy a book.'

b. Asouk$_i$ nyà āsī núrmà$_j$ wèin āyīn wà$_{i/}$bà$_j$ dà gbăŋ
Asouk realize C people.DEF.PL say C 3SG/3PL buy book
'Asouk realized that the people say that he/they bought a book.'

Second, no coindexation of this pronominal with a non-c-commanding nominal is possible (34).

(34) **The pronominal must be c-commanded by its antecedent**

a. Asouk$_i$ dóamà$_j$ bàŋ *wà$_{i/}$bà$_j$ kpārī tóukú
Asouk friend.DEF.PL forget 3SG/3PL lock door
'Asouk's friends forgot to lock the door.'

b. Asouk$_i$ dóamà$_j$ pàchìm wà$_{i/}$bà$_j$ kpārī tóukú
Asouk friend.DEF.PL think 3SG/3PL lock door
'Asouk's friends thought he/they locked the door.'

In ellipsis contexts, the pronominal must be construed sloppily. In example (35), which involves a finite complement, the pronominal could be construed strictly or sloppily. In the strict reading, Asouk was the first to say that he bought a book before Asibi said he (Asouk) bought a book.

(35) **Finite clause: the pronominal is ambiguous: strict or sloppy**

Asouk$_i$ wìen wà dà gbăŋ àlēgē Asibi$_j$ ~~wìen wà$_{i/j}$ dà gbáŋ~~
Asouk say 3SG buy book before Asibi ~~say 3SG buy book~~

'Asouk said he bought a book before Asibi ~~said that he bought a book.~~'

In contrast, in the non-finite case (36), the pronominal must be construed sloppily. In (36), Asouk was the first to agree to buy the book before Asibi also agreed to buy a book.

(36) **Non-finite clause: the pronominal must be construed as sloppy**

Asouk$_i$ sìak wà$_i$ dā gbáŋ àlēgē Asibi$_j$ ~~sìak wa$_{*i/j}$ dā gbáŋ~~
Asouk agree 3SG buy book before Asibi ~~agree 3SG buy book~~

'Asouk agreed to buy a book before Asibi ~~agreed to buy a book.~~'

Another observation is that PRO in OC environments is interpreted as a bound variable, i.e., it must be bound by the controller. This results in the difference in interpretation between (37-a)-(37-b) and (37-c)-(37-d). While the pronouns in the non-finite complement are limited to the bound variable reading in (37-a)-(37-b), the pronouns in (37-c)-(37-d) are not.

(37) **The pronominal is interpreted as a bound variable.**

a. wā:-wāi$_i$ àn tī̄eri wà$_{i/*j}$ dā gbáŋ à
someone-someone NEG1 remember 3SG buy book NEG2
'No one remembered to buy a book.'

b. Asouk ɲī̄:nī̄$_i$ àlì tī̄eri wà$_{i/*j}$ dā gbáŋ
Asouk only ALI remember 3SG buy book
'Only Asouk remembered to buy a book.'

c. wā:-wāi$_i$ àn wī̄en wà$_{i/j}$ dà gbăŋ à
someone-someone NEG1 say 3SG buy book NEG2
'No one said that he bought a book.'

d. Asouk ɲī̄:nī̄$_i$ àlì tī̄eri āyī̄n wà$_{i/j}$ dā gbáŋ
Asouk only ALI C remember 3SG buy book
'Only Asouk remembered that he bought a book.'

Finally, as observed by Chierchia (1990), the subject in an infinitival control construction is interpreted *de se*. This property holds of the pronominal subject in these complements: it too must be understood *de se*. This reading arises when the controller/antecedent is the subject of an attitude predicate and is aware that the complement proposition pertains to him/herself. In any situation where the attitude holder mistakes the embedded subject as someone other than him/herself, the pronominal cannot be truthfully used.

Consider the following scenario: An old man (Asouk) is listening to the credentials of three people being considered for a chieftaincy title. Not knowing that the credentials of the second person mentioned refer to him (because he hardly remembers anything), he says to his wife 'this person should be given the title'.

In this scenario (38) is false, an expected outcome if the pronominal is an instance of PRO.

(38) Asouk$_i$ à-z̄ientī wà$_i$ ch̄im nà:b
Asouk eager 3SG become chief
'Asouk is eager to become a chief.'

It is important to note that Bùlì subject pronouns in these non-finite constructions are not obligatory focused, as opposed to overt pronominal subjects in control constructions in some languages previously discussed, such as Italian, Romanian, and Hungarian (Szabolcsi, 2009), European Portuguese (Barbosa, 2009), and Korean (Madigan, 2008):

(39) Senki nem akart csak ő le ül-ni.
Nobody not wanted-3SG only he/she sit-INF
'Nobody wanted it to be the case that only he/she takes a seat' (Hungarian: Szabolzci, 2009)

Controlled pronominal subjects in Bùlì are not focus marked, thus making it distinct from all the other cases identified where 'PRO' is overt. As discussed in Chapter 1, Bùlì makes a distinction between weak and strong pronouns, with strong pronouns sometimes associated with focus. Weak pronouns usually have low tones. In controlled constructions, only weak pronouns are acceptable (40-a). Strong pronouns are grammatical only when they are modified by scope bearing elements like *also/too*, similar to what (Szabolcsi, 2009) identified (40-b).

(40) a. Asouk$_i$ sàik *((wà$_i$)/(*wá$_i$)) dā gbáŋ
Asouk agree 3SG buy book
'Asouk agreed to buy a book.'

b. Asouk$_i$ sàik *((*wà$_i$)/(wá$_i$)) mɛ̄ dā gbáŋ
Asouk agree 3SG also buy book
'Asouk agreed to also buy a book.'

Crucially, focus is not required to overtly express the subject. This indicates that overtness of the infinitival subject does not depend on focus in this language. Thus, the phenomena involving overt pronouns in non-finite clauses in Bùlì is not identical to the phenomenon identified by (Szabolcsi, 2009) and others.

4.3.1 Clause size

In this section, I show that the size of the complement clause also plays a crucial role in determining under what circumstances the pronominal must be controlled. In this regard, two conditions must be met for obligatory control to be required: 1) characteristics of the embedding verb, and 2) the size of the embedded complement clause. I argue that only TP complements induce obligatory control under control predicates, while CP complements do not. Some verbs, like those in (41), may take a finite clause complement with an overt complementizer, in which case coindexation is not forced. Similarly, when there is a pause between the matrix predicate and the complement clause, coindexation is not forced (42). However, when these same verbs take complements without a complementizer or a pause, coindexation is forced (43).

(41) a. Asouk$_i$ tìerì āsī wà$_i$/$_j$ dà gbǎŋ
Asouk remember C 3SG buy book
'Asouk remembered that he bought a book.'

b. Nurma$_i$ bàŋ āsī bà$_i$/$_j$ kpàrì tòukú
People.DEF.PL forget C 3PL lock door
'The people forgot that they locked the door.'

(42) a. Asouk$_i$ tìerì, wà$_i$/$_j$ dà gbǎŋ
Asouk remember 3SG buy book
'Asouk remembered that he bought a book.'

b. Nurma$_i$ bàŋ bà$_i$/$_j$ kpàrì tòukú
People.DEF.PL forget 3PL lock door
'The people forgot that they locked the door.'

(43) a. Asouk$_i$ tìerì wà$_{i/*j}$ dā gbáŋ
Asouk remember 3SG buy book
'Asouk remembered to buy a book.'

b. Núrmà$_i$ bàŋ bà$_{i/*j}$ kpārī́ tóukú
People.DEF.PL forget 3PL lock door
'The people forgot to lock the door.'

The distinction between (41) and (43) is not just about the overtness or nullness of the complementizer, but also about the presence or absence of a C layer in the first place in (43). For verbs like 'say' and 'think', which can optionally take an overt complementizer, obligatory co-indexation is not induced when the complementizer is not overtly realized (44).

(44) a. Asouk wēin (āyī́n) wà$_{i/j}$ dà gbáŋ
Asouk say C 3SG buy book
'Asouk said that he bought a book.'

b. Asouk pàchìm wà$_{i/j}$ dà gbaŋ
Asouk think 3SG buy book
'Asouk thought he bought a book.'

The embedded clauses in (44) permit embedded focus/topicalization even when the complementizer is not overtly expressed (45).

(45) a. Asouk wēin (āyī́n) ká gbáŋ ātī́ wà$_{i/j}$ dà
Asouk say C KA book C 3SG buy
'Asouk said that it was a book that he bought.'

b. Asouk pàchìm ká gbaŋ ātī́ wà$_{i/j}$ dà
Asouk think KA book C 3SG buy
'Asouk thought it was a book that he bought.'

However, with control predicates, embedded focus is possible only when the complementizer is overt. In comparing (46) and (47), we can see that when the complementizer is overtly expressed, as in (46), CP-like elements are allowed; whereas equivalent constructions without the complementizer, as in (47), are ungrammatical. Observe also the sharp contrast between examples (47) and (45), where the absence of the

overt complementizer doesn't affect the grammaticality of the sentences in (45).

(46) a. Asouk$_i$ tìerì āsī́ ká gbáŋ ātī́ *(wà$_{i/j}$) dà
Asouk remember C KA book C 3SG buy
'Asouk remembered that it was a book that he bought.'

b. Núrmà$_i$ bàŋ āsī́ ká tóukú ātī́ *(bà$_{i/j}$) kpàrì
People.DEF.PL forget C KA door 3PL lock
'The people forgot that it was the door that they locked.'

(47) a. *Asouk$_i$ tìerì ká gbáŋ ātī́ *(wà$_{i/j}$) dà
Asouk remember KA book C 3SG buy
'Asouk remembered that it was a book that he bought.'

b. *Núrmà$_i$ bàŋ ká tóukú ātī́ *(bà$_{i/j}$) kpàrì
People.DEF.PL forget KA door C 3PLU lock
'The people forgot that it was the door that they locked.'

This may be taken as evidence that the complement clauses in the obligatory control cases do not have a null C, but that they completely lack a CP-layer.

4.3.2 The pronominal as subject

I have established that the overt pronominal in the non-finite complement clause in Bùlì must be controlled. An alternative hypothesis might posit that PRO is actually null as in other languages, and that this overt pronominal is instead an agreement marker found in non-finite clauses, similar to what we see in inflected infinitives in languages like Brazilian Portuguese. This alternative view faces a number of challenges. First, analogous agreement marking is conspicuously lacking in both finite and other non-finite clauses (48). In finite clauses in both matrix and embedded contexts, repeating the pronominal as an agreement marker results in ungrammaticality (48-a)- (48-b). Similarly, repeating the pronominal in the non-finite clauses that permit referential DPs, as in (48-c)-(48-d), is also ungrammatical.

(48) a. Asibi$_i$ (*wà$_i$) dà gbăŋ
Asibi 3SG buy book
'Asibi bought a book.'

b. Asouk pàchìm Asibi$_i$ (*wà$_i$) dà gbǎŋ
Asouk think Asibi 3SG buy book
'Asouk thought Asibi bought a book.'

c. Mi à-yā: Asouk$_i$ (*wà$_i$) dā gbáŋ
1SG ASP-want Asouk 3SG buy book
'I want Asouk to buy a book.'

d. Kù à-fɛ̄ ātī Asouk$_i$ (*wà$_i$) dā gbáŋ
It ASP-neccssary C Asouk 3SG buy book
'It is necessary for Asouk to buy a book.'

Second, the placement of adverbials in both kinds of clauses places the pronominal in the same location as matrix and embedded subjects: Spec, TP. The adverb 'tomorrow' follows the subject in matrix clauses, whether they are referential (49-a) or pronominal (49-b).

(49) a. Asibi chúm àlí dā gbáŋ
Asibi tomorrow FUT buy book
'Asibi will buy a book tomorrow.'

b. wà chúm àlí dā gbáŋ
3SG tomorrow buy book
'He will buy a book tomorrow.'

The adverb follows the pronominal in non-finite clauses as well (50). This shows that the pronominal is in Spec TP, just as in matrix subjects, and that it is not, for example, a clitic on the verb.

(50) a. Asouk$_i$ sàik *(wà$_i$/$_{*j}$) chúm dā gbáŋ
Asouk agree 3SG tomorrow buy book
'Asouk agreed to buy a book tomorrow.'

b. Asouk$_i$ à-yā: *(wà$_i$/$_{*j}$) chúm dā gbáŋ
Asouk ASP-want 3SG tomorrow buy book
'Asouk wants to buy a book tomorrow.'

Finally, the overt pronominal in the non-finite clauses can be focused just like any subject (51).

(51) a. Asouk mɛ̄ dà gbǎŋ
Asouk also buy book
'Asibi also bought a book.'

b. Asouk$_i$ sàik *(wá$_i$/$_{*j}$) mɛ̄ dā gbáŋ
Asouk agree 3SG also also buy book
'Asouk agreed to also buy a book.'

c. Asouk$_i$ à-yā: *(wá$_i$/$_{*j}$) mɛ̄ dā gbáŋ
Asouk ASP-want 3SG also buy book
'Asouk wants to also buy a book.'

The combination of these facts suggests that the overt pronominal is not an agreement marker or a clitic on the verb, but rather, is a real subject in Spec, TP. Except for its overtness, this pronominal shares the properties of PRO, distinguishing it from pronouns in that it must be controlled by a matrix argument.

4.4 Conclusion

This chapter has established that Bùlì has non-finite clauses marked by a [M] tone. Using various diagnostics, we saw that non-finite clauses can be classified into non-finite obligatory control (non-finite-OC) and non-finite non obligatory control (non-finite-NOC). Crucially, non-finite-OC clauses require overt pronominals in their specifier position; a pronominal that shares in the properties of PRO, including the requirement that it be controlled by a c-commanding matrix argument. This conclusion raises a number of questions regarding various approaches to Control. In the next chapter, I discuss these analysis and argue that the subjectless-based approach to control cannot be extended to Bùlì, for obvious reasons.

Chapter 5

Towards an analysis

As shown in the previous chapter, control sentences in Bùlì have overt controlees. However, these controlees are not focused in Bùlì, as they must be in other languages where overt controlees have been attested. In this chapter, I present an account of how non-finite clauses and their overt pronominal subjects are to be analyzed in Bùlì. I propose that the overt pronominal subject (the controlee) is a bound pronoun. As a bound element, it starts its life in the syntax as an index or variable, with no phi-features (Kratzer, 1998; Heim and Kratzer, 1998; von Stechow, 2003; Schlenker, 2003; Heim, 2008), or as a minimal pronoun (Kratzer, 2009; Landau, 2015). As an index lacking features in the syntax, it has to be bound: its form at PF reflects the features it inherits from its binder, the controller. Thus, though it appears in the form of a referential pronoun, its genesis is different from that of a referential pronoun. Namely, it starts the derivation with no features at all, while its referential counterpart starts the derivation with all of its features present. My implementation follows the insights of Landau (2015) for control constructions. Before spelling out this proposal in detail, I will present an earlier analysis of these data within the movement theory of control (Sulemana, 2019), noting some challenges with this approach that are easily addressed within the current proposal. I review Sulemana's (2019) account of control within the movement theory of control (MTC) in Section 5.1. I argue in Section 5.2 that the MTC analysis of these data faces a number of issues, especially in the context of partial control (PC). I address these issues in Section 5.3, by presenting a theory of

control in Bùlì along the lines of Landau (2015). A syntax and semantics of pronouns are presented in Section 5.4 and in Section 5.5 I summarize and conclude the chapter.

5.1 Movement theory of Control (Sulemana, 2019)

In Sulemana (2019), I proposed an analysis for these data that relies on movement, analogous to raising and subject extraction in the language, which are argued to involve movement. I argued that the structures repeated below instantiate obligatory control of overt elements.

(1) a. Asouk$_i$ tìerì *(wà$_i$/$_{*j}$) dā gbáŋ
Asouk remember 3SG buy book
'Asouk remembered to buy a book'

b. Núrmà$_i$ zèrì *(bà$_i$/$_{*j}$) dā gbáŋ
People.DEF.PL refuse 3PL buy book
'The people refused to buy a book'

c. Mí túlím Asouk$_i$ zúk *(wà$_i$/$_{*j}$) dā gbáŋ
1SG turn Asouk head 3SG buy book
'I convinced Asouk to buy a book'

I proposed that the relation between the matrix arguments and the embedded subject (the overt pronominal) in these constructions is derived through movement of the kind proposed by Hornstein (1999, 2001, 2003), O'Neil (1995), Boeckx and Hornstein (2003, 2004, 2006), Boeckx et al. (2010), van Urk (2010), and Sheehan (to appear), and that between PRO and its controller is that of a chain relation. I assumed an approach that views theta-roles as features in need of checking/valuation. A DP can check a theta-role, either directly through external merge or via internal merge (DP-movement from within the syntactic tree.) A movement-type analysis for (1-a), for instance, would work as in (2).

(2) [TP [Asouk] T [vP [~~Asouk~~] v[VP V tìerì [TP [~~Asouk~~] T [vP [~~Asouk~~] v [VP V dā [gbáŋ]]]]]]]

The subject DP first merges in Spec, vP of the embedded clause, checking the external theta-role of the verb, and subsequently moves to the Spec, TP, for EPP reasons. When the matrix verb is merged with its complement, the embedded subject raises to its second theta-position, Spec vP, to check the verb's theta-role, thus satisfying the external theta-roles of both verbs. Finally, the subject moves to Spec, TP to satisfy EPP and Case. If complementizers are phase heads (Chomsky, 2013), these complements, as noted in Chapter 3, are TPs, and as such they lack a phase head. I argued that the absence of a phase head makes the embedded subject accessible to the matrix probe, and results in subsequent movement of the DP to the matrix probe not having to cross a phase. In this analysis, the pronominal is simply a pronounced copy of the moved-DP in the subject position of the embedded TP.

5.1.1 Evidence for movement: raising and subject extraction

The evidence for this analysis comes from raising and subject extraction.

Raising

Bùlì appears not to have clear raising-to-subject predicates. We can see this by examining 'seem'-type verbs as in (3), which do not allow raising. The complement in (3-b) is just a normal finite clause.

(3) a. Kù à-ɲɛ̄ āsī̄ Asouk chèŋ sūkū:
3SG ASP-seem C Asouk go school
'It seems that Asouk went to school' (You haven't seen Asouk)

b. Asouk$_i$ à-ɲɛ̄ āsī̄ wà$_{i/j}$ chèŋ sūkū:
Asouk ASP-seem C 3SG go school
'Asouk seems like he went to school'. (You must see Asouk)

Evidence from the overt complementizer present in (3), the low tone on the embedded verb, and the fact that obligatory coreference is not observed in (3-b) all demonstrate that we are dealing with a finite embedded clause. The fact that the relation between the subject in (3-b) and the embedded clause is not restricted also provides

evidence that this example does not involve movement. Additionally, example (4) demonstrates that this embedded clause does not require an overt pronoun covarying with the subject (4-a), and when such a pronoun does occur, this pronoun can appear anywhere: it can be a possessive pronoun (4-b), it can be the object (4-c), it can be deeply embedded (4-d), and it can appear in an island (4-e).

(4) a. Asouk à-ɲɛ̄ āsī̀ bà ɲà Asibi
Asouk ASP-seem C 3PL find Asibi
'Asouk seems like they found Asibi' (Asibi is Asouk's child)

b. Asouk$_i$ à-ɲɛ̄ āsī̀ wà$_i$ bì:ká kùlì
Asouk ASP-seem C 3SG child go.home
'Asouk seems like his child went home'

c. Asouk$_i$ à-ɲɛ̄ āsī̀ Asibi ɲà wà$_i$
Asouk ASP-seem C Asibi find 3SG
'Asouk seems like Asibi found him'

d. Asouk$_i$ à-ɲɛ̄ āsī̀ Azuma wēin āyī̀n Asibi àlí ɲā wà$_i$
Asouk ASP-seem C Azuma say C Asibi FUT find 3SG
'Asouk seems like Azuma said that Asibi will find him'

e. Asouk$_i$ à-ɲɛ̄ āsī̀ bà ɲà bí kāi ātī̀ wà$_i$ à-yā: lā
Asouk ASP-seem C 3PL find child REL.PRO C 3SG ASP-love PRT
'Asouk seems like they found the child that he loves'

On the other hand, predicates like *magsi* 'right, appropriate' take non-finite complements and allow optional raising to subject, as in (5-b), which I argued involves movement. Note the similarity in meaning between (5-a) and (5-b). The embedded subject must have an overt pronoun which covaries with, and is restricted to, the most local subject (5-b)-(5-c). This is exactly what we see in the control cases discussed above.

(5) a. Kù màgsì Asouk chēŋ sūkū:
3SG right Asouk go school
'It is right (for) Asouk to go to school.

b. Asouk$_i$ màgsì wà$_i$/$_{*j}$ chēŋ sūkū:
Asouk right 3SG go school
'It is right (for) Asouk to go to school.

c. Núrmà$_i$ màgsì bà$_i$/$_{*j}$ chēŋ sūkū:
people right 3PL go school
'It is right (for) the people to go to school.

Additionally, the occurrence of this pronominal is restricted: it cannot be a possessive pronoun bound by the matrix subject (6-a), it cannot be in object position (6-b), it cannot be deeply embedded (6-c), and it cannot appear in an island (6-d).

(6) a. *Asouk$_i$ màgsì wà$_i$ bì:ká chēŋ sūkū:
Asouk right 3SG child go school

b. *Asouk$_i$ màgsì Azuma pā wà$_i$
Asouk right Azuma hire 3SG

c. *Asouk$_i$ màgsì Azuma wēin āyīn wà$_i$ chēŋ sūkū:
Asouk right Azuma say SC 3SG go school

d. *Asouk$_i$ màgsì bà pà nípok wāi ātī wà$_i$ à-yā: lā
Asouk right 3PL hire woman REL.PRO C 3SG ASP-love PRT

Other arguments suggesting movement in the case of raising came from idiom preservation. In example (7), the idiomatic reading is preserved. This follows naturally if the subject in (7-a) is base generated in the embedded clause and then raised to the matrix clause in (7-b).

(7) a. Kù màgsì **zūrūgàlò:-lām kán bē**
3SG right plenty-meat NEG lost
'It is right that unity is strength'
Lit: 'It is right that the meat of many doesn't get lost'

b. **zūrūgàlò:-lām** màgsì bù **kán bē**
plenty-meat right 3SG NEG lost
'It is right that unity is strength'
Lit: 'It is right that the meat of many doesn't doesn't get lost'

In addition to *magsi*, the morpheme *zā*, which I will gloss as an aspectual predicate, is a raising predicate. However, unlike *magsi*, raising is obligatory with *zā*, as demonstrated in (8)-(9) below.

(8) a. Asouk$_i$ zā wà$_i$ kūlī kāmā
Asouk ASP 3SG go.home FOC
'Asouk is going to go home'

b. núrmá$_i$ zā bà$_i$ kūlī kāmā
people ASP 3PL go.home FOC
'The people are going to go home'

c. ŋmàrùkú$_i$ zā kù$_i$ nī kāmā
rain ASP 3SG rain FOC
'It is going to rain'

(9) a. *Kù zā Asouk kūlī kāmā
3SG ASP Asouk go.home FOC
'Asouk is going to go home'

b. *Kù zā ŋmàrùkú nī kāmā
3SG ASP rain.DEF rain FOC
'It is going to rain'

Also with *zā*, the matrix subject must be an argument of the embedded predicate, and it must c-command the embedded subject position (10).

(10) a. Jénní$_i$ zā dì$_i$ wōgrī kāmā
egg.DEF ASP 3SG hatch FOC
'The egg is going to hatch'

b. *Asouk$_i$ bísáŋá zā wà$_i$ kūlī kāmā
Asouk children ASP 3SG go.home FOC

c. *Asouk$_i$ bísáŋá zā wà$_i$ kūlī kāmā
Asouk children ASP 3SG go.home FOC
'Asouk's children are going to go home'

This predicate clearly shares some properties with control. Specifically, these properties include not allowing non-pronominal DPs in the embedded clause and not permitting expletives in the matrix subject position. Any meaningful comparison of raising and control in Bùlì should involve this sort of predicate. I will therefore make use of this type of predicate in Section 5.2.2 to inform the discussion of partial control (PC). We may also conclude at this point that raising, just like control, leaves behind a covarying pronominal.

Subject Extraction

In Sulemana (2019) I also briefly considered long distance subject wh-extraction as an argument for the MTC. Bùlì employs resumptive pronouns in long distance extraction of a subject. The embedded subject must be an overt pronoun that covaries with the extracted wh-phrase in both number and class (11-a)-(11-c).

(11) a. (ká) wānā$_i$ *(ātì) fì pá:-chīm *(wà$_i$) ālì dīg lāmmú:
Q who ATI 2SG think 3SG ALI cook meat.DEF
'Who do you think cooked the meat?'

b. (ká) núr bānā$_i$ *(ātì) fì pá:-chīm *(bà$_i$) ālì dīg lāmmú:
Q people which ATI 2SG think 3PL ALI cook meat.DEF
'Which people do you think cooked the meat?'

c. (ká) bà kānā$_i$ *(ātì) fì pá:-chīm *(kà$_i$) ālì ŋɔ̄bī lāmmú:
Q dog which ATI 2SG think 3SG ALI eat meat.DEF
'Which dog do you think ate the meat?'

The fact that the relation between the pronoun and the resumptive pronoun is derived through movement can be seen in its island-sensitivity: it cannot cross a relative clause island, as seen in (12) (Ferreira and Ko 2003, Hiraiwa 2003, 2005, Sulemana 2019).

(12) *ká wānā$_i$ *(ātì) fì pá:-chīm Asouk pà nípok wāi ātī wà$_i$ pàg lā:
Q who ATI 2SG think Asouk hire woman REL.PRO C 3SG praise PRT
'Who do you think Asouk hired the woman s/he praised?'

Raising, control, and long distance subject wh-extractions have something in common: they all involve movement and, in the wake of it, leave a covarying pronominal. A clear difference between raising and control on the one hand, and subject wh-extraction on the other, is that the former involves A-movement, while the later involves A-bar movement. Secondly, raising and control differ in that raising is movement from the embedded clause to a matrix non-theta position, while control involves movement from the embedded clause through a matrix theta position (Hornstein, 1999; Sheehan, 2015; van Urk, 2010). Under this analysis, I argued that the pronominal is a spell-

out copy of the moved DP in the embedded clauses. This is in line with the view that pronouns may sometimes be spelled-out as copies of DPs (Zaenen et al., 1981; Pesetsky, 1998; Sichel, 2014; Harizanov, 2014; van Urk, 2015, 2018). Thus raising, subject extraction and control are unified as movement. In this thesis, I propose a non-movement approach to control in Bùlì, for reasons to be discussed shortly.

5.2 Partial control (PC) and movement theory

5.2.1 Introduction

One major claim of the movement theory of control is that obligatory control (OC) PRO and traces of DPs are not distinct; they both result from movement. However, there are a number of issues with this unification when certain predicates are embedded under raising and control predicates. Specifically, while certain control predicates allow singular controllers to control plural pronominals, raising predicates disallow it. In other words, if OC PRO and traces of DPs are the same, how can a singular DP leave behind a plural pronominal copy and why is this only limited to control cases and does not occur with raising or subject extraction?

5.2.2 Partial control (PC)

In all the cases of control that we have considered so far, there is strict identity in number and class between the controller and the controlee. However, there do exist cases where there is not strict identity between the controller and the controlee, namely, partial control (PC) (Landau, 2013). In PC cases, the controller is semantically and syntactically singular, while the controlee is semantically plural but syntactically singular. The following examples from English illustrate PC. Crucially, the controlee must include the singular controller in its referent.

(13) a. The chair$_i$ decided [PRO$_{i+}$ to meet at 6]

b. *The chair$_i$ decided [PRO$_{i+}$ to meet each other]

In Bùlì, collective predicates like *tīgsī* 'to gather' and *tū* 'to meet' can be used in PC. The reference of the controlee must include the matrix subjects in the examples below. A crucial point to note here is that the overt controlee is 3rd person plural (14-a)-(14-b). Having a singular subject in the embedded subject position is ungrammatical (14-c).

(14) a. Asouk$_i$ à-zīenti [bà$_{i+}$ tū yénní pō]
Asouk eager 3PL meet house in
'Asouk is eager to meet in the house'

b. Asouk$_i$ sìak [bà$_{i+}$ tīgsī]
Asouk agree 3PL gather
'Asouk agreed to gather'

c. *Asouk$_i$ sìak [wà$_{i+}$ tīgsī]
Asouk agree 3SG gather
'Asouk agreed to gather'

The predicate in (14) obligatorily takes plural subjects, as shown in (15)-(16) below.

(15) a. núrmá tìgsì
people.DEF gather
'The people gathered'

b. *núrwá tìgsì
man.DEF gather
'The man gathered'

(16) a. núrmá tùi
people.DEF meet
'The people met'

b. *núrwá tùi
man.DEF meet
'The man met'

The predicate *tū* 'to meet' can take a singular subject, but only when it is followed by an object.

(17) núrwá tù Asibi
man.DEF meet Asibi
'The man met (with) Asibi'

Another way of constructing PC sentences in Bùlì is by using the adverb *chā:b* 'each other/one another' with a predicate like *bānī* 'accompany'.

(18) Asouk$_i$ àgōmsī [bà$_{i+}$ bānī chā:b]
Asouk prepare 3PL accompany each-other
'Asouk is preparing to accompany each other'

5.2.3 Partial raising

When these collective predicates are embedded under the raising predicate, there must be a strict identity between the controller and controlee (19)-(20). Thus, when there is a mismatch between the controller and the controlee, the sentences become ungrammatical. Crucially, this is unlike the control case which allows a mismatch. In (19-a), the subject is singular and requires a direct object. When this object is provided, as in (19-e), the construction is grammatical. Although the subject of the embedded clause is plural in (19-b) and (19-c), the constructions remain ungrammatical. This is taken as evidence that a moved singular DP cannot be resumed with a pronominal which doesn't match the number of its antecedent. When this identity is satisfied as in, (19-d)-(19-e), the sentence becomes acceptable.

(19) a. *Asouk$_i$ zā wà$_i$ tū kāmā
Asouk ASP 3SG meet FOC
'Asouk is going to meet'

b. *Asouk$_i$ zā bà$_{i+}$ tū kāmā
Asouk ASP 3PL meet FOC
'Asouk is going to meet'

c. *Asouk$_i$ zā bà$_{i+}$ tū núrwá kāmā
Asouk ASP 3PL meet man.DEF FOC
'Asouk is going to meet'

d. núrmá$_i$ zā bà$_i$ tū kāmā
people.DEF ASP 3PL meet FOC

'The people are going to meet'

e. Asouk$_i$ zā wà$_i$ tū núrwá kāmā
Asouk ASP 3SG meet man.DEF FOC
'Asouk is going to meet the man'

(20) a. *Asouk$_i$ zā wà$_i$ bānī chā:b
Asouk ASP 3SG accompany each-other
'Asouk is going to accompany each other'

b. *Asouk$_i$ zā bà$_{i+}$ bānī chā:b
Asouk ASP 3PL accompany each-other
'Asouk is going to accompany each other'

c. núrmá$_i$ zā bà$_i$ bānī chā:b
people.DEF ASP 3PL accompany each-other
'The people are going to accompany one another'

The above examples are straightforwardly explained by movement. In (20-a) for instance, the pronominal matches in features with its antecedent, as expected. However, this is ungrammatical because the anaphor requires a plural antecedent. In example (20-b), we have a plural antecedent for the anaphor, but this pronominal doesn't match in features with its own antecedent, again resulting in ungrammaticality. Finally, in example (20-c), all of the requirements are met. The pronoun matches in features with its antecedent, and being a plural pronominal, the anaphor can take it as its antecedent. While the raising cases can straightforwardly be accounted for by movement, the control case cannot, as I will show in the next section.

5.2.4 Analysis of PC: movement theory

Boeckx et al. (2010) analyze the PC in constructions like (18) above along the lines of (21) where the embedded subject of the PC construction is the trace of the controller accompanied by the licensing of a null comitative. Thus, like the exhaustive control cases, the controller should determine the referential properties of the controllee. The idea is that the plural reading of *meet* comes from the presence of the null comitative.

(21) a. The chair$_i$ decided [PRO$_{i+}$ to meet at 6]

b. The chair$_i$ decided [t$_i$ to meet *pro$_{comitative}$* at 6]

This account, however, clearly cannot be carried over to the facts in Bùlì. In this language, as we have seen above, the embedded subject clearly differs from the matrix subject in number. This cannot be explained by movement unless we are committed to saying that moved DPs can mismatch in number. However, if that were the case, one would wonder why such mismatches were not allowed in raising.

(22) a. *Asouk$_i$ sìak wà$_i$ bānī chā:b
Asouk agree 3SG accompany each-other
'Asouk agreed to accompany each other'

b. *Asouk$_i$ sìak [wà$_i$ tīgsī]
Asouk agree 3SG gather
'Asouk agreed to gather'

The presence of a null comitative cannot be invoked in the case of Bùlì, since it is equally ungrammatical when the embedded predicate is *tū* 'to meet' (23-a). As seen previously, a plural pronominal controlee is allowed (23-b). If the embedded subject were simply a copy of movement, the number mismatch would be left unexplained.

(23) a. *Asouk$_i$ sìak [wà$_i$ tū *pro$_{comitative}$*]
Asouk agree 3SG meet
Intended: 'Asouk agreed to meet with someone'

b. Asouk$_i$ sìak [bà$_i$ tū]
Asouk agree 3PL meet
'Asouk agreed to meet '

In summary, we have seen that while control predicates permit partial control, their raising counterparts do not. A movement account of control would unify OC PRO and traces of DP. However, a movement analysis would also predict the same pronominal patterns for control and raising constructions, contrary to what the data show. In order to address this concern and provide a unified account that also accounts for the relevant data, I will instead present an account of control as binding.

5.3 Subjects of non-finite clauses

In this section, I spell out in detail the proposal I presented in the introduction regarding pronominal subjects of infinitives as minimal pronouns. I propose that the overt pronominal subject (the controlee) is a bound pronoun. As a bound element, it starts its life in the syntax as an index or a variable with no phi-features (Kratzer, 1998; Heim and Kratzer, 1998; von Stechow, 2003; Schlenker, 2003; Heim, 2008), in other words, a minimal pronoun (Kratzer, 2009; Landau, 2015). As an index lacking features in the syntax, it has to be bound. Its form at PF reflects the features it inherits from its binder, the controller. Thus, though it appears in the form of a referential pronoun, its genesis is different from that of a referential pronoun: it starts the derivation with no features at all, while its referential counterpart starts the derivation with all of their features present. I follow Landau (2015), and therefore briefly present his model in the next section as background to my analysis.

5.3.1 PRO as a minimal pronoun (Landau 2015)

Landau (2015) continues to maintain a distinction between Exhaustive Control (EC) and Partial Control (PC), just as in his earlier models Landau (2000, 2004). However, he reclassifies control complements into predicative control complements vs. logophoric control complements. Predicative complements, for example, occur in nonattitude contexts imposing EC, while logophoric complements occur in attitudes contexts permitting PC. This distinction is reflected in the distinct properties displayed by these complements. In this model, PRO is the realization of a generalized grammatical element, a a so-called minimal pronoun, which is a nonreferential numerical index at LF.

(24) A *minimal pronoun*

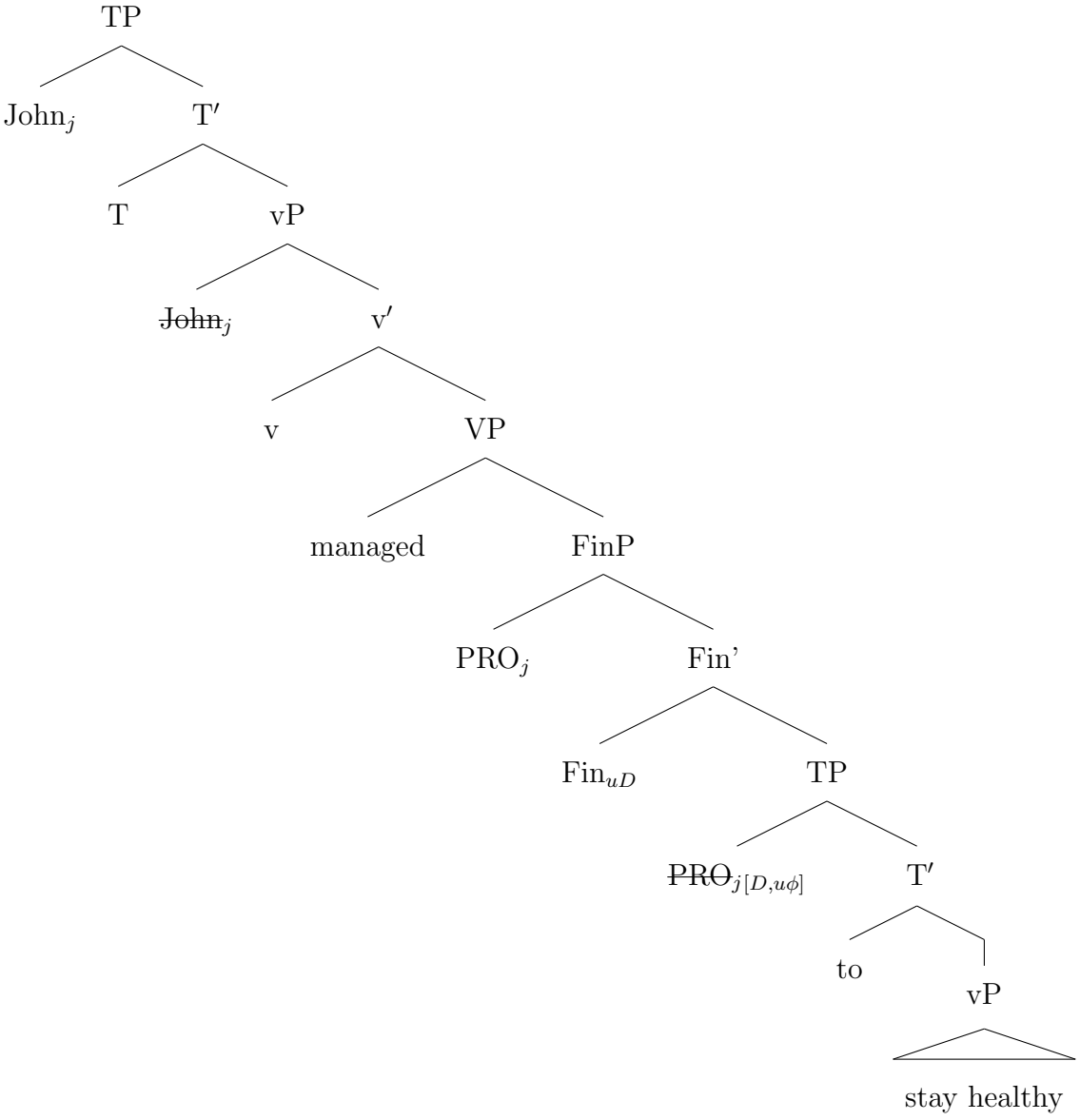
X is a minimal pronoun if and only if X = [D, uϕ], where [uϕ] stands for unvalued ϕ-features (Landau 2015:23).

5.3.2 Predicative control

In this section, I provide a formal analysis of predicative control. As noted, this term refers to complements of nonattitude predicates that impose exhaustive control (EC). The derivation of a subject predicative control such as (25-a) will proceed as follows:

(25) a. John managed to stay healthy.

b.

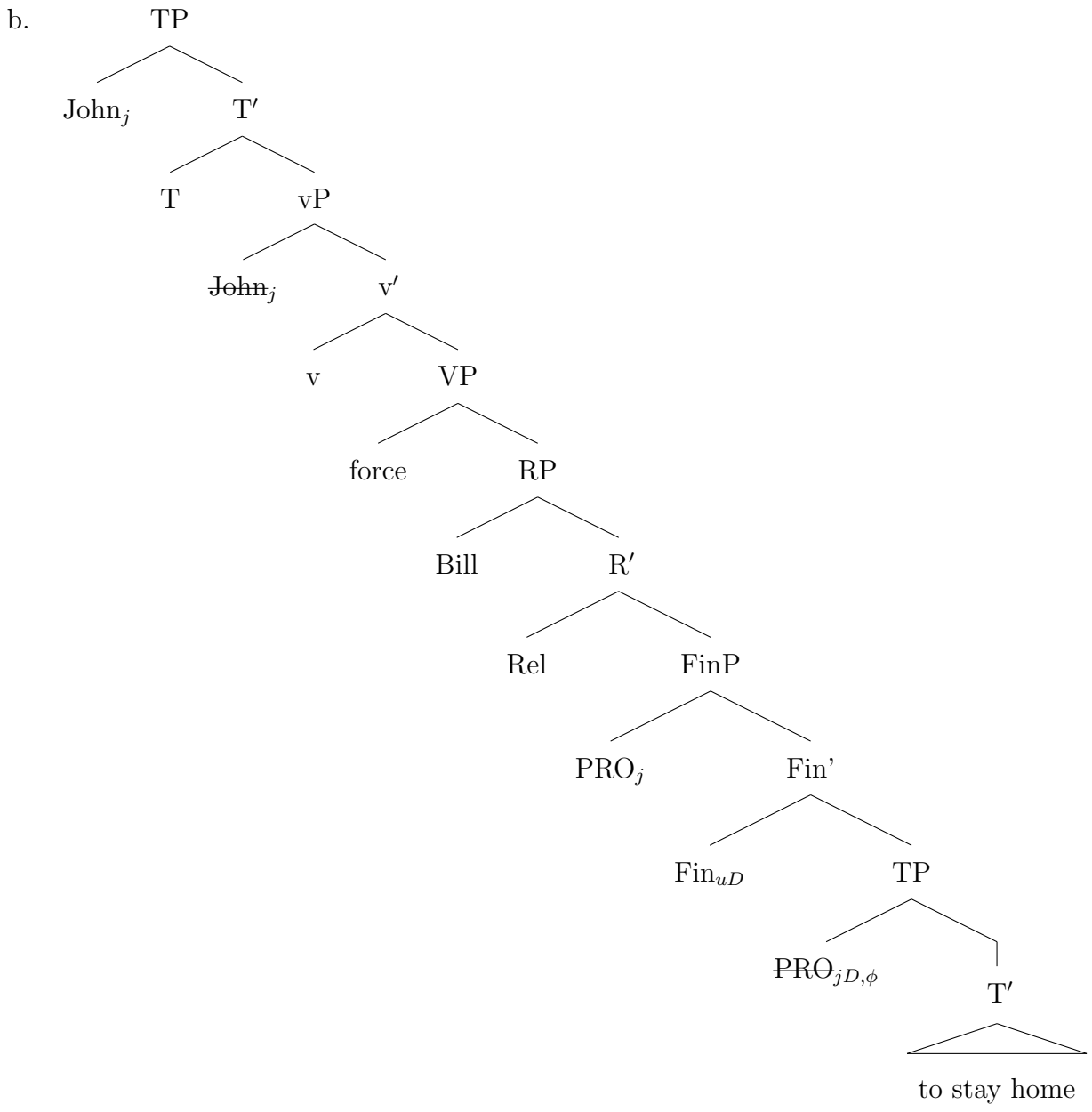


An infinitival TP with a PRO subject is embedded under a "predicative" head in the low CP periphery. Landau designates this head as *Fin* (Rizzi, 1997). The predicative head, *Fin*, with uninterpretable features, acts as a probe searching for a matching D

category. It finds PRO, the closest goal in Spec, TP, and attracts it to its Spec. In the case of subject control, FinP, which is a predicate as a result of PRO movement, merges as the complement of the matrix predicate, in our example 'managed'.

The derivation of a objective predicative control proceeds in the same manner, except that in this case the object controller and the infinitive occupy the subject and predicate positions of a small clause, projected by a predicative head, or a relator. The structure in (26-b) illustrates the derivation of (26-a).

(26) a. John forced Bill to stay home.



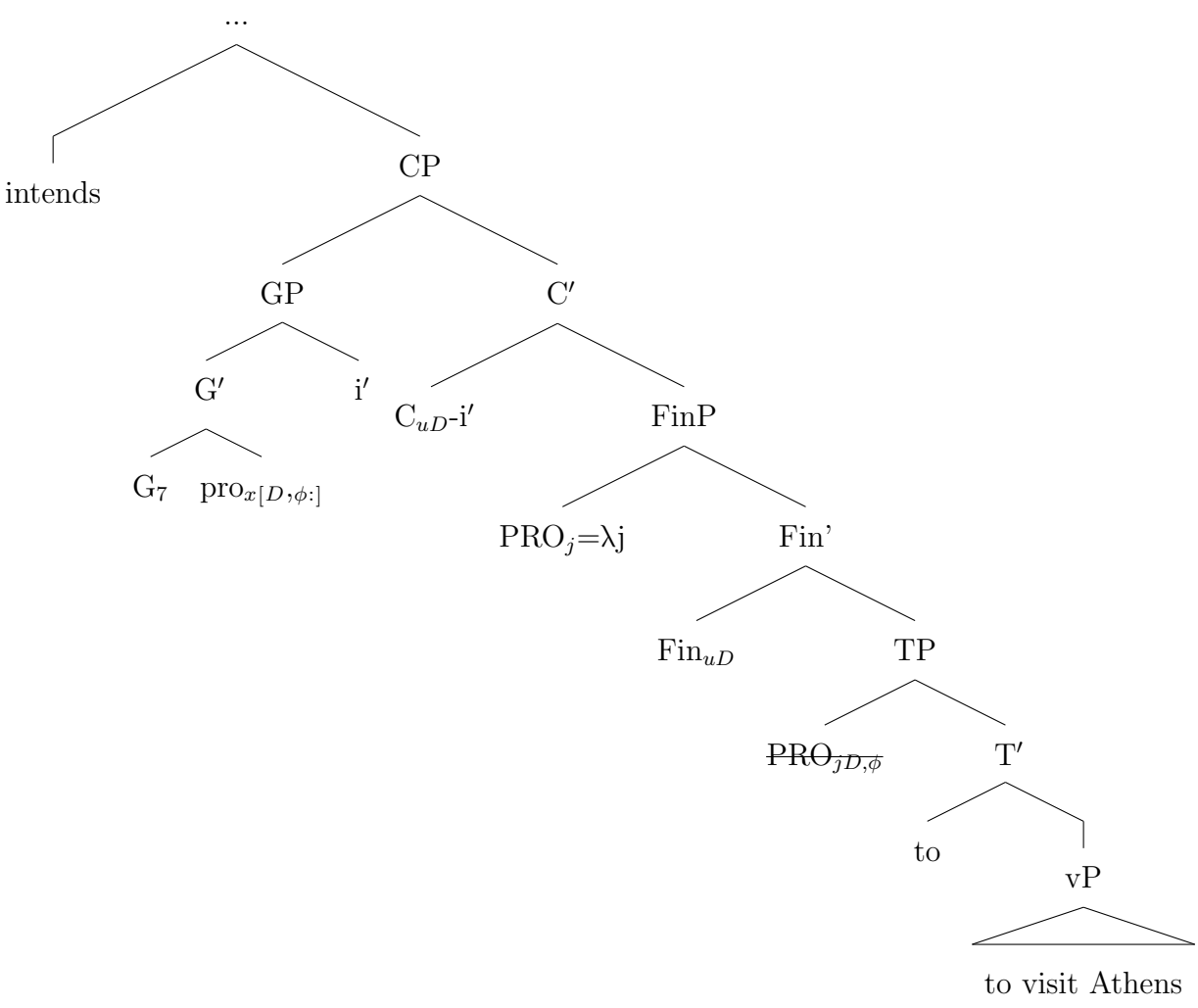
5.3.3 Logophoric control

As noted above, logophoric control occurs in propositional attitude contexts, as Landau assumes the general syntax and semantics of attitude predicates as quantifiers over sets of contexts (variables), each associated with its own indexical descriptive content:
i=<AUTHOR(i),ADDRESSEE(i),TIME(i),WORLD(i)>. Thus, logophoric control is predicative control embedded under a logophoric center, which is introduced by

the attitude verb. In the case of OC, however, the complement must project one of its variables (speaker or addressee) as a specifier, and semantically introduces a presupposition of an identity acquaintance relation, which amounts to the *de se* reading associated with PRO. In this system, PRO is likened to a variable bound by the matrix controller. A derivation of the attitude subject control sentence in (27-a) is given (27-b).

(27) a. John intends to visit Athens.

b.



The OC complementizer is a transitive head endowed with a selectional feature [uD]. This feature forces one of the nominal coordinates of the embedded context i', (where i' =<x,t,w>, and the presupposition: G_7=G_{SELF}.), a variable, to project as the specifier of C, turning the complement into a "perspectival CP." The predicative FinP

is exactly the same constituent formed in predicative control. While in predicative control, the FinP forms the complement of the matrix predicate or relator phrase, specifically, it forms the complement of the complementizer that hosts the logophoric center. GP is a function of the projected coordinate of the embedded context. This coordinate is *de re*, a variable, bound by the controller and associated with a *de se* interpretation derived from "G_{SELF}" presupposition triggered by the OC complementizer.

In summary, in logophoric control, the OC complementizer: (i) projects one of its individual coordinate variables as a specifier; (ii) predicates its complement of this variable; (iii) attaches a "G_{SELF}" presupposition to this variable; and (iv) abstracts over contexts.

5.3.4 Partial control

As noted, EC predicates take nonattitude complements, forcing a strict coreference between the controller and the controlee. While PC predicates take attitude complements and allow for proper inclusion of the controller. In a system where control is reduced to predicative vs. logophoric control, we must address the following questions: (i) Why is PC control blocked in predicative control; and (ii) why is PC allowed in logophoric control?

The straightforward answer to (i) is that predicative control cannot be partial because predication cannot be partial. With respect to the second question, Landau assumes that PC is a type of associative plural formed by a null associative morpheme. Madigan (2008) proposes that PC PRO is simply an index feature g(1) that will eventually be bound by the controller, combined with the [group] feature, i.e., PC PRO =g(1)[group].

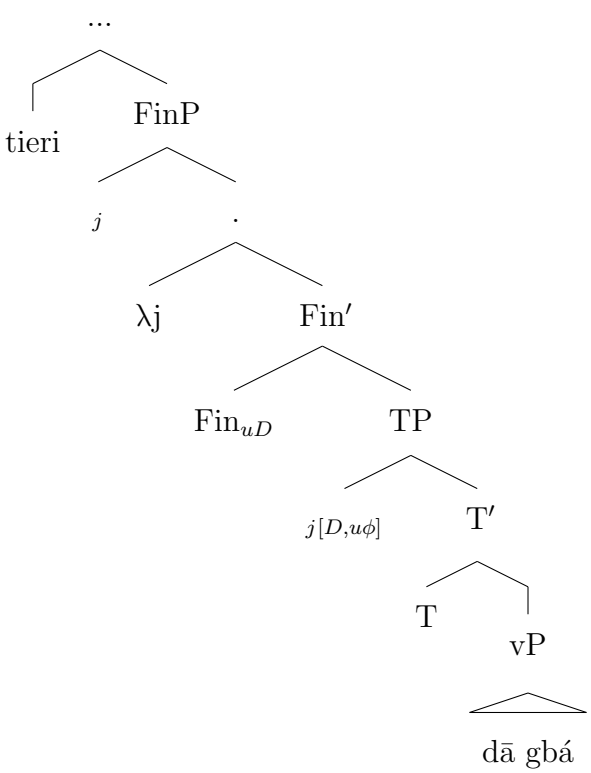
5.3.5 Predicative control in Bùlì

Subject control

Having discussed the relevant background data and analysis, we are now in a position to analyze control in Bùlì. The above analysis can be extended to Bùlì, in all respects, except that the minimal operator in Bùlì is overt at PF. Consider a derivation of subject control in (28-a). Concentrating on the embedded non-finite clause, let us assume that in the syntax (LF), the pronominal is a 'minimal pronoun' represented by ∅. This is an element with the category of D and it corresponds to X in (24) above. It merges as the subject of the embedded non-finite clause and is attracted to the Spec of FinP. Because it is an operator, this movement creates a λ-abstract and turns the non-finite clause into a predicate, i.e., λ *x.x buy a book.* Being an operator, it doesn't saturate the variable created as a result of movement. We should note here that overt operators are found in many languages. One example of an overt operator is the relative operator, which is realized as relative pronouns in languages where it occurs, such as English. Similarly, relative pronouns in Bùlì also covary with the nouns they are predicated of, as will be shown later. The fact that the overt pronominal element in Bùlì is not interpreted as a pronoun, but instead as a bound variable, lends support to this analysis (Were it interpreted as a pronominal, with all its features specified, the construction would crash, since there would be type mismatches between the matrix predicate and the embedded non-finite clause.) Returning to our derivation, this predicate then merges as the complement of the matrix verb. The variable will then be applied to the referent of *Asouk*, which transfers its features to it.

An important feature of this approach is the inheritance of ϕ-values from the binder. The fact that the operator covaries with its binder in Bùlì follows immediately. An explanation of how these features are transferred is discussed in Section 5.4.

(28) a.

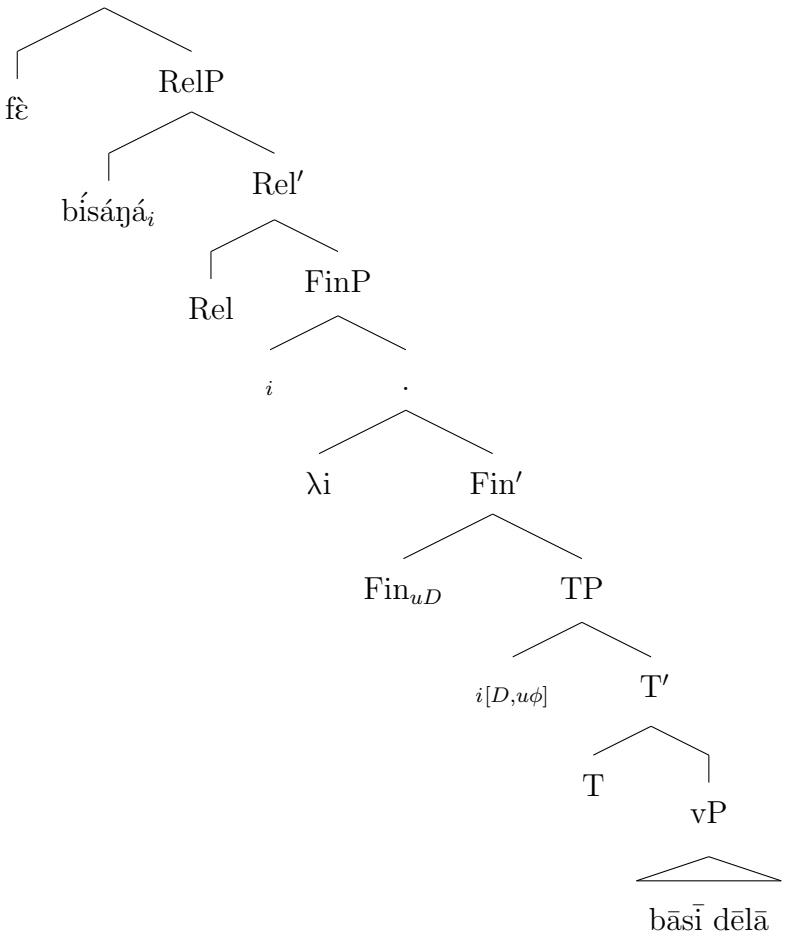


b. Asouk$_i$ tìerì *(wà$_i$/$_{*j}$) dā gbáŋ
Asouk remember 3SG buy book
'Asouk remembered to buy a book'

Object control

The derivation of object control proceeds in a similar fashion in the non-finite clause. The only difference, as noted before, is that FinP serves as a complement to the relator phrase.

(29) a. ...]



b. Núr-wá fɛ̀ bíśáŋáᵢ bàᵢ bāsī dēlā
man.PL force children 3PL leave here
'The man forced the children to leave'

5.4 Syntax and semantics of pronouns (Heim, 2008)

It has been observed that pronouns can be referential or bound. Referential pronouns refer to salient individuals in the utterance situation. Bound pronouns, on the other hand, are interpreted by assignment functions. For example, while the pronoun $\mathbf{I}_7$ in (30-a) refers to the speaker in the speech situation, the same cannot be said about the pronoun $\mathbf{my}_5$ in (30-b). The bound reading of (30-b) is: *no one other than me did their homework*. Clearly the 1st person feature on $\mathbf{my}_5$ is not interpreted, otherwise the obtained reading would not be possible.

(30) a. $\mathbf{I}_7$ am married.

b. [Only I]$_5$ did **my**$_5$ homework.

Heim (2008) assumes that in the syntax (LF), pronouns consist of indices (variables) (Kratzer, 1998, 2009; Heim and Kratzer, 1998; von Stechow, 2003; Schlenker, 2003; Heim, 2008). Phi-features (person, gender, number) are taken to introduce presuppositions constraining these indices (Cooper, 1979, 1983; Dowty and Jacobson, 1989; Heim and Kratzer, 1998). When phi-features are present, they are adjoined to the index. The lexical entry for each of these features is as below:

(31) Gender:

a. $[\![masculine]\!]= \lambda x_e$: x is male.x

b. $[\![feminine]\!]= \lambda x_e$: x is female.x

(32) Number:

a. $[\![singular]\!]= \lambda x_e$: x is an atom.x

b. $[\![plural]\!]= \lambda x_e$: x is a plurality.x

(33) Person:

a. $[\![1st]\!]^c= \lambda x_e$: x includes s_c.x

b. $[\![2nd]\!]^c= \lambda x_e$: x includes h_c and excludes s_c.x

c. $[\![3rd]\!]^c= \lambda x_e$: x excludes s_c and h_c.x

where "s_c" is the speaker, "h_c" is the addressee

(34) a. $_i$=[PERS [GEND [NUM $_i$]]]

b. he$_7$=[3rd [MASC [SG $_7$]]]

Based on the above semantic entries, the interpretation of the referential pronoun in (30-a) is given in (35).

(35) LF: $\mathbf{I}_7$ **am married**, spoken in a context c, asserts that $g_c(7)$ is married, and presupposes that $g_c(7)$ is an atom including s_c.

Additional assumptions are required for the interpretation of bound pronouns:

(36) a. As an index at LF, a pronoun can enter the derivation unspecified for phi-features.

b. Every pronoun must be specified for phi-features at PF via an operation of feature transmission.

(37) FEATURE TRANSMISSION

In the derivation of PF, all features of a DP must be copied onto all variables that it binds (Heim, 2008: 50).

We are now in a position to account for the bound pronoun in (30-b).

1. base-generated: [only 1st-sg$_5$ did $_4$ homework]
2. after movement of subject, at LF: [only 1st-sg$_5$] 4[t$_4$ did $_4$'s homework]
3. after feature percolation: 1st-sg- [only 1st-sg$_5$] 4[t$_4$ did $_4$'s homework]
4. after transmission, at PF: 1st-sg- [only 1st-sg$_5$] 4[1st-sg$_4$ did 1st-sg$_4$'s homework]
5. spelled-out: Only I did my homework.

The rule in (37) ensures that the bound pronoun in (30-b) will be spelled out as first person pronoun, since its binder is first person.

5.4.1 Split-bound plural pronouns

A final piece involves the interpretation of a kind of pronoun Heim calls "*split-bound*" plural pronouns. Consider the example in (38). Imagine a context where John is in one room with all of his ex-wives and one of his ex-wives says to him:

(38) All of us wanted to separate on peaceful terms, but *only I wanted us to stay close after the divorce.*

Intended reading: "I wanted myself and you to stay close, and no other ex-wife wanted herself and you to stay close"

To capture these kinds of readings Heim represents the plural pronoun as coordination of two variables (one bound by *only I* and the other bound by John).

(39) If β is a pronoun, and i, j are indices, then for any assignment g, $[\![\beta i + j]\!]^g$= g(i)$\oplus$ g(j) (the i-sum of g(i) and g(j)).

Feature transmission targets individual variables and in the case of split binding, it only affects a subpart of the pronoun. Finally, an operation like (40) that computes features for a complex pronoun on the basis of the features of its parts is required.

(40) Feature computation

1. if i or j is unspecified for person, then leave i+j unspecified.
2. otherwise, if i or j is 1st person, then specify i+j as 1st person.
3. otherwise, if i or j is 2nd person, then specify i+j as 2nd person.
4. otherwise, specify i+j as 3rd person.

Consider a derivation for *only I wanted us to stay close after the divorce.* By transmission, [only I] will transmit the first person features to the part of the complex pronoun that it binds. By (40), the complex will be specified as first person.

(41) LF: [only 1st] 2[t_2 wanted $\emptyset_{[2:\emptyset]+[3:2nd]}$ to stay close]
$g_c(3)=h_c$(= John); $g_c(1)=s_c$ (one of the ex-wives of h_c)
By Transmission...$\emptyset_{[2:1st]+[3:2nd]}$
By operation (40)... 1st $_{[2:1st]+[3:2nd]}$

We have seen thus far that pronouns can enter the derivation as indices with no phi-features, and can inherit these features from their binder through feature

transmission. Secondly, it is possible for a pronoun to have two separate antecedents. In such cases, we assume that that pronoun is composed of more than an index at LF. The spelled out form of the pronoun is computed based on the features that are present on the indices. With this background, we are now ready to analyze control in Bùlì.

5.4.2 Exhaustive control

In this section, I will first demonstrate how the above system accounts for exhaustive control, and then I will apply it to partial control. The derivation for a subject control construction like (1-a) is presented below as (42-a). The pronoun *wà* is bound by the matrix subject *Asouk*. For concreteness, suppose (42) has the LF in 2, where the pronoun is represented by the index in the subject of the embedded clause, which is merged as the complement of the verb *tìerì*. Being the binder of the index, the subject of the matrix clause transfers its features to the index. This is subsequently spelled-out as the third person singular subject. Exhaustive object control will proceed in a similar fashion, with the binder transferring its features to the index.

(42) a. Asouk$_i$ tìerì *(wà$_i$/$_{*j}$) dā gbáŋ
Asouk remember 3SG buy book
'Asouk remembered to buy a book'

1. Base generated: [[Asouk$_{[3rd-sg]}$] tìerì [$_{TP}$ [$_5$ dā gbáŋ]]]

2. Subject movement to Spec TP: [[Asouk$_{[3rd-sg]}$] 5[t$_5$ tìerì [$_{TP}$ [$_5$ dā gbáŋ]]]]

3. Feature Transmission: [[Asouk$_{[3rd-sg]}$] 5[t$_5$ tìerì [$_{TP}$ [$_{[3rd-sg]5}$ dā gbáŋ]]]]

4. Spell-out:[[Asouk$_{[3rd-sg]}$] 5[t$_5$ tìerì [$_{TP}$ [wà $_{[3rd-sg]5}$ dā gbáŋ]]]]

5.4.3 Binding analysis of partial control (PC)

Let us assume that the subject of the embedded clause in partial control is a coordination of two indices $_{i+j}$. Now, consider a derivation for a construction like (43-a) in (43-b):

(43) a. Asouk$_i$ à-zīenti [bà$_{i+}$ tū yénní pō]
Asouk eager 3PL meet house in
'Asouk is eager to meet in the house'

b. LF: [Asouk$_i$ à-zīenti [$_{i+j}$ tū yénní pō]]
where g_c(i)(= Asouk); g_c(j)= the individual the speaker has in mind in c.

c. Feature transmission: [Asouk$_i$ à-zīenti [$_{[3rd:sg]i+j}$ tū yénní pō]]

The first part of the conjoined index i is bound by the matrix subject *Asouk*. By feature transmission, the features of *Asouk* will be transferred onto the part of the pronoun that it binds; thus the index i will be specified as [3rd:sg.]. The operation in (40) computes the form that the complex pronoun will take. Since there is no specified 1st or 2nd person, the pronoun is spelled out as 3rd person. This makes the prediction that when the speaker has in mind to meet with Asouk, then the embedded pronoun will be spelled out as 1st person, since one of the subparts will be specified for 1st person. This prediction is indeed borne out, as shown in the sentence in (44). Because one of the indices is specified as first person, the complex pronoun surfaces as a first person pronoun.

(44) a. Asouk$_i$ à-zīenti [tì$_{i+}$ tū yénní pō]
Asouk eager 1PL meet house in
'Asouk is eager to meet in the house'

b. LF: [Asouk$_i$ à-zīenti [$_{i+[1st]j}$ tū yénní pō]]
where g_c(i)(= Asouk); g_c(j)= s_c(= the speaker)

c. Feature transmission: [Asouk$_i$ à-zīenti [$_{[3rd:sg]i+[1st]j}$ tū yénní pō]]

We can now also address the issue of why we see different patterns in PC and raising structures. In raising constructions, the matrix subject starts in the embedded clause. Let us assume that it starts as a coordination of *Asouk* and the index j. Because this is a coordination, and raising out of coordinate structures is not possible, partial raising is impossible.

(45) a. *Asouk$_i$ zā bà$_{i+}$ tū kāmā
Asouk ASP 3PL meet FOC
'Asouk is going to meet'

b. LF: [Asouk$_i$ zā [~~Asouk~~$_{i+j}$ tū kāmā]]

5.5 Conclusion

In this chapter I analyzed overt controlees as variables bound by the controller. I proposed that the overt controlee starts its life in the syntax as an index with no phi-features, following a line of research that considers pronouns as consisting of indices or variables (Kratzer, 1998; Heim and Kratzer, 1998; von Stechow, 2003; Schlenker, 2003; Heim, 2008). As an index lacking features in the syntax, it must be bound. The shape or form it appears in at PF reflects the features it inherits from its binder, the controller. Thus, although overt controlees appear in the form of referential pronouns, their genesis is different: referential pronouns start the derivation with all features present, while overt controlees start the derivation without them.

Chapter 6

Serial verb constructions and coordination

A serial verb construction (SVC) is a succession of verbs and their complements (if any) with one subject and one tense value that are not separated by any overt marker of coordination or subordination (Collins 1997:642). This constrcution has been the subject of much research (Jansen et al., 1978; Stahlke, 1970; Sebba, 1987; Déchaine, 1988; Baker, 1989; Veenstra, 2000; Collins, 2002; Carstens, 1988, 2002). In this section, we examine these constructions and their properties in Bùlì. For the purposes of exposition, I will classify SVCs into three groups:

In the first group of SVCs, both V1 and V2 overtly express independent internal arguments (1).

(1) a. Asouk jùelì tì:mŭ gbèsì màngò:k
Asouk climb tree pluck mango
'Asouk climb tree pluck mango'

'Asouk climbed the tree and plucked a mango'

b. Atì:m dàm lōgrī kùrì sìak
Atim drive car pound wall
'Ati:m drive car pound wall'

'Ati:m drove a car and hit a wall'

As shown in (1-a), both V1 and V2 have their own internal arguments expressed: *tì:mŭ* 'tree' and *màngò:k* 'mango' for V1 and V2, respectively. Similarly for (1-b), *dàm* 'drive' has *lógrì* 'car' as an internal argument, while *kùrì* 'pound' has *sìak* 'wall' as its argument.

In the second group, only V2 has an internal argument (overtly) expressed (2).

(2) a. Asouk tìerì dà gbăŋ
Asouk remember buy book
Lit 'Asouk remember buy book'

'Asouk remembered and bought a book'

b. Asouk wàlìsì kpà tálìmú
Asouk manage weed farm
Lit 'Asouk managed weed the farm'

'Asouk managed and weeded the farm'

One hypothesis for this type of serial verb is that V2 is a complement of V1, although I will argue against this approach.

The examples in (3) illustrate the third group of SVCs.

(3) a. Àtì:m sè lām ŋɔ̀bì.
Atim roast meat eat
'Atim roasted and ate meat'

b. bí:ká nàgì bū:kú kɔ́
the.child beat the.goat kill
'The child beat the goat to death'

In this series, only V1 overtly expresses an internal argument. However, this same argument can be interpreted as the argument of V2, even though it is not overtly expressed following it. In (3-a) for example, *lām* 'meat' is simultaneously understood as the entity being roasted and eaten. In the literature on SVCs, this phenomenon is known as *argument-sharing*, where a single argument is understood as belonging to both V1 and V2 (Baker, 1989; Collins, 1997; Stewart, 1998; Baker and Stewart, 2002; Carstens, 2002).

This chapter is concerned with the analysis of such constructions. Specifically, it reviews the properties of SVCs in Bùlì and argues that they are best analyzed as instances of coordination. In doing so, I am echoing analyses of SVCs which consider the predicates in SVCs to be independent lexical verbs capable of introducing and theta-marking their own arguments.

The rest of the chapter is organized as follows: In Section 6.1 we review the properties of SVCs. Section 6.2 presents the analysis of SVCs as coordination. In Section 6.3, I discuss overt coordinators and argue that argument drop is possible with these constructions. Section 6.4 discusses some potential arguments against the current account and concludes that they are expected under a low coordination analysis. Section 6.5 reviews the literature on SVCs, noting the differences and similarities between the various accounts. The limitations of the current account are presented in Section 6.6 and in Section 6.7 I present my overall conclusions.

6.1 Properties of SVCs

Common among all three classes of SVCs is that they involve a single subject, tense, and a negation marker appearing before the initial verb, which must take scope over the entire construction. I will illustrate these properties with examples from each group below. As shown in (4)-(5), tense and negation (neg 1) can only be marked on the first verb.

(4) a. Àtì:m dīem sè lām (*dīem) ŋɔ̀bì.
Atim PST roast meat PST eat
'Atim roasted and ate meat yesterday'

b. Asouk dīem sìak dà (*dīem) gbăŋ
Asouk PST agree buy PST book
Lit 'Asouk agreed buy book'

'Asouk agreed and bought a book yesterday'

c. Asouk dīem jùelì tì:mŭ (*dīem) gbèsì màngò:k
Asouk PST climb tree PST pluck mango
'Asouk climbed a tree and plucked a mango yesterday '

(5) a. Àtì:m àn sè lām (*àn) ŋɔ̀bì yā.
Atim NEG1 roast meat NEG1 eat NEG2
'Atim didn't roast and eat meat'

b. Asouk àn sìak (*àn) dà gbăŋ à
Asouk NEG1 agree NEG1 buy book NEG2
'Asouk didn't agree to buy book'

c. Asouk àn jùelì tì:mŭ (*àn) gbèsì màngò:k à
Asouk NEG1 climb tree NEG1 pluck mango NEG2
'Asouk didn't climb tree and pluck mango '

Secondly, while the tone on the first verb changes with the subject, the tone on the second verb always remains low (6).

(6) a. mí sé lām ŋɔ̀bì
1SG roast meat eat
'I roasted and ate meat'

b. fì sĕ lām ŋɔ̀bì
2SG roast meat eat
'You roasted and ate meat'

c. wà sè lām ŋɔ̀bì
3SG roast meat eat
'He roasted and ate meat'

Although it is possible for the verbs in the series to be perceived as a single event, especially in group 3 where both verbs appear to share an argument, this is not obligatory. For example, while the the verbs in (7-a) can be perceived as a single event of killing the goat, (7-b) can be perceived as two separate events.

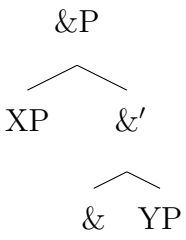
(7) a. bí:ká nàgì bū:kú kɔ́
the.child beat the.goat kill
'The child beat the goat to death'

b. mí sé lām ŋɔ̀bì
1SG roast meat eat
'I roasted and ate meat'

6.2 SVCs as coordination

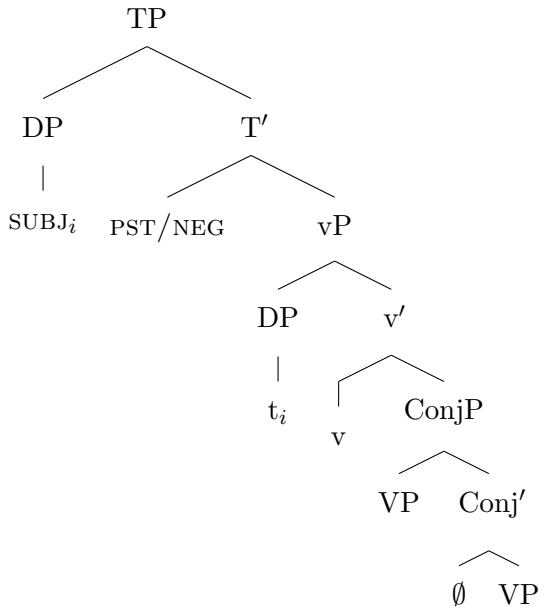
I will argue that the different kinds of SVCs are instances of VP coordination, where the conjunction head is null. I assume that coordination is asymmetric. In particular, I assume a structure which has been argued for by (Munn, 1987, 1993; Kayne, 1994; Zoerner, 1995; Progovac, 1998a,b; Johannessen, 1998; de Vos, 2005), where the first conjunct occupies the specifier position of a conjunction head, while the second conjunct occupies its complement, as shown in (8).

(8)



For concreteness, consider (9) as the structure of an SVC.

(9)



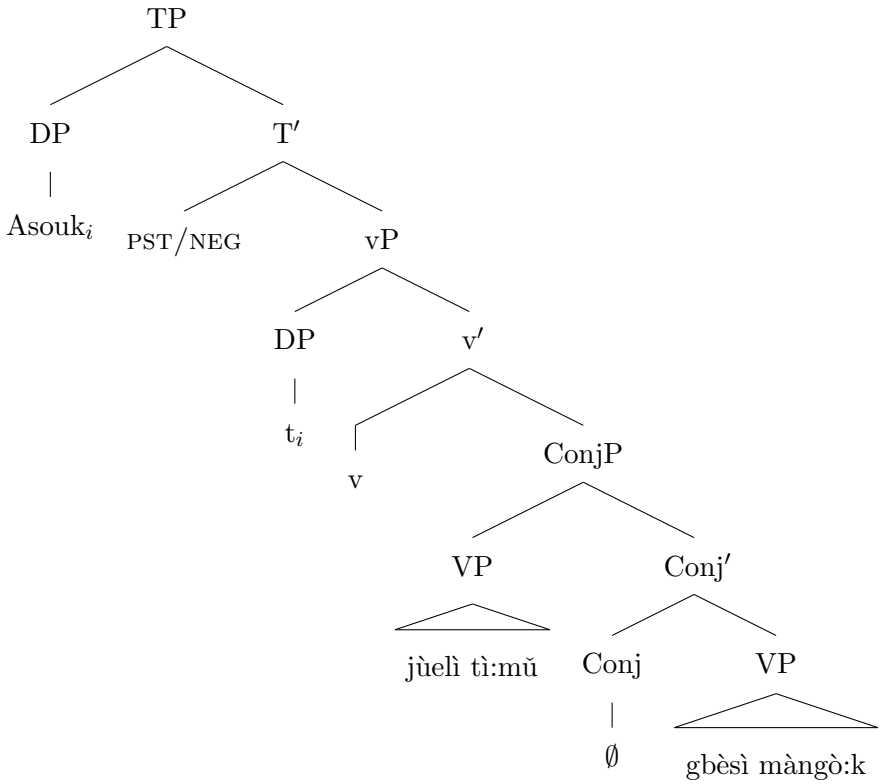
This structure involves a coordination of two VPs. When two VPs are conjoined, the entire structure includes only a single v head, and thus only a single external argument (above the entire conjunction). Assuming that the second verb in SVCs is a VP, the lack of clausal properties such as tense and negation is readily explained.

The second conjunct is simply too small to contain such material. Thus, the conjoined VPs will share all functional material, including tense and negation, since these are taking scope over the entire structure.

Consider the following repeated examples with their corresponding structures. Example (10) involves VP coordination in which both verbs realize their internal arguments.

(10) a. Asouk jùelì tì:mǔ gbèsì màngò:k
Asouk climb tree pluck mango
'Asouk climb tree pluck mango '

b.

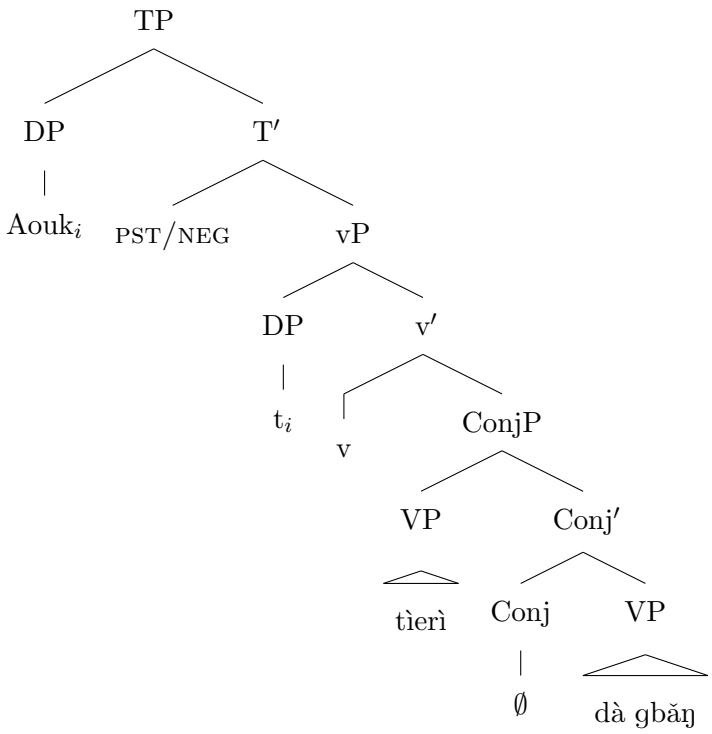


In (11), by contrast, only V2 realizes an internal argument.

(11) a. Asouk tìerì dà gbăŋ
Asouk remember buy book
Lit 'Asouk remember buy book'

'Asouk remembered and bought a book'

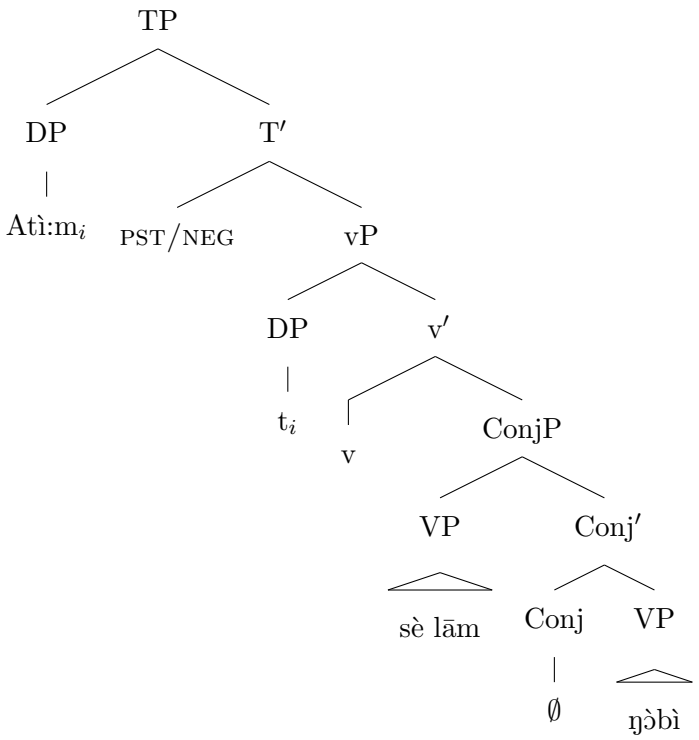
b.



Example (12) also involves coordination at the VP level. In this structure, only V1 has an overtly realized internal argument. I will explain why this is shortly, but in the meantime it suffices to note that the object of the second verb is not overtly expressed.

(12) a. Àtì:m sè lām ŋɔ̀bì.
Atim roast meat eat
'Atim roasted and ate meat'

b.



While properties such as a single subject and the shared functional material of these clauses are easily accounted for under these structures, a coordination analysis of these constructions does not address the issue of extraction or the shared argument property of the third group of SVCs in (12-b). Before addressing these issues in the following sections, I will present some initial evidence for the coordination account, based on the absence of restrictions on V1 and the absence of certain interpretational inferences.

6.2.1 Absence of restrictions on V1

As seen in the different groups of SVCs, any two verbs can be combined in these constructions. Although certain combinations may appear more natural than others due to world knowledge, there are no restrictions on what can appear as V1 in these constructions (13)-(15).

(13) a. Asouk jùelì tì:mŭ gbèsì màngò:k
Asouk climb tree pluck mango
'Asouk climb tree and plucked mango'

b. Asouk gbèsì màngò:k jùelì tì:mŭ
Asouk pluck mongo climb tree
'Asouk plucked mango and climb tree'

(14) a. Bí:ká nàgì bū:kú kɔ̀
the.child beat the.goat kill
'The child beat the goat and killed'

b. Bí:ká kɔ̀ bū:kú nàgì
the.child kill the.goat beat
'The child killed the goat and beat it'

(15) a. Asouk tìerì dà gbăŋ
Asouk remember buy book
'Asouk remembered and bought a book'

b. Asouk dà gbăŋ tìerì
Asouk buy book remember
'Asouk bought a book and remembered'

In the (b) examples, the order of verbs suggests that the event described by the first verb precedes that of the second verb. Although there is a strong tendency for what *Asouk* remembers in (15-b) to be the fact he bought a book, it is possible to have an interpretation where *Asouk* remembered something else while buying a book. On the hypothesis that SVCs involve coordination, the absence of this restriction follows naturally. If it were assumed that SVCs involved complementation, the absence of a restriction on V1 could not be explained, since in complementation V1 selects the structure introduced by V2.

6.2.2 Absence of complement interpretation

Another argument in favor of a coordination account comes from the interpretation when *bàŋ* 'forget' is V1. In complement structures involving an implicative verb such as 'forget' and a non-finite complement, the inference is that the event described in the complement clause is not realized. For example, in (16-a), no book buying took place. When there is a finite complement, the matrix subject forgets that the event of the complement clause happened (16-b).

(16) a. Asouk bàŋ wà dā gbáŋ
Asouk forget 3SG buy book
'Asouk forget to buy a book'

b. Asouk bàŋ āsī̄ wà dà gbǎŋ
Asouk forget C 3SG buy book
'Asouk forget that he bought a book'

However, when *bàŋ* 'forget' is involved in an SVC, as in (17), neither of these inferences/interpretations are possible. Example (17) can only mean that *Asouk* forgot about something else and bought a book, however, book buying took place, unlike in non-finite and finite complements of 'forget'. I take the absence of these interpretations to mean that V1 doesn't select V2 in these constructions, but rather we are dealing with coordinate structures.

(17) Asouk bàŋ dà gbǎŋ
Asouk forget buy book
'Asouk forget and bought a book'

6.3 Overt coordination and argument sharing

Bùlì generally does not permit pro-drop of any kind, whether in subject or object positions.

(18) a. *dà
buy
'He bought it'

b. *kɔ́
kill
'He killed it'

However, when the linguistic context makes an internal argument prominent, it can be deleted. For example, (19-a) and (19-b) can be responses to the questions 'What happened to the book?' and 'What happened to the goat?', respectively

(19) a. wà dà
3SG buy
'He bought it'

b. wà kɔ́
3SG kill
'He killed it'

I argue that coordination is another context in which dropping an argument is possible. In coordination, the object of the second conjunct can be deleted when it co-refers with the object of the first conjunct.

Considering the analysis of SVCs as instances of coordination, when both verbs have coreferential objects, then the object of the second verb can be deleted. The result is a construction where V1 and V2 will share an internal object, as in the SVCs in (20).

(20) a. Azuma dà bū:k kɔ́
Azuma buy goat kill
'Azumah bought a goat and killed it'

b. Azuma yìg bū:k tɔ́grì̀
Azuma catch/hold goat slaughter
'Azumah caught/held a goat and slaughtered it'

c. Asibi bɔ̀nì̀ lāmmú chàrì
Asibi chop meat distribute
'Asibi chopped the meat and distributed it.'

This point is made clearer with coordination involving overt coordinators. In Sections 6.3.1 and 6.3.2 I will consider two kinds of coordinate structures, what I call 'ali-coordination' and 'ati-coordination, respectively.

6.3.1 *ali*-coordination

In '*ali*-coordination' in (21) below, there is a single overt subject preceding the first verb. In other words, both verbs share a single subject and are separated by '*ali*'.

(21) a. Azuma ɲù ɲì̀àm āl̄ī dà gbǎŋ
Azuma drink water ALI buy book
'Azumah drank water and bought a book '

b. *Azuma ɲù ɲì̀àm āl̄ī Azuma dà gbǎŋ
Azuma drink water ALI Azuma buy book
'Azumah drank water and Azumah bought a book '

c. *Azuma ɲù ɲì̀àm āl̄ī wà dà gbǎŋ
Azuma drink water ALI 3SG buy book
'Azumah drank water and he bought a book '

The second conjunct in this construction cannot take an overt subject, whether lexical (21-b) or pronominal (21-c). The interpretation of (21-a) also eliminates the potential of the subject of the conjunct being little *pro*, since it must be obligatorily construed as the matrix subject.

6.3.2 *ati*-coordination

A construction with 'ati-coordination', on the other hand, involves two independent subjects (22).

(22) a. Azuma ɲù ɲì̀àm āt̄ī Asouk dà gbǎŋ
Azuma drink water ATI Asouk buy book
'Azumah drank water and Asouk bought a book'

b. *Azuma ɲù ɲì̀àm āt̄ī dà gbǎŋ
Azuma drink water ATI buy book
'Azumah drank water and bought a book'

c. Azuma$_i$ ɲù ɲì̀àm āt̄ī wà$_{*i/j}$ dà gbǎŋ
Azuma drink water ATI 3SG buy book
'Azumah drank water and bought a book'

We can see that this is the case because the subject of the second conjunct cannot be left out (22-b) and when this subject is a pronoun it cannot refer to the subject of the initial conjunct (22-c). Any syntactic analysis of structures such as (21) and (22) will necessarily include a hypothesis about the syntactic category and size of the conjuncts. In the following section, I present arguments to eliminate the possibility

of treating these structures as involving coordination of CPs/TPs.

6.3.3 Arguments from tonal patterns and scope

The purpose of this section is to argue that the structures we are dealing with here are not CP/TP coordination, but rather coordinations of smaller structures. The arguments for a smaller structure will be made on the basis of tone and scope.

As demonstrated at length in Chapter 2, finite clauses show different tonal patterns based on a number of factors, including person. For our current purposes, I will illustrate this with the 1st person pronoun. When the subject of the clause is the 1st person weak pronoun as in (23-a), the surface tonal pattern on the verb is [LH]; when the strong form is used as in (23-b), the tonal pattern is [HH] on the verb. Crucially, the tone cannot be [LL] (23-c).

(23) a. ǹ kàrím gbá.
1SG. read book
'I read a book'

b. mí kárím gbá.
1SG. read book
'I read a book'

c. *mí/ǹ kàrìm gbă.
1SG. read book
'I read a book'

The same tonal patterns are observed when these constructions are embedded (24).

(24) a. Asouk wèin āyīn ǹ kàrím gbá
Asouk say C 1SG. read book
'Asouk said that I read a book'

b. Asouk wèin āyīn mí kárím gbá
Asouk say C 1SG. read book
'Asouk said that I read a book'

c. *Asouk wèin āyīn mí/ǹ kàrìm gbă
Asouk say C 1SG. read book
'Asouk said that I read a book'

I explained these differences by appealing to the presence of a [HL] tone corresponding to a [+FIN] node in the structure of the clause. This [HL] tone interacts with the morphosyntax and phonological processes to produce the tonal outcomes we observe.

In coordination, on the other hand, the verb in the second conjunct is [LL] regardless of the person of the subject (25).

(25) a. Azuma ɲù ɲì̀àm ātī mí/ǹ kàrìm gbă
Azuma drink water ATI 1SG. read book
'Azumah drank water and I read a book'

b. *Azuma ɲù ɲì̀àm ātī mí kárím gbá
Azuma drink water ATI 1SG. read book
'Azumah drank water and I read a book'

c. *Azuma ɲù ɲì̀àm ātī ǹ kàrím gbá
Azuma drink water ATI 1SG. read book
'Azumah drank water and I read a book'

In examples (25-b) and (25-c), where the tonal patterns are marked as in full clauses, the sentences are ungrammatical. Assuming that the second conjunct is a full clause, the absence of the [+FIN] morpheme could not be explained.

Also related to the second conjunct being smaller than a full clause, is the inability of the pronominal subject to take the subject of the initial conjunct as an antecedent (26).

(26) a. Azuma$_i$ ɲù ɲì̀àm ātī wà$_{*i/j}$ dà gbăŋ
Azuma drink water ATI 3SG buy book
'Azumah drank water and he bought a book'

b. Azuma$_i$ wèin āyīn wà$_{i/j}$ kàrìm gbă
Azumah say C 3SG. read book
'Asouk said that he read a book'

If the conjuncts were CP/TPs, the pronoun in the second conjunct would be free and

able to take the initial subject as an antecedent, contrary to fact

In considering whether these conjoined phrases are smaller than full clauses, it is also relevant to consider properties of scope. Example (27) below demonstrates that both negation and tense must take scope over the second conjunct. If the conjunct were CP/TP, this would not be possible, since each CP/TP would independently possess these elements. Additionally, elements in the first conjunct can c-command elements in the second conjunct.

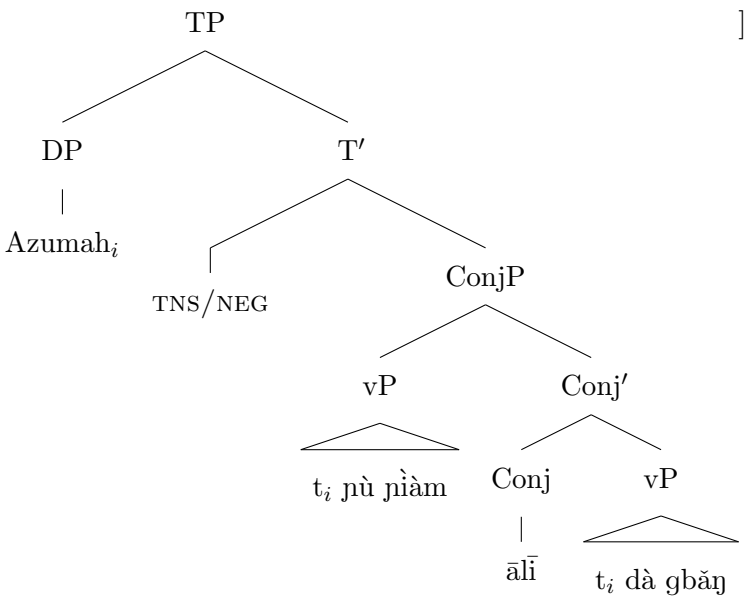
(27) a. Azuma$_i$ àlí ɲū ɲì̀àm ātī wà$_{*i/j}$ kārī̀m gbá
Azuma FUT drink water ATI 3SG read book
'Azumah will drink water and he will read a book'

b. Azuma$_i$ àn ɲù ɲì̀àm ātī̀ wà$_{*i/j}$ kàrìm gbă à
Azuma NEG1 drink water ATI Asouk buy book NEG2
'Azumah didn't drink water and he read a book' i.e It is not the case that Azumah drank water and he read a book.

6.3.4 An account of vP coordination

In order to account for the data presented here, I propose an analysis where the constructions involving *ali* and *ati* involve coordination of two vPs, as demonstrated in examples (28) and (29) below.

(28)



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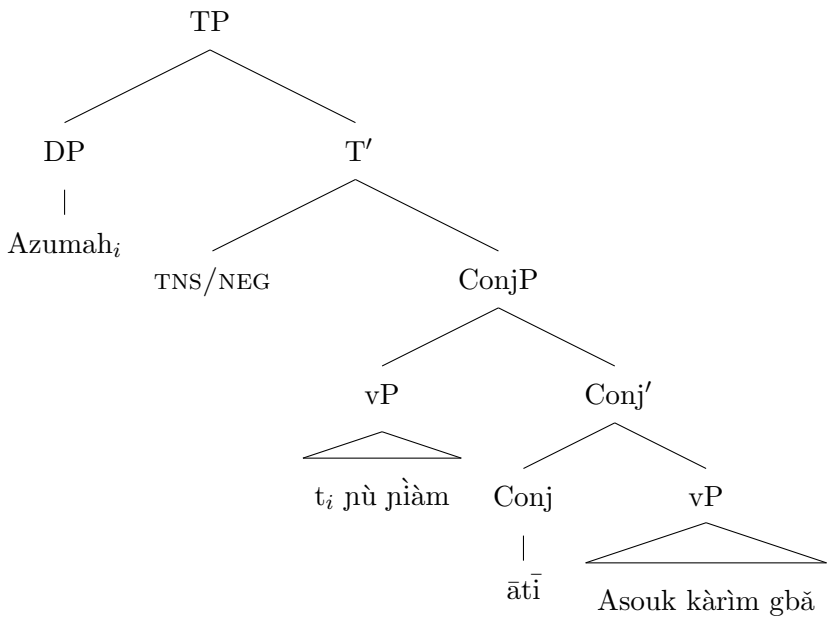
The structure in (28) contains coordination of two vPs, accompanied by ATB movement of the subject to Spec, TP. In this structure, the verbs not only share a subject, but also tense, negation and all other functional material above the vPs, including [+FIN]. Thus, we observe tonal changes only with the initial conjunct.

(29)



The structure in (29), on the other hand, involves coordination of two vPs with distinct internal subjects. Not only will they share functional material like tense and negation, as noted above, but the subject of the initial conjunct will also c-command

the subject of the second conjunct. This will eliminate the possibility of coreference with a pronoun, since it will violate principle B of the binding theory. Another possible explanation for the absence of coreferential subjects with the use of *ati* is that the presence of *ali* excludes the use of *ati* with a coreferential subject.

The use of different coordinators when the vPs share or do not share subjects reminds one of switch-reference (SR) constructions (Jacobsen, 1967; Finer, 1984, 1985; Roberts, 1988; Broadwell, 1997; Josè, 2010). For recent treatments of SR as involving coordination see (Keine, 2013) and (Nonato, 2014). A necessary assumption for the account advocated here for *ati* coordination is that the subject of the initial conjunct can asymmetrically A-move to Spec, TP (Lin, 2002).

It is important to note that, in these constructions the object of the second verb can remain unexpressed if it co-refers with the object of the verb in the first conjunct, just as in SVCs (30).

(30) Azuma yìg bū:k ātī Asibi tɔ̀grɩ̀
Azuma catch/hold goat ATI Asibi slaughter
'Azumah caught/held a goat and Asibi slaughtered it'

6.4 Coordination and extraction

In Bùlì, SVCs allow extraction of all arguments as shown in (31). The grammaticality of (31) is unexpected under the coordination analysis since it appears to violate the the Coordinate Structure Constraint (CSC) (Ross, 1967). Typically, the possibility of extraction from SVCs is usually taken as evidence against a coordination analysis of SVCs (Baker, 1989; Aboh, 2009). I show that coordination is still a possible analysis of SVCs in Bùlì (or in general) since we are dealing with coordination at a low level, VP. There have been arguments that the size of the conjuncts involved has an effect on the possibility of asymmetric extraction (Harris, 2009; de Vos, 2005; Keine, 2013).

(31) a. Ká tì:b būnā ātī Asouk jùelì gbèsì màngò:ku:
Q tree which C Asouk climb pluck mango
'Which tree did Asouk climb and pluck the mango? '

b. Ká màngò:k kūnā ātī Asouk jùelì tì:mŭ gbèsì
Q mango which C Asouk climb tree pluck
'Which mango did Asouk climb the tree and pluck?'

c. Ká gbáŋ kānā ātī Asouk tìerì dà:?
Q book which C Asouk remember buy
'Which book did Asouk remember to buy?'

As has been shown for English and other languages, the CSC maybe violated in certain coordinate constructions (Lakoff, 1986; Postal, 1998). Consider the following examples from Postal (1998:53):

(32) a. the stuff which$_i$ Arthur sneaked in and stole t$_i$

b. [How many dogs]$_i$ can a person have t$_i$ and still stay sane ?

c. That is the drug which$_i$ athletes take t$_i$ and become quite strong.

These constructions involve coordination, and yet they permit extraction. Harris (2009) and de Vos (2005) for instance argue that the sentences in (32) involve coordination of a low syntactic projection.

In his account of switch-reference as coordinate structure, Keine (2013) argues that the sentences in (33) in Choctaw are coordinate structures. The difference, however, is in the size of the conjuncts. While (33-a) is a TP/CP, (33-b) is a vP. Interestingly, it is the coordination involving the smaller conjunct that allows asymmetric extraction.

(33) a. *Katah-ooshi$_i$ John-at taloowa-tok anõti t$_i$ hilha-tok?
who-FOC.NOM John-NOM sing-PST and t dance-pst
'Who$_i$ did John$_j$ sing and t$_i$ dance?'

b. Katah-ooshi$_i$ John-at taloowa-no t$_i$ hilha-tok?
who-FOC.NOM John-NOM sing-DS t dance-pst
'Who$_i$ did John sing and t$_i$ dance?'

I take this to conclude that it is reasonable to maintain a coordination account of SVCs despite the extraction facts if one is willing to adopt the proposal that the size of the conjunct affects the possibility of extraction. In the analysis presented here, where SVCs are coordination at the VP level, it not surprising that extraction is

possible. In other words, the possibility of extraction from SVCs is not a conclusive argument against a coordination account of these structures. We could be dealing with covert coordination of VPs in SVCs in general.

6.5 Previous approaches

Several approaches to SVCs have been argued for over the years. In addition to SVCs as VP coordination, as argued for in this work, it has been proposed that SVCs involve complementation of embedded VPs rather than coordination. The facts to be discussed in this section, in addition to the ones above, will strengthen the conclusion that the relevant structures do not exemplify a special type of complementation, in which the first verb selects the structure introduced by the second verb, but rather involve coordination. For the purposes of exposition, I will divide the complementation approaches to SVCs into lexical, functional, and restructuring. This will allow for both ease of reference and comparison.

6.5.1 Lexical V1

According to the lexical approach, V1 is a lexical verb involved in (internal) argument selection and theta role assignment. V2 appears as a complement of V1. Argument sharing is explained via control of a silent pronominal (Collins, 1997; Carstens, 2002). I illustrate the lexical approach with examples from Ewe. The examples in (34) illustrate serial verb constructions from Ewe.

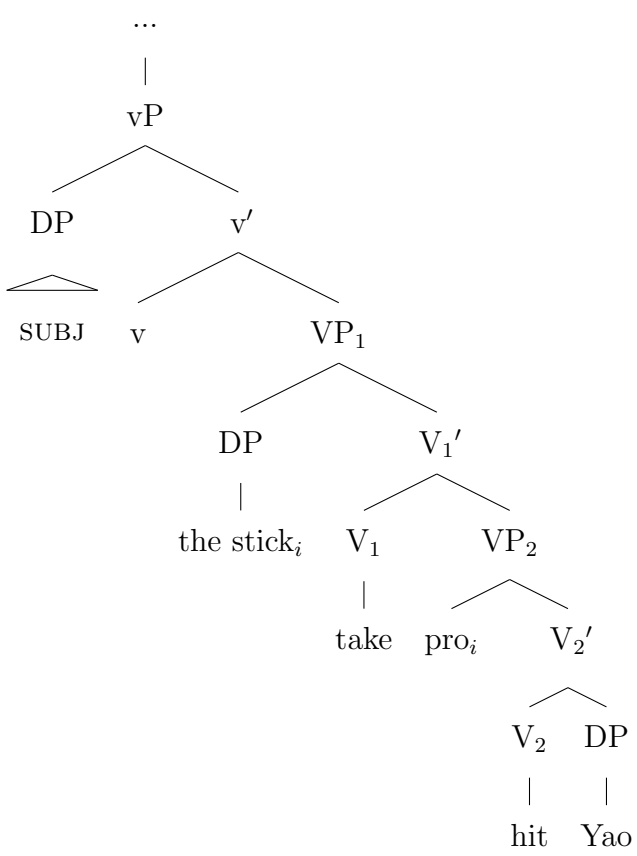
(34) a. Kofi tsɔ ati-ɛ ʄo Yao.
Kofi take stick-DEF hit Yao
‘ Kofi took the stick and hit Yao with it.’

b. Wo ɖa fufu ɖu.
they cook fufu eat
‘They cooked fufu and ate it.’ (Ewe, Collins 1997: 461)

A structure like (35) illustrates a partial derivation of the lexical approach to an

instrumental SVC.

(35)



In this example, (35), *ati-ɛ* 'the stick' is introduced by *tsɔ* 'take' which assigns it the theme role. The understood instrument role of V2 is assigned to *pro*, which is controlled by *ati-ɛ* 'the stick'. It is important to note that the shared argument, in this case the instrument, is introduced as the specifier of V1 and V2 appears as its complement

6.5.2 Functional V1

In what I am calling the functional approach, V1 is a functional verb which doesn't select an internal argument and has no internal Θ-role to assign. I will illustrate this approach with examples from Gungbe (36).

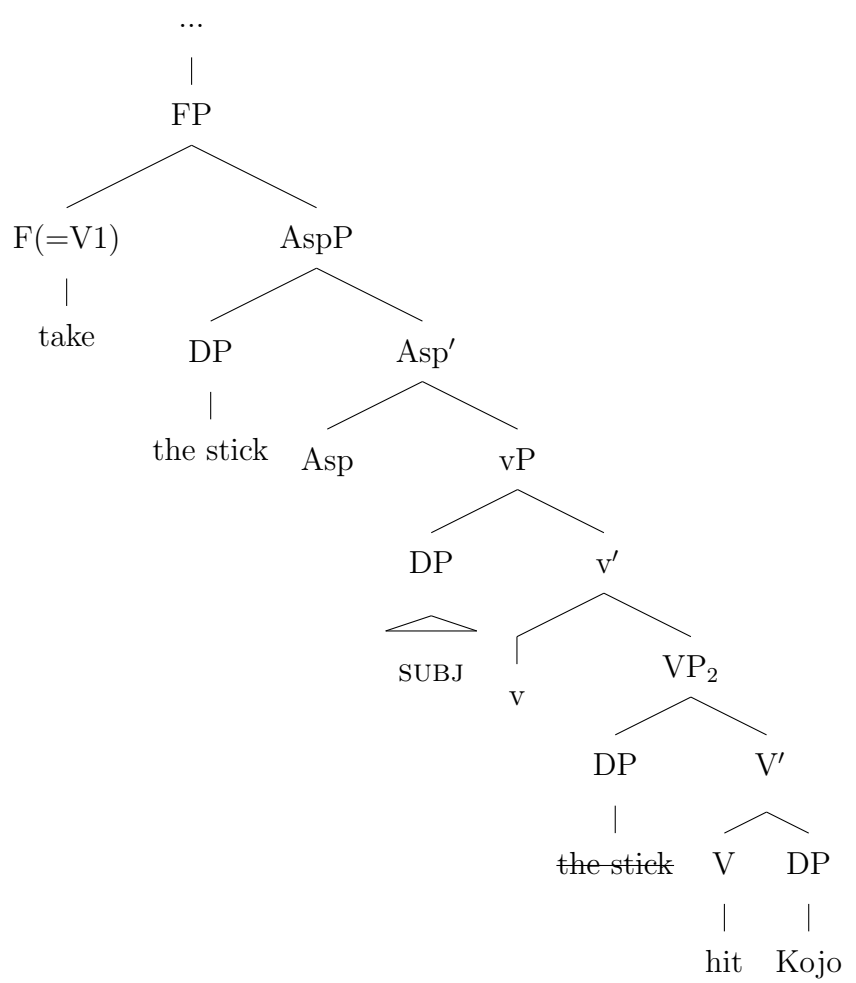
(36) a. Sɛ́tù zé kpò lɔ́ xò Kójó.
Setu take stick DET hit Kojo

‘ Setu took the stick hit Kojo (i.e., he hit him with the stick).’

b. Àsíbá ɖà lɛ́sì̀ ɖù.
Asiba cook/prepare/make rice eat
‘ Asiba cooked/prepared/made the rice eat(i.e., she ate the rice). (Gungbe, Aboh 2009:3)

A partial representation of an instrumental SVC according to the functional approach is given in (37).

(37)



In this example, all arguments are introduced by the lexical verb, V2. The instrument argument raises to Spec, AspP, for EPP reasons. Here, we should note that F (=V1) is a functional verb lacking an internal argument. Thus, the argument occur-

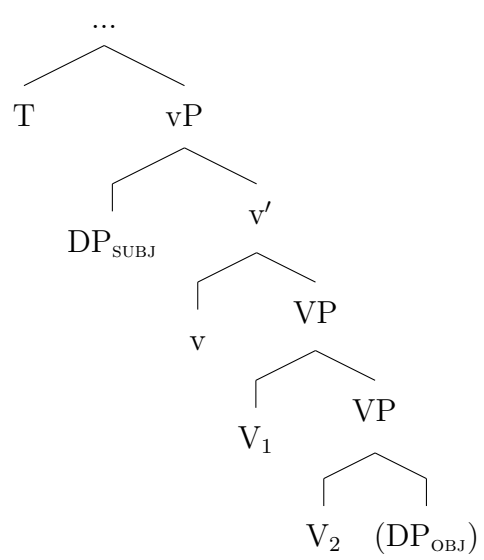
ring between V1 and V2 doesn't appear there because it is selected by V1, but rather for other reasons. In other words, the surface word order where an XP intervenes between V1 and V2 results from the presence of a functional head, Asp, with an EPP property which attracts the closest argument of V2 to its Spec. Based on data from Gungbe and Akan, Aboh (2009) argues that V1 is a functional (or light) verb that has no (internal) Θ-role to assign, and thus generalizes to all verbs representing V1 in SVCs.

6.5.3 Restructuring

Another complementation account for SVCs posits restructuring. This view will naturally account for SVCs in group 2, which are interpreted essentially as complement structures. Under this view, SVCs are constructions where V2 is a VP complement to a matrix verb. As a result, they lack clausal properties such as subject, tense, and negation in their syntax. Approaches to restructuring including (Napoli, 1981; Zagona, 1982; Cremers, 1983; Picallo, 1985; Cinque, 1997, 2001, 2002; Wurmbrand, 1998, 2001, 2004, 2015) could be invoked to account for these SVCs. In particular, one could argue that V2 occurs as a complement to a lexical verb (verbs that establish thematic relations with arguments) following Wurmbrand (2004, 2015)[1]. With the properties identified in mind, SVCs will involve the structure in (38), where VP2 merges as the bare VP complement of a lexical verb. As a lexical verb, the matrix V1 introduces the external argument. Other properties, including the lack of a subject and functional materials before V2, immediately follow from this structure. The complement is simply too small to contain such material. This analysis treats SVCs in Bùlì as similar to the restructuring infinitives in German identified by Wurmbrand (2001).

[1]This contrasts with accounts that consider V1 as either a type of auxiliary (Napoli 1981) or a functional head (verbs that do not establish thematic relations with their arguments) Cinque (1997, 2001 2002).

(38)



6.5.4 The shared argument

In this section, I consider an issue raised by the third kind of SVC for the various analyses presented above. The most salient property that uniquely defines these constructions is the property of what appears to be a shared argument between the verbs, as noted earlier. Consider the examples in (39) (repeated from (3)).

(39) a. Àtì:m sè lām ŋɔ̀bì.
Atim roast meat eat
'Atim roasted and ate meat'

b. bí:ká nàgì bū:kú kɔ́
the.child beat the.goat kill
'The child beat the goat to death'

In an earlier account of this property, Baker (1989) argues for a double-headed VP with a single NP, which is θ-marked by each verb. In (39-a) for instance, the NP *lām* 'meat' is θ-marked by both *sè* 'roast' and *ŋɔ̀bì* 'eat'. Thus, the shared-argument property of SVCs was inherently part of this account. Since then, most analyses of SVCs try to capture this property of a shared internal argument by other means. Essentially, current analyses argue that there is no argument sharing in SVCs in the true sense of the word, meaning that the term *argument-sharing* is more of a relic from earlier accounts.

According to the lexical account of SVCs discussed above, argument-sharing is achieved via control of a pronominal by the argument of V1 (Collins, 1997; Veenstra, 2000; Carstens, 2002). V1 is a lexical verb that selects an internal argument which controls the internal argument of V2 (see (35) above). Notably, each verb introduces its own internal argument. The current coordination account concurs with the lexical account in that both verbs, V1 and V2, are lexical verbs which select and assign a theta-role to their internal argument. The accounts differ, however, in that they are related via a coordination structure rather than a complementation one.

The functional approach (Aboh, 2009) questions the relevance of argument-sharing, proposing that it cannot be a defining condition on serialization and should be abandoned. Instead, Aboh proposes that V1 in SVCs is a functional verb that is not involved in selecting internal arguments. As a result, no argument is shared in the traditional sense. The intervening argument between V1 and V2 has moved to that position from within V2 (see (37) above). A corollary of this idea is the abandonment of all accounts of SVCs that consider argument-sharing as a condition on SVCs. The current account agrees with the functional account in that there is no argument sharing between the verbs in the traditional sense, since each verb separately introduces its own argument. It does, however, disagree with the analysis that V1 is functional and that the intervening argument has been moved from within V2. There are two pieces of evidence that lead me to this conclusion.

First, as shown in the SVC construction in (40), the object of the second verb can be overtly expressed as either a pronoun[2] (40-b) or an epithet (40-c). I take this as evidence that both V1 and V2 are lexical verbs, with all their arguments syntactically present. This indicates that there is no argument-sharing.

(40) a. Azuma yìg bū:k tɔ̀grì̀ .
Azuma catch/hold goat slaughter
'Azumah caught/held a goat and slaughtered it'

b. Azuma yìg bū:k$_i$ tɔ̀grì̀ kù$_i$.
Azuma catch/hold goat slaughter 3SG

[2]Akan is another language where the argument of V2 can be expressed as a pronoun.

'Azumah caught/held a goat and slaughtered it'

c. Azuma yìg bū:k$_i$ tɔ̀grì jā:mǔ$_i$
Azuma catch/hold goat slaughter thing.DEF
'Azumah caught/held a goat and slaughtered the thing'

Secondly, the argument of V1 can co-refer with the argument of V2, when it is located within an island. This suggests that this is not derived through movement, contrary to what the functional approach would claim (41).

(41) a. Azuma yìg bū:k gìs wāi àlì wà tɔ̀grì lā
Azuma catch/hold goat search person ALI 3SG slaughter PRT
'Azumah caught/held a goat and searched for the person who will slaughter it'

b. Azuma yìg bū:k gìs wāi àlì wà tɔ̀grì kù$_i$ lā
Azuma catch/hold goat search person ALI 3SG slaughter 3SG PRT
'Azumah caught/held a goat and searched for the person who will slaughter it'

c. Azuma yìg bū:k gìs wāi àlì wà tɔ̀grì jā:mǔ$_i$
Azuma catch/hold goat search person ALI 3SG slaughter thing.DEF
lā
PRT
'Azumah caught/held a goat and searched for the person who will slaughter the thing'

Therefore, I maintain that these constructions involve coordination of VPs. As I explained earlier, what has traditionally been called argument-sharing is the result of coordination of VPs, followed by deletion of a matching object, which is made possible by the first conjunct.

6.6 Limitations of the coordination account

While the view of SVCs as coordination presented here accommodates a significant class of SVCs, there are other instances of SVCs which resist analysis in terms of coordination. In this section, I discuss these cases, along with the reasons that render

the analysis proposed here unsuitable for them. Instead, I will suggest a version of the complementation account for these examples. As a result, we see that constructions that have been given the same descriptive label are not necessarily theoretically uniform.

6.6.1 Functional V1 after all

One robust way of separating functional verbs from their lexical counterparts is argument selection and theta role assignment: while lexical verbs can select and assign theta roles, functional elements by their nature cannot (Cinque, 1997, 2001, 2002; Wurmbrand, 2004; Aboh, 2009). This functional vs. lexical distinction is responsible for several phenomena cross-linguistically. The central motivation for the functional approach to SVCs is the observation that V1 has no internal theta role to assign and that all arguments are introduced by the lexical verb, V2 (Aboh, 2009). While this is not true for all cases, as argued above, some initial verbs in SVCs can be argued to be functional. Here, we consider SVCs where V1 can be argued to involve a functional verb. The main distinguishing properties for functional versus lexical verbs are internal argument selection and theta role assignment.

6.6.2 TAKE-series

In the 'TAKE-series', I show that V1, 'take', can be argued to be functional because it doesn't select an internal argument. Consider the examples in (42).

(42) a. Asibi pà *(gēbīk)
Asibi take knife
' Asibi took a knife.'

b. *Asibi pà dìemwá
Asibi take yesterday
' Asibi took yesterday.'

As a main predicate, *pā* 'take' selects and assigns a theme theta role, as in (42-a). Without its internal DP, the sentence is ungrammatical and nothing, including ad-

verbials, can satisfy this requirement (42-b). In the lexical approach to SVCs, the XP argument occurs between V1 and V2 in order to be theta marked by both verbs (Baker, 1989). The examples in (43), however, suggest that the XPs may be occurring for reasons other than being selected by V1, since adverbials, locatives, and idioms are allowed in SVCs, as shown in (43-b)-(43-d), but not when V1 is used as a main verb (42-b).

(43) a. Asibi pà gēbīk gèb lām.
Asibi take knife cut meat
' Asibi cut meat with a knife.'

b. Asibi pà dìemwá gèb lām.
Asibi take yesterday cut meat
' Asibi cut meat yesterday.'

c. Asibi pà yénní pō gèb lām.
Asibi take house loc cut meat
' Asibi cut meat in the house.'

d. Asibi pà nìmūnā gèb lām.
Asibi take eye-red cut meat
' Asibi cut meat with red eyes (i.e., Asibi cut the meat with seriousness.)'

The different range of XPs intervening between V1 and V2 in the TAKE-series above can be taken as evidence that V1 doesn't select or assign any theta role to the XP occurring to its right. Thus, it is located there for other reasons. This is an argument in favor of the functional approach, where V1 may not assign an internal theta role.

The TAKE-series in Gungbe and Akan lends support to this view. Consider the following examples (Aboh 2009:17-18)

(44) a. Sɛ́tù zé àwájìjɛ̀ yé.
Setu take joy receive 3PL
'Setu received them with joy.'

b. Sɛ́tù zé gbɔ́ ɖɔ̀kpó.
Setu take goat one
'Setu took one goat.' (Gungbe, Aboh 2009:17)

Although 'take' is a lexical verb which selects an internal argument and assigns it a theta role in Gungbe (44-b), the same cannot be said for the example in (44-a). In this example, V1 does not seem to assign any agent role to the external argument, nor a theme role to the following object *àwájὶjὲ* 'joy'. Instead, it encodes the way the event expressed under V2 was carried out. The Akan examples in (45) are even more telling, since 'take' cannot be used as a lexical verb by itself (45-b), yet is it perfectly fine in an SVC (45-a).

(45) a. Kofi de Yaw kɔɔ Kumase.
Kofi take Yaw go Kumase
'Kofi took Yaw to Kumase.'

b. *Kofi de Yaw.
Kofi take Yaw
'Kofi took Yaw.' (Akan, Aboh 2009:17-18) '

In Yorùbá and Ijọ, instrumental SVCs have been argued to involve raising of the instrument from a lower VP position. The initial verbs in relevant SVCs place no thematic restrictions on O1 in these languages, arguing against a control account (Carstens 2002:23). This, translated into our terms, means that V1 is a functional verb. Consider the examples in (46)-(47). Note also that in Yorùbá *fi* 'take' cannot function as an independent verb (46-c), similar to the Akan case above.

(46) a. Mo fi ọ̀bẹ ge bùrédì
I FI knife cut bread
'I cut the bread with a knife.'

b. ọmọdọ fi ayọ̀ gba ẹbùn
child FI joy accept present
'The child accepted the present with joy.'

c. *Mo fi ọ̀bẹ/ayọ̀/bùrédì
I FI knife/joy/bread
'I used/took a knife/joy/bread.' (Yorùbá, Carstens 2002:24)

(47) a. arí bú aki témédí-bóo érí-mí
I self take mirror-in see-PAST
'I saw myself in the mirror.'

b. áràù zuye ákị buru tèri-mí
she basket take yam cover-PAST
'She covered the yam with a basket.'

c. ayá bara-kị ákị dúma tun
new way take song sing
'Sing a song in a new way.' (ijọ, Carstens 2002:24)

In explaining this, Carstens (2002:25) writes that "To motivate the raising of O1 'knife', I suggest that in the change from a thematic verb 'take' to the semantically bleached raising variety, its selectional feature becomes uninterpretable, thus an EPP feature (Chomsky, 1999)".

Additionally, the order of these verbs is restricted: 'take' must always occur first. This restriction is not consistent with a coordination account.

(48) a. *Asibi gèb lām pà dìemwá.
Asibi cut meat take yesterday

b. *Asibi gèb lām pà yénní pō.
Asibi cut meat take house loc

6.6.3 HAVE-series

Another Bùlì predicate that argues for the functional nature of V1, and as such doesn't have an internal argument, is *tā* 'have'. As a predicate, *tā* is used in possessive constructions and it has a definiteness restriction: it can only take indefinites (49-a)-(49-b). Locative phrases cannot play the role of an internal argument when *tā* is the main predicate (49-c).

(49) a. Wà tà ná:b.
3SG have cow
'He has a cow.'

b. *Wà tà ná:mŭ
3SG have cow.DEF
'He has the cow.'

c. *Wà tà yénní pō .
3SG have house in ASP

In SVCs however, the definiteness restriction is suspended (50) and locatives can also appear in that position (50-b).

(50) a. Wà tà ná:mǔ à jì kòalìmà
3SG have cow.DEF ASP carry load
'He carries load with the cow' (He uses the cow to carry load)

b. Wà tà yénní pō à dī:nī.
3SG have house in ASP play
'He plays in the house.'

Similar to the TAKE-series, their order is fixed (51), suggesting that the predicate *tā* in these SVCs does not select an internal argument and is a functional verb. These observations lend support to the functional nature of V1: V1 is a functional verb with no internal theta role to assign.

(51) a. *Wà à jì kòalìmà tà ná:mǔ
3SG ASP carry load have cow.DEF

b. *Wà à dī:nī.tà yénní pō
3SG ASP play have house in

We have seen that in SVCs involving 'take' and 'have', a different range of XPs can occur after V1, which bears no thematic relation with V1. Additionally, the order in which these verbs occur is fixed. This behavior of these SVCs make them incompatible with a coordination account. I thus suggest that SVCs of this class be considered as instances of complementation, in line with Aboh (2009), where V1 is a functional verb selecting a complement, of which the second verb forms a part. Thus, the XP appearing between V1 and V2 is not selected or theta marked by V1. Rather, it occurs there for EPP reasons, as the functional approach suggests. What we have just observed is that constructions which are given the same descriptive label are not necessarily theoretically uniform.

6.7 Conclusion

In this chapter, we explored different kinds of constructions which are given the descriptive label of SVCs in Bùlì. I argued that the various properties associated with these constructions, including single subject, tense, and negation, result from the analysis of these constructions as instances of coordination of VPs. The argument-sharing property of SVCs was explained by deleting a matching object of V2, made possible by coordination. The analysis of SVCs presented here considers the predicates in SVCs to be independent lexical verbs, capable of introducing and theta-marking their own arguments.

Chapter 7

Tense and Temporal Reference

In this chapter, I investigate in detail both the syntax and semantics of Temporal Remoteness Markers (TRMs) found in Bùlì introduced in Chapter 2. These are optional morphemes which indicate the relative degree of pastness of a situation (from the utterance time). I argue that these TRMs are optional tenses, thus making the language an optional tense language.

The chapter is organized as follows: In Section 7.1, I present an overview of bare sentences in Bùlì and the various temporal interpretations available to them. In Section 7.2, I discuss the TRMs of Bùlì arguing that they are optional tenses. I investigate the distribution of TRMs in embedded contexts in Section 7.3, concluding from this that TRMs in Bùlì must always be interpreted relative to utterance time. An account of TRMs is offered in Section 7.4. Section 7.5 presents a cross-linguistic picture of TRMs, and Section 7.6 concludes the chapter.

7.1 Bare sentences in Bùlì

A common theme running through languages is that the aspectual class of the predicate influences default interpretations in out-of-the-blue contexts. This observation has been made cross-linguistically for typologically unrelated languages including Haitian (Dechaine, 1991), Mandarin (Lin, 2003, 2006), St'átímcets (Matthewson, 2006), and Hausa (Mucha, 2013, 2015), among others.

This section provides a description and analysis of the tense and temporal reference system of Bùlì, especially the various interpretations associated with different classes of predicates.

7.1.1 Default interpretation of bare sentences

The following subsection presents the aspectual classes and the default interpretations they impose on the temporal reference of the sentence. In an out-of-the-blue context, statives and imperfective/progressive sentences receive default present interpretations (1)-(2).

(1) a. wà dʒìag.
3SG. tired
'S/he is tired.'

b. wà sèbì ānsāwá.
3SG. know answer.DEF
'S/he knows the answer.'

c. wà kàlì yènní ní.
3SG. sit house.DEF front
'S/he is sitting in front of the house.'

(2) a. Asibi à dī:nī.
Asibi IMPF play
'Asibi plays/is playing'

b. Asibi bō-rō à dī:nī
Asibi BE-LOC IMPF play
'Asibi is playing'

c. wà à kārīm kù.
3SG. IMPF read 3SG.
'S/he reads/is reading it'

d. wà bō-rō à kārīm kù.
3SG. BE-LOC IMPF read 3SG.
'S/he is reading it'

These default present interpretations are not strong enough to clash with contradict-

ing adverbials or contexts. Therefore, when a past reference time is made salient by an adverbial or a context, these sentences can receive past interpretations, as shown in (3).

(3) a. wà dʒìag dī̄emwá.
3SG. tired yesterday
'S/he was tired yesterday.'

b. Asibi à dī̄:nī̄ sōlī̄ukúdē.
Asibi IMPF play morning.DEF.DEM
'Asibi was playing this morning'

c. Dī̄emwá, Asibi bō-rō à dī̄:nī̄
yesterday, Asibi BE-LOC IMPF play
'Asibi was playing yesterday'

Bare event predicates in the perfective receive either a past interpretation or one which is best translated into English as present perfect or past perfective, as shown in (4).

(4) a. wà kàrìm kù.
3SG. read 3SG.
'S/he read/has read it'

b. wà dì:nì.
3SG. play
's/he played/has played'

c. wà pà:rì màzúkkú.
3SG. reach top
'He reached/has reached the top'

It is important to note that these bare sentences cannot be used to describe future eventualities (5). Instead, overt marking is required to describe future eventualities (6). An activity in the imperfective aspect is compatible with future oriented adverbials (5-c), but with a futurate interpretation, similar to the interpretation that the present tense has in English.

(5) a. *wà dʒìag chúm.
3SG. tired tomorrow
Intended: 'S/he will be tired.'

b. *wà dì:nì vònù.
3SG. play day.after.tomorrow
Intended: 'S/he will played the day after tomorrow.'

c. Asibi à dī:nī vònù.
Asibi IMPF play day.after.tomorrow
'Asibi plays the day after tomorrow'.

'*Asibi will play the day after tomorrow'

(6) a. Asibi àlì dī:nī yénní pō chúm.
Asibi FUT play house in tomorrow
'Asibi will play in the house tomorrow'

b. wà àlì pā:rī màzúkkú.
3SG. FUT reach top
'S/he will reach the top'

In sum, bare sentences, whether imperfective or progressive, are compatible with both past and present interpretations, although certain aspects tend to lean toward certain default interpretations in the absence of a specific context. Default interpretations can be overridden by adverbials or by context. In effect, both past and present interpretations are available for bare sentences. Overt marking is, however, required for future eventualities.

The facts of Bùlì, as described above, are similar to that of St'át'imcets and Hausa. As such, it is feasible to analyze the temporal reference of Bùlì as either tenseless or involving a covert tense morpheme TENSE (Matthewson, 2006). The evidence for the covert tense approach will come from the compatibility of bare sentences in Bùlì with both past and present temporal reference, and the requirement that future eventualities should be overtly marked, as indicated above. The data will follow from the tenseless approach (Mucha, 2013, 2015) as well.

The upshot of this section is that both a tense and tenseless analysis are, in principle, available for morphologically tenseless sentences in Bùlì. At this point, it is

not entirely clear whether bare sentences are tensed, as in St'át'imcets (Matthewson, 2006), or tenseless, as in Hausa (Mucha, 2012, 2015), since the data are in principle compatible with both accounts. I do not wish to take a stance here on the right theory for bare sentences in the language. Instead, my point is that the Bùlì data seem compatible with either interpretation. In the next section, I take up the discussion of temporal remoteness markers (TRMs) introduced in Chapter 2.

7.2 Temporal remoteness markers (TRMs) in Bùlì

In addition to the default past interpretation associated with event predicates, Bùlì also has TRMs that serve to further indicate the degree of pastness of a situation or event. I will refer to these TRMs as Current Past (CUR), Immediate Past (IMM) and Remote Past (REM), (7-a)-(7-c), respectively. In this section, I will examine the properties of these three TRMs in Bùlì. I will argue that these markers should be considered to be tenses, since they restrict the reference time, as opposed to the event time.

(7) a. Asibi pō:m dì:nì yènní pō
Asibi CUR play house in
'Asibi played in the house (earlier today)'

b. Asibi dī̄em dì:nì yènní pō
Asibi IMM play house in
'Asibi played in the house (a day before utterance time)'

c. Asibi dā:m dì:nì yènní pō
Asibi REM play house in
'Asibi played in the house (at least two days before utterance time)

As shown, Bùlì makes a three-level distinction in the past. The current past form in (7-a) is used to describe events that occur within the day of the utterance, but before the utterance time. The current past TRM *pō:m* can co-occur with temporal adverbials that refer to a time within the day of utterance, such as *danka* 'earlier today' (8-a) or *soluikude* 'this morning' (8-b). However, *pō:m* is not compatible with

a temporal adverbial referring to a time earlier than the day of utterance, such as *diemwa* 'yesterday' (8-c) and *daamwa* 'two days ago' (8-d).

(8) a. Asibi pō:m dì:nì yènní pō dáká
Asibi CUR play house in earlier
'Asibi played in the house earlier today'

b. Asibi pō:m dì:nì yènní pō sòlìukúdē
Asibi CUR play house in this.morning
'Asibi played in the house this morning'

c. *Asibi pō:m dì:nì yènní pō dìemwă
Asibi CUR play house in yesterday
'Asibi played in the house yesterday'

d. *Asibi pō:m dì:nì yènní pō dà:mwă
Asibi CUR play house in two.days.ago
'Asibi played in the house at least two days ago'

The immediate past form is used to describe events occurring one day prior to the day of utterance. Therefore, the immediate past form can co-occur with a temporal adverbial referring to *diemwa* 'yesterday' (9-a), but cannot co-occur with temporal adverbials referring to a time within the day of utterance (9-b) or two days beforehand (9-c).

(9) a. Asibi dī̄em dì:nì yènní pō dìemwă
Asibi IMM play house in yesterday
'Asibi played in the house yesterday'

b. *Asibi dī̄em dì:nì yènní pō sòlìukúdē
Asibi CUR play house in this.morning
'Asibi played in the house this morning'

c. *Asibi dī̄em dì:nì yènní pō dà:mwă
Asibi CUR play house in two.days.ago
'Asibi played in the house at least two days ago'

Finally, the remote past is used to describe events that occurred at least two days before the day of utterance. This form is compatible with adverbials like 'two days ago' (10-a) and 'last week' (10-b), but not with adverbials that refer to a later time

(10-c).

(10) a. Asibi dā:m dì:nì yènní pō dà:mwǎ
Asibi REM play house in two.days.ago
'Asibi played in the house two days ago'

b. Asibi dā:m dì:nì yènní pō bàkwà-dī:-àlì-tā=m-lá
Asibi REM play house in last-week
'Asibi played in the house last week'

c. #Asibi dā:m dì:nì yènní pō dìemwǎ
Asibi REM play house in yesterday
'Asibi played in the house yesterday'

Thus far, we have seen that in addition to the default past/present interpretations, finite sentences in Bùlì can take optional TRMs to indicate the degree of pastness. In the sections that follow, I will investigate the grammatical status of these morphemes and attempt to answer the following question: are TRMs in Bùlì tenses or adverbials?

For completeness, we should note that TRMs in Bùlì are compatible with imperfective/progressive aspect (11)-(12).

(11) a. Asibi pō:m à dī:nī yénní pō
Asibi CUR IMPF play house in
'Asibi was playing in the house'

b. Asibi dīem à dī:nī yénní pō
Asibi IMM IMPF play house in
'Asibi was playing in the house yesterday'

c. Asibi dā:m à dī:nī yénní pō
Asibi REM IMPF play house in
'Asibi was played in the house at least two days ago'

(12) a. Asibi pō:m bò-rò à dī:nī yénní pō
Asibi CUR BE-LOC IMPF play house in
'Asibi was playing in the house'

b. Asibi dīem bò-rò à dī:nī yénní pō
Asibi IMM BE-LOC IMPF play house in
'Asibi was playing in the house yesterday'

c. Asibi dā:m bò-rò à dī:nī yénní pō
Asibi REM BE-LOC IMPF play house in
'Asibi was playing in the house at least two days ago'

7.2.1 On TRMS as adverbials

In this section we will consider whether TRMs in Bùlì should be analysed as adverbials. There are two reasons why this might be considered a reasonable approach: i) TRMs are optional; and ii) two of the TRMs resemble adverbials and are possibly derived from them (13). The immediate and remote past markers, *dīem* and *dā:m*, have identical first syllables to the adverbials, *dìemwǎ* 'yesterday' and *dà:mwǎ* 'two days ago', respectively. The fact that there is no interpretable difference between the immediate past marker and the adverbial 'yesterday' further supports an analysis which would consider both of them as adverbials.

(13) a. Asibi dì:nì yènní pō dìemwǎ
Asibi play house in yesterday
'Asibi played in the house yesterday'

b. Asibi dì:nì yènní pō dà:mwǎ
Asibi IMM play house in two.days.ago
'Asibi played in the house yesterday'

Dā:m and *dà:mwǎ*, however, do have some interpretable differences: while *dā:m* can mark indefinite past, *dà:mwǎ* marks exactly the second day from the day of the utterance. A context that makes this distinction clear is given below from (14)-(16):

(14) *Context: Asibi played* **two days ago**. *Asouk says:*

a. Asibi dā:m dì:nì yènní pō
Asibi REM play house in
'Asibi played in the house.'

b. Asibi dì:nì yènní pō dà:mwǎ
Asibi play house in two.days.ago
'Asibi played in the house two days ago.'

(15) *Context: Asibi played* **a week ago**. *Asouk says:*

a. Asibi dā:m dì:nì yènní pō
Asibi REM play house in
'Asibi played in the house.'

b. #Asibi dì:nì yènní pō dà:mwǎ
Asibi play house in two.days.ago
'Asibi played in the house two days ago.'

(16) *Context: Asibi played* **a week month/a year ago**. *Asouk says:*

a. Asibi dā:m dì:nì yènní pō
Asibi REM play house in
'Asibi played in the house.'

b. #Asibi dì:nì yènní pō dà:mwǎ
Asibi play house in two.days.ago
'Asibi played in the house two days ago.'

An important question regarding these TRMs is whether they function as grammatical tense or adverbs. I will argue that despite being optional, these TRMs instantiate tense, which differentiates them from adverbials. In what follows, I present arguments that illustrate the differences between TRMs and adverbial in Bùlì.

Generally, adverbials in Bùlì can be combined felicitously with TRMs, although there is a slight sense of redundancy when this occurs (17). As a reminder, a low tone uniformly occurs on the verb after the TRMs. As explained in Chapter 2, this low tone is an exponent of Aspect which follows the Tense morpheme but precedes the verb.

(17) a. Asibi dīem dì:nì dìemwǎ
Asibi IMM play yesterday
'Asibi played yesterday'

b. Asibi dā:m dì:nì dà:mwǎ
Asibi REM play two.days.ago
'Asibi played two days ago.'

c. Asibi pō:m dì:nì
Asibi CUR play earlier.today
'Asibi played earlier today'

As is typical for temporal adverbials cross-linguistically, adverbials like *dìemwǎ* and *dà:mwǎ* can only occur at the periphery of the sentence, in either initial or final position. They are banned from TP internal positions, as shown in example (18).

(18) a. *Asibi dìemwǎ dì:nì
Asibi yesterday play
'Asibi played yesterday'

b. *Asibi dà:mwǎ dì:nì
Asibi two.days.ago play
'Asibi played two days ago.'

c. *Asibi dàkǎ dì:nì
Asibi earlier.today play
'Asibi played earlier today'

TRMs, on the other hand, have the opposite distribution, as they must occur internal to TP.

(19) a. *Pō:m Asibi dì:nì
CUR Asibi play
Intended: 'Asibi played earlier'

b. *Asibi dì:nì pō:m
Asibi play CUR
Intended: 'Asibi played earlier'

(20) a. *D̄iem Asibi dì:nì
IMM Asibi play
Intended: 'Asibi played earlier'

b. *Asibi dì:nì d̄iem
Asibi play IMM
Intended: 'Asibi played yesterday'

(21) a. *Dā:m Asibi dì:nì
REM Asibi play
Intended: 'Asibi played at least two days ago'

b. *Asibi dì:nì dā:m
Asibi play REM
Intended: 'Asibi played at least two days ago'

Another difference between adverbials and TRMs in Bùlì is that adverbials, but not TRMs, can be conjoined with other adverbials (22).

(22) a. Asibi dì:nì dìemwă àlì dà:mwă
Asibi play yesterday CONJ two.days.ago
'Asibi played yesterday and two days ago'

b. *Asibi dīem àlì dā:m dì:nì
Asibi IMM CONJ REM play
Intended: 'Asibi played yesterday and at least two days ago'

Additionally, adverbials differ from TRMs in that they can be moved to the left periphery, but TRMs cannot undergo this movement (23)-(24).

(23) a. Dàkă àtì Asibi dì:nì
earlier ATI Asibi play
'It was earlier that Asibi played'

b. *Pō:m àtì Asibi dì:nì
earlier ATI Asibi play
Intended: 'It was earlier that Asibi played'

(24) a. Dìemwă àtì Asibi dì:nì
yesterday ATI Asibi play
'It was yesterday that Asibi played'

b. *Dīem àtì Asibi dì:nì
REM ATI Asibi play
Intended: 'It was yesterday that Asibi played'

(25) a. dà:mwă àtì Asibi dì:nì
two.days.ago ATI Asibi play
'It was two days ago that Asibi played'

b. *Dā:m àtì Asibi dì:nì
REM ATI Asibi play
Intended: 'It was at least two days ago that Asibi played'

Adverbials can be used as fragment answers, whereas TRMs cannot 7.1.

(26) Question: When did Asibi play?

Table 7.1: Adverbials as fragment anwsers

Ans	Adverb	TRM
	Dà:mwǎ	*Dā:m
	Dìemwǎ	*D̄iem
	Dàkǎ	*Pō:m

Another difference is that TRMs cannot be used in response to a *when* question (27), but the adverbials are perfectly fine as a response (28).

(27) Question: when did Asibi play?

a. #Asibi d̄iem dì:nì
Asibi IMM play
'Asibi played yesterday'

b. #Asibi dā:m dì:nì
Asibi REM play
'Asibi played two days ago.'

c. #Asibi pō:m dì:nì
Asibi CUR play
'Asibi played earlier today'

(28) Question: when did Asibi play?

a. Asibi dì:nì dìemwǎ
Asibi play yesterday
'Asibi played yesterday'

b. Asibi dì:nì dà:mwǎ
Asibi play two.days.ago
'Asibi played two days ago.'

c. Asibi dì:nì dàkǎ
Asibi play earlier.today
'Asibi played earlier today'

Also, whereas adverbials can bear contrastive focus (29-a), TRMs cannot (29-b).

(29) a. Asibi dì:nì dìemwǎ àmā: Asouk dì:nì dà:mwǎ
Asibi play yesterday but Asouk play two.days.ago
'Asibi played yesterday but Asouk played two days ago'

b. #Asibi dī̄em dì:nì àmā̄: Asouk dā̄:m dì:nì
Asibi IMM play but Asouk REM play
Intended: 'Asibi played yesterday but Asouk played at least two days ago'

Additionally, adverbials can be focused with *ɲī̄:nī̄* 'only', whereas TRMs cannot (31).

(30) a. Asibi dì:nì dìemwă ɲī̄nī̄
Asibi play yesterday only
'Asibi played only yesterday'

b. *Asibi dī̄em ɲī̄nī̄ dì:nì
Asibi IMM only play
Intended: 'Asibi played only yesterday'

Finally, adverbials are allowed in possessive constructions (31-a), but TRMs are not possible in these examples, as seen in (31-b) below:

(31) a. Asibi kàrìm dìemwă gbáká
Asibi read yesterday book
'Asibi read yesterday's book'

b. *Asibi kàrìm dìem gbáká
Asibi read yesterday book
'Asibi read yesterday's book'

The distribution of TRMs and adverbials further suggests that they are distinct morphemes. The fact that TMRs are preverbal and cannot be focused or used as fragment answers suggests that they are functional elements that must be located within the area of T. Therefore, we can see that TRMs are different from adverbials, which can be syntactically adjoined to TP. In the next section, we will consider data that further shed light on the wider distribution of TRMs and their semantics.

7.2.2 On the status of TRMs

In the previous section, we saw that what we have been calling TRMs have distributions different from adverbials and must appear in the spine of the clause. A crucial

question we have not yet considered is what is the exact function of these markers. Are these markers different degrees of tense, in that they restrict the reference time? Alternatively, are they TRMs, in the sense of Cable (2013), where they modify the event argument? In this section, I present data that will shed some light on the semantics of these markers. Based on their distribution, I will argue that these markers should be considered to be tenses, since they restrict the reference time, as opposed to the event time.

The following examples illustrate which TRM can be used in which specific context:

(32) Context: Asibi played in the morning. It is now afternoon and Asouk says:

a. Asibi pō:m dì:nì yènní pō
Asibi CUR play house in
'Asibi played in the house.'

b. #Asibi dī̄em dì:nì yènní pō
Asibi IMM play house in
'Asibi played in the house.'

c. #Asibi dā:m dì:nì yènní pō
Asibi REM play house in
'Asibi played in the house.'

(33) Context: Asibi played in the afternoon. It is now evening and Asouk says:

a. Asibi pō:m dì:nì yènní pō
Asibi CUR play house in
'Asibi played in the house.'

b. #Asibi dī̄em dì:nì yènní pō
Asibi IMM play house in
'Asibi played in the house.'

c. #Asibi dā:m dì:nì yènní pō
Asibi REM play house in
'Asibi played in the house.'

(34) Context: Asibi played in the morning. It is now evening and Asouk says:

a. Asibi pō:m dì:nì yènní pō
Asibi CUR play house in

'Asibi played in the house.'

b. #Asibi dī̄em dì:nì yènní pō
Asibi IMM play house in
'Asibi played in the house.'

c. #Asibi dā:m dì:nì yènní pō
Asibi REM play house in
'Asibi played in the house.'

(35) Context: Asibi played yesterday and Asouk says:

a. #Asibi pō:m dì:nì yènní pō
Asibi CUR play house in
'Asibi played in the house.'

b. Asibi dī̄em dì:nì yènní pō
Asibi IMM play house in
'Asibi played in the house.'

c. #Asibi dā:m dì:nì yènní pō
Asibi REM play house in
'Asibi played in the house.'

(36) Context: Asibi played two days ago and Asouk says:

a. #Asibi pō:m dì:nì yènní pō
Asibi CUR play house in
'Asibi played in the house.'

b. #Asibi dī̄em dì:nì yènní pō
Asibi IMM play house in
'Asibi played in the house.'

c. Asibi dā:m dì:nì yènní pō
Asibi REM play house in
'Asibi played in the house.'

(37) Context: Asibi played a week ago and Asouk says:

a. #Asibi pō:m dì:nì yènní pō
Asibi CUR play house in
'Asibi played in the house.'

b. #Asibi dī̄em dì:nì yènní pō
Asibi IMM play house in
'Asibi played in the house.'

c. Asibi dā:m dì:nì yènní pō
Asibi REM play house in
'Asibi played in the house.'

(38) Context: Asibi played a month/year ago and Asouk says:

a. #Asibi pō:m dì:nì yènní pō
Asibi CUR play house in
'Asibi played in the house.'

b. #Asibi dī̄em dì:nì yènní pō
Asibi IMM play house in
'Asibi played in the house.'

c. Asibi dā:m dì:nì yènní pō
Asibi REM play house in
'Asibi played in the house.'

From the above contexts, I will informally propose that *pō:m* restricts the reference time of the sentence to any time before the utterance time, within the day of utterance, while *dī̄em* and *dā:m* restrict the reference time to one day before the utterance time and at least two days before the utterance time, respectively. This proposal will become clearer in the next two sections when TRMs in Bùlì are compared to TRMs identified in other languages, specifically G̃ikũyũ and Medumba. As we shall see, the TRMs in Bùlì are different from those of G̃ikũyũ (Cable 2013) in that they restrict the reference time and not the event time, and at the same time lack Maximize Presupposition effects. They are also different from the TRMs of Medumba (Mucha 2015) in that they must be interpreted relative to utterance time. In the next section, I will discuss the range of sentences that allow TRMs in Bùlì and the interpretations we derive from them.

7.3 TRMs in embedded clauses

7.3.1 Complement clauses

There are a number of possible combinations of a matrix TRM and an embedded TRM, but only two kinds of combinations are felicitous. Generally, TRMs which are lower on the scale of remoteness cannot be embedded under TRMs which are higher on the scale of remoteness. The TRM in the embedded clause must either 'agree' with the matrix TRM or be more remote than the matrix marker. Consider the examples in (39)-(41). In example (39), the embedded TRM 'agrees' with the matrix TRM. In example (40), the markers in the embedded clauses are further remote than their matrix counterparts. The ungrammatical examples in (41) demonstrate the infelicitous combination where the embedded TRM is less remote than the matrix TRM.

(39) a. Asibi pō:m wìen āyī̄n Asouk pō:m dì:nì
Asibi CUR say C Asouk CUR play
'Asibi said that Asouk played earlier today.'

b. Asibi dī̄em wìen āyī̄n Asouk dī̄em dì:nì
Asibi IMM say C Asouk IMM play
'Asibi said that Asouk played yesterday.'

c. Asibi dā:m wìen āyī̄n Asouk dā:m dì:nì
Asibi REM say C Asouk REM play
'Asibi said that Asouk played at least two days ago.'

(40) a. Asibi pō:m wìen āyī̄n Asouk dī̄em dì:nì
Asibi CUR say C Asouk IMM play
'Asibi said (earlier today) that Asouk played (yesterday)'

b. Asibi pō:m wìen āyī̄n Asouk dā:m dì:nì
Asibi CUR say C Asouk REM play
'Asibi said (earlier today) that Asouk played (at least two days ago)'

c. Asibi dī̄em wìen āyī̄n Asouk dā:m dì:nì
Asibi REM say C Asouk REM play
'Asibi said (yesterday) that Asouk played (at least two days ago)'

(41) a. *Asibi dīem wìen āyīn Asouk pō:m dì:nì
Asibi IMM say C Asouk CUR play
'Asibi said (yesterday) that Asouk played (earlier today) '

b. *Asibi dā:m wìen āyīn Asouk dīem dì:nì
Asibi REM say C Asouk IMM play
'Asibi said (at least two days ago) that Asouk played (yesterday)'

c. *Asibi dā:m wìen āyīn Asouk pō:m dì:nì
Asibi REM say C Asouk CUR play
'Asibi said (at least two days ago) that Asouk played (earlier today)'

One issue worth exploring is the interpretation of TRMs under attitude verbs. The phenomenon to explore is whether the Bùlì TRM can have a sequence-of-tense (SOT) reading (Ogihara, 1996; Enç, 1987). The SOT reading is often described as the presence of a past (tense) form that does not correspond to a semantically interpretable tense. An example of this phenomena in English is given in (48) below:

(42) John said that Mary was pregnant.

a. John said: 'Mary was pregnant' (shifted reading)

b. John said: 'Mary is pregnant' (simultaneous reading)

In the shifted reading (42-a), the tense of the embedded clause is relative to the time of John's saying. In other words, the time of Mary's pregnancy precedes the time of John's saying. In the simultaneous reading (42-b), the time of Mary's pregnancy overlaps the time of John's saying.

The following data show that TRMs in Bùlì can receive simultaneous interpretations when embedded under report verbs. This behavior of TRMs in Bùlì indicates that they are similar to tenses in SOT languages like English. This is illustrated in (43)-(45), where the context questions induce simultaneous readings with the matrix event. The (a) examples in (43)-(45) contain a TRM in the embedded clause. The fact that these sentences are licit in these contexts is taken as evidence for the simultaneous reading of TRMs. Note that the bare embedded sentences in the (b) examples in (43)-(45) are licit in these contexts, as well.

(43) Context question (Adapted from Mucha, 2015): You went to visit Mary a week ago, right? Did she tell you why she was sneezing that day?

a. Wà dā:m wìen āyīn wà dā:m à wīag kāmā
3SG REM say C 3SG REM IMPF sick KAMA
'She said she was sick'

b. Wà dā:m wìen āyīn wà à wīag kāmā
3SG REM say C 3SG IMPF sick KAMA
'She said she was sick'

(44) Context question (Adapted from Mucha, 2015): You went to visit Mary this afternoon right? Did she tell you why she was sneezing earlier?

a. Wà pō:m wìen āyīn wà pō:m à wīag kāmā
3SG CUR say C 3SG CUR IMPF sick KAMA
'She said she was sick'

b. Wà dā:m wìen āyīn wà à wīag kāmā
3SG REM say C 3SG IMPF sick KAMA
'She said she was sick'

(45) Context question (Adapted from Mucha, 2015): You went to visit Mary yesterday, right? Did she tell you why she was sneezing yesterday?

a. Wà dīem wìen āyīn wà dīem à wīag kāmā
3SG IMM say C 3SG IMM IMPF sick KAMA
'She said she was sick'

b. Wà dīem wìen āyīn wà à wīag kāmā
3SG IMM say C 3SG IMPF sick KAMA
'She said she was sick'

The next question to explore is whether TRMs are interpreted relative to the utterance time or matrix evaluation time. I will argue that TRMs are always interpreted relative to the utterance time, in both matrix and embedded clauses. Consider the following context and judgments:

(46) Context: Asouk played the day before yesterday, Asibi said this yesterday, and it is being reported today.

a. #Asibi dī̄em wìen āyī̄n Asouk dī̄em dì:nì
Asibi IMM say C Asouk IMM play
'Asibi said that Asouk played'

b. Asibi dī̄em wìen āyī̄n Asouk dā:m dì:nì
Asibi IMM say C Asouk REM play
'Asibi said that Asouk played'

The temporal marker *dī̄em*, embedded under another *dī̄em*, doesn't backshift from the evaluation time of the matrix sentence (46-a). Under the assumption that in embedded clauses TRMs backshift with respect to the matrix evaluation time, *dī̄em* embedded under another *dī̄em* should be felicitous in the context above. This is because it could backshift the matrix *dī̄em* to the day before. However, in this context (46-a) is infelicitous and (46-b) is used instead. This is not predicted under the assumption that TRMs can backshift the matrix evaluation time. In example (46-b), back-shifting the matrix tense with *dā:m* should refer to *at least two days* before *yesterday* from *yesterday*. This would make using *dā:m* infelicitous in the context above, contrary to what we see. The fact that the use of *dā:m* is felicitous in this context suggests that it is interpreted relative to the utterance time: it is *at least two days* from the utterance time. I conclude that TRMs in Bùlì must always be interpreted relative to utterance time.

The fact that they are always interpreted relative to the matrix evaluation time explains the infelicity of sentences in (41) above, where the TRMs in the embedded clause occur later than the matrix TRMs. Example (41-a), for instance, will mean that Asibi said 'yesterday' that Asouk played 'earlier today'. This places the event of playing in the future of the saying time. In other words, the embedded TRM is in the future of the matrix TRM. This reading is, however, unavailable even when the TRMs 'agree' (47).

(47) a. *Asibi pō:m wìen sòlùikŭ āyī̄n Asouk pō:m dì:nì kàntùinkă
Asibi CUR say morning C Asouk CUR play afternoon
'Asibi said in the morning that Asouk played in the afternoon'

b. *Asibi dā:m wìen chikai-ali-taam-la po āyī̄n Asouk dā:m dì:nì
Asibi REM say last-month P C Asouk REM play

dà:mwă
2.days.ago
'Asibi said last month that Asouk played two days ago'

This reminds us of the Upper Limit Constraint (Abusch, 1997; Heim, 1994) in which there is no forward shifted reading for embedded past tense. The following English sentences illustrate this point.

(48) a. Mary believed that John was afraid during the last thunderstorm. (Back-shifted)

b. *Mary believed that John was afraid during the next thunderstorm. (Forward-shifted)

I argue that the infelicity of (41) and (47) results from the Upper Limit Constraint where the embedded TRM is in the future of the matrix TRM. To express a later than matrix event (forward-shifted) meaning, an overt future marker is required, as in (49) below.

(49) a. Asibi dīem wìen āyīn Asouk àlì pō:m dì:nì
Asibi IMM say C Asouk FUT CUR play
'Asibi said (yesterday) that Asouk would play (earlier today) '

b. Asibi dā:m wìen āyīn Asouk dīem àlì dī:nī
Asibi REM say C Asouk IMM FUT play
'Asibi said (at least two days ago) that Asouk would play (yesterday)'

c. Asibi dā:m wìen āyīn Asouk àlì pō:m dì:nì
Asibi REM say C Asouk FUT CUR play
'Asibi said (at least two days ago) that Asouk would play (earlier today)'

The upshot of this discussion is that the TRMs of Bùlì allow for SOT and must be interpreted relative to the utterance time in both matrix and embedded sentences. This makes TRMs in Bùlì similar to SOT languages like English. As in English, TRMs in Bùlì allow an earlier-than matrix event reading but not a later-than matrix event reading. It is important to note that this behavior of Bùlì TRMs makes them different from their Medumba counterparts.

In embedded attitude contexts, the TRMs in Medumba must be interpreted relative to the matrix evaluation time. This means that TRMs in Medumba allow for relative interpretations but not for simultaneous interpretations for matrix and embedded events (Mucha, 2015). These facts are demonstrated in examples (50)-(51). In example (50), a near past marker is embedded under a remote past marker and is used to describe an event that occurred a few hours earlier last week. Thus, the embedded near past marker is interpreted relative to the matrix remote past marker. TRMs in Medumba also lack simultaneous interpretations, as shown by the infelicity of a remote past marker embedded under another remote past marker (51-b). The bare form is used in this context (51-c).

(50) a. Context: When you visited your friend Louise last week, she told you that she had cooked a few hours earlier. Now, you want to describe what Louise said last week:

b. Louise ná' cúb mbə a fə ná cə?
Louise REM say that she NEAR cook food
'Louise said that she cooked.'

(51) a. Context: You went to visit Louise and Marie a week ago, right? Did they tell you why they were in such a bad mood that day?

b. #Bú ná' cúb mbə bú ná' búut
they REM say that they REM tired
'They said that they were tired'

c. Bú ná' cúb mbə bú búut
they REM say that they tired
'They said that they were tired'

We can contrast these facts from Medumba with the interpretation of TRMs in Bùlì. As previously discussed, the TRMs of Bùlì must be interpreted relative to utterance time and allow simultaneous interpretations between the matrix and embedded events. Consider (43-a) above where a remote past marker embedded under another remote past marker allows for a simultaneous interpretation. In (41-c), on the other hand, the current past under a remote past is infelicitous. Given that the opposite

judgments are obtained in Medumba, as demonstrated above, we can see that TRMs in Bùlì are different in this way from those in Medumba.

7.3.2 Relative clauses

There are no restrictions on the possible combination of TRMs in Bùlì main and relative clauses. Consider the examples in (52)-(54). In example (52), different TRMs are embedded under the current past marker. In example (53), different markers are embedded under the immediate past marker. Finally, in example (54), different markers are embedded under the remote past marker. In all these examples, the combinations are felicitous.

(52) a. Asibi pō:m ɲà bí:k kāi àlì pō:m jàm lā
Asibi CUR see child REL.PRO ALI CUR come DET
'Asibi saw the child who came (today)'

b. Asibi pō:m ɲà bí:k kāi dī̄em àlì jàm lā
Asibi CUR see child REL.PRO IMM ALI come DET
'Asibi saw the child who came (yesterday)'

c. Asibi pō:m ɲà bí:k kāi dā:m àlì jàm lā
Asibi CUR see child REL.PRO REM ALI come DET
'Asibi saw the child who came (at least two days ago)'

(53) a. Asibi dī̄em ɲà bí:k kāi àlì pō:m jàm lā
Asibi IMM see child REL.PRO ALI CUR come DET
'Asibi saw the child who came (today)'

b. Asibi dī̄em ɲà bí:k kāi dī̄em àlì jàm lā
Asibi IMM see child REL.PRO IMM ALI come DET
'Asibi saw the child who came (yesterday)'

c. Asibi dī̄em ɲà bí:k kāi dā:m àlì jàm lā
Asibi IMM see child REL.PRO REM ALI come DET
'Asibi saw the child who came (at least two days ago)'

(54) a. Asibi dā:m ɲà bí:k kāi àlì pō:m jàm lā
Asibi REM see child REL.PRO ALI CUR come DET
'Asibi saw the child who came (today)'

b. Asibi dā:m ɲà bí:k kāi dī̄em àlì jàm lā
Asibi REM see child REL.PRO IMM ALI come DET
'Asibi saw the child who came (yesterday)'

c. Asibi dā:m ɲà bí:k kāi dā:m àlì jàm lā
Asibi REM see child REL.PRO REM ALI come DET
'Asibi saw the child who came (at least two days ago)'

7.3.3 'When' clauses

There are relative clauses in Bùlì that could be translated as 'when' clauses in English that are worth considering. In example (55), the clause headed by time can be translated as a 'when' clause. This can either follow or precede the main clause syntactically with no change in meaning. This has the 'overlapping' interpretation often associated with 'when' clauses.

(55) a. Mí básí (ká) tān dī̄: pō Asouk àlì bàsì lā
1SG leave KA time REL.PRO P Asouk ALI leave DET
'I left when Asouk left'

'Lit: I left at the time Asouk left'

b. (ká) tān dī̄: pō Asouk àlì bàsì lā àlí mí básí
KA time REL.PRO P Asouk ALI leave DET ALI 1SG leave
'I left when Asouk left'

'Lit: I left at the time Asouk left'

The sentence in (55) also has another reading, which I call the 'referential' reading. The referential reading is obtained if we use the example in (55) to describe a situation where Asouk left last week at 3pm and I left yesterday at 3pm. Different temporal markers can be used to disambiguate between the 'overlapping' interpretation and the 'referential' interpretation. In (56), only the 'referential' reading is retained. The 'overlapping' reading is not present because the events occurred on different days, as indicated by the TRMs. It is worth noting that the 'referential' reading is also possible with 'when' clauses in English, however, some speakers prefer the paraphrase 'I left at the same time that Asibi left'.

(56) a. Mí dīem básí (ká) tān dī: pō Asouk dā:m àlì bàsì lā
1SG IMM leave KA time REL.PRO P Asouk REM ALI leave DET
'*I left when Asouk left'

'Lit: I left at the time Asouk left'

b. Mí dā:m básí (ká) tān dī: pō Asouk dīem àlì bàsì lā
1SG REM leave KA time REL.PRO P Asouk IMM ALI leave DET
'*I left when Asouk left'

'Lit: I left at the time Asouk left'

7.3.4 'Headless temporal' clauses

We consider yet another kind of embedded clause, which I call 'headless temporal clauses' because they have the structure of a relative clause without an overt head and they mark the reference time of the matrix clause. 'Headless temporal clauses' differ from all the cases of embedding that we have seen so far with respect to the distribution of TRMs. When the 'headless temporal clause' is bare, the TRMs in the main clause specify the time of the embedded clause. Consider the sentences in (57). The time of coming in the 'when' clause corresponds with the time specified by the TRM in the main clause.

(57) a. Mí àlí jàm lā àlí Asouk pō:m dìgì
1SG ALI come DET ALI Asouk CUR cook
'When I came earlier today, Asouk had cooked'

b. Mí àlí jàm lā àlí Asouk dīem dìgì
1SG ALI come DET ALI Asouk IMM cook
'When I came yesterday, Asouk had cooked'

c. Mí àlí jàm lā àlí Asouk dā:m dìgì
1SG ALI come DET ALI Asouk REM cook
'When I came at least two days ago, Asouk had cooked'

In (58), the TRMs are overtly expressed in the embedded clauses but there are no interpretational differences between (57) and (58).

(58) a. Mí àlí pō:m jàm lā àlí Asouk dìgì
1SG ALI CUR come DET ALI Asouk cook
'When I came earlier today, Asouk had cooked'

b. Mí dī̄em àlí jàm lā àlí Asouk dìgì
1SG IMM ALI come DET ALI Asouk cook
'When I came yesterday, Asouk had cooked'

c. Mí dā:m àlí jàm lā àlí Asouk dìgì
1SG REM ALI come DET ALI Asouk cook
'When I came at least two days ago, Asouk had cooked'

When the TRMs are expressed in both the matrix and 'headless temporal clauses', they must 'agree' as in (59); there cannot be mismatches between the matrix and embedded clause (60). Note that there is no interpretational difference between the sentences in (59) and (57)-(58).

(59) a. Mí àlí pō:m jàm lā àlí Asouk pō:m dìgì
1SG ALI CUR come DET ALI Asouk CUR cook
'When I came earlier today, Asouk had cooked'

b. Mí dī̄em àlí jàm lā àlí Asouk dī̄em dìgì
1SG IMM ALI come DET ALI Asouk IMM cook
'When I came yesterday, Asouk had cooked'

c. Mí dā:m àlí jàm lā àlí Asouk dā:m dìgì
1SG REM ALI come DET ALI Asouk REM cook
'When I came at least two days ago, Asouk had cooked'

(60) a. *Mí àlí pō:m jàm lā àlí Asouk dī̄em dìgì
1SG ALI CUR come DET ALI Asouk IMM cook

b. Mí dī̄em àlí jàm lā àlí Asouk dā:m dìgì
1SG IMM ALI come DET ALI Asouk REM cook

c. Mí dā:m àlí jàm lā àlí Asouk pō:m dìgì
1SG REM ALI come DET ALI Asouk CUR cook

7.4 An account of TRMs in Bùlì

I briefly outline my assumptions about the framework I will be using to account for TRMs in Bùlì. I follow standard assumptions in the syntax and semantics literature

of tense and aspect that distinguishes between (i) utterance time (UT), the speech time or the time at which the sentence is uttered; (ii) event time (ET), the time of the event; and (iii) reference time (RT), the time the speaker makes a claim about. These three distinct times can be made clear by the following English example:

(61) When we arrived at John's house, he had already left yesterday.

In example (61), the UT is the time of speech, the ET is the time of John's leaving, made clear by the adverbial *yesterday*, and the RT is the time introduced by the 'when' clause (the time of arrival at John's house).

I also assume, following (Reichenbach, 1947; Klein, 1994) and subsequent works, that tense constrains the relation between UT and RT, and aspect constrains the relation between ET and RT. We can see these constraints at play in example (61), where the past tense situates RT before UT and the perfect aspect situates ET before RT. I follow a pronominal theory of tense, whereby tense is a special kind of pronoun with an index and is assigned a value by an assignment function g (Partee, 1973; Kratzer, 1998; Abusch, 1997). Under this view, [past] or [present] are tense features that serve to place presuppositions on the temporal pronoun. The Tense head of TP is a temporal pronoun and receives its value from the assignment function g:

(62) a. $T_7{}^{g,i} = g(7)$

b. PST ^{g,i}=[λt: t $<$ t_i. t]

The feature [PST] introduces the presupposition that the RT denoted by T_7 is located before the UT t_i.

With this background in mind, I propose that TRMs in Bùlì should be analyzed as past tense features, similar to (62-b) above, but with an additional restriction in their presuppositions. Thus, I propose the following entries for the TRMs investigated here:

(63) a. pō:m ^{g,i}=[λt: t $<$ t_i. & t is within the day of t_i.t]

b. dīem ^{g,i}=[λt: t $<$ t_i. & t is within a day before t_i.t]

c. dā:m ^{g,i}=[λt: t <t_i. & t is at least two days before t_i.t]

A fundamental difference between the past tenses of Bùlì and the past tense of a language like English is that the Bùlì past tense markers introduce additional restrictions in their presuppositions. In the following sections, I present a number of arguments to support the current analysis of TRMs in Bùlì.

7.4.1 Maximize Presuppositional effects

Some languages with TRMs have been analyzed as having 'presuppositional semantics' similar to tense, although unlike tense they restrict ET as opposed to RT. This is the analysis Cable (2013) provides for the TRMs of G̃ikũyũ. Another option, explored by Mucha (2015) for Medumba, is that TRMs are Existential Quantifiers over times. By testing the hypotheses of these two analyses against empirical data, I argue that the TRMs in Bùlì are 'optional presuppositional tenses'. As noted earlier, evidence for treating the TRMs in Medumba as quantificational comes from two observations: (i) TRMs are not allowed in situations where the speaker is 'ignorant' of the time of the situation; (ii) TRMs are optional even in situations where the speakers know the exact time of the situation (cf. (84) and (86)).

The first observation of interest is that TRMs in Bùlì are not allowed in situations where a speaker is ignorant of the time of the situation, in accordance with the first observation made by Mucha for TRMs in Medumba, that TRMs are not allowed in contexts where the speaker is ignorant of the time of an event. The temporally unmarked form is used (64)-(66).

(64) Context (Abridged): Your friends bought a new TV but you don't know when. You report:

a. bà dà TV
3PL buy TV
'They bought a television'

b. #bà pō:m dà TV
3PL CUR buy TV

'They bought a television'

c. #bà dī̄em dà TV
3PL IMM buy TV
'They bought a television'

d. #bà dā:m dà TV
3PL REM buy TV
'They bought a television'

(65) Context (abridged): Your friends bought a new TV but you don't know when exactly they bought it. However, it must have been today or yesterday.

a. bà dà TV
3PL buy TV
'They bought a television'

b. #bà pō:m dà TV
3PL CUR buy TV
'They bought a television'

c. #bà dī̄em dà TV
3PL IMM buy TV
'They bought a television'

d. #bà dā:m dà TV
3PL REM buy TV
'They bought a television'

Also, a speaker must use the exact temporal marker in questions. A bare form is used when the speaker is ignorant of the time of the event. Consider (66).

(66) Context (Abridged): Your friend bought a new TV. You don't know when but you are curious so you ask:

a. fí dá fì TVwá ká dà dī̄nā:
2SG buy 2SG TV.DEF Q day which
'when did you buy your television?'

b. *fí pō:m dá fì TVwá ká dà dī̄nā:
2SG CUR buy 2SG TV.DEF Q day which
'when did you buy your television?'

c. *fí dī̄em dá fì TVwá ká dà dī̄nā:
2SG IMM buy 2SG TV.DEF Q day which

'when did you buy your television?'

d. *fí dā:m dá fì TVwá ká dà dīnā:
2SG REM buy 2SG TV.DEF Q day which
'when did you buy your television?'

The second observation is that TRMs in Bùlì are optional, even in situations where the speaker actually has the temporal information to motivate the use of a specific temporal morpheme. This is again consistent with what Mucha observes for Medumba. This is demonstrated by the examples in (67), where both sentences are felicitous even though the context clearly states a past reference time which is suitable for the remote past.

(67) Context (adapted from Cable 2013): You are visiting your friend Asouk. There is a new TV in his living room. You are not sure when he bought the TV but when you visited him a week ago, the TV was already there, so Asouk must have bought the TV more than a week ago. You report to your brother:

a. wà dā:m dà TV
3SG REM buy TV
'He bought a television'

b. wà dà TV
3SG buy TV
'He bought a television'

The fact that TRMs in Bùlì are optional, even when the speaker has the necessary temporal information to use a specific TRM, in combination with the absence of Maximize Presupposition effects with these markers, could be used as evidence that TRMs in Bùlì also have the quantificational or lack of presuppositional meaning. However, I will assume instead that the lack of Maximize Presupposition effects observed for TRMs in Bùlì is because sentences with both TRMs and their morphologically tenseless counterparts are not alternatives: they simply have different LF structures (Bochnak, 2016). I do not consider the lack of Maximize Presupposition

effects to be an argument for a quantificational account because the lack of these effects can be explained while being presuppositional. The quantificational analysis of TRMs makes certain predictions to which I will now subject data from Bùlì.

7.4.2 Interpretation in embedded contexts

As noted above, TRMs in Bùlì must be interpreted relative to the utterance time, and thus allow simultaneous interpretations between the matrix and embedded events. This contrasts with TRMs in Medumba in embedded contexts, which must be interpreted relative to the matrix evaluation time, and thus allow for relative interpretations but not for simultaneous interpretations for matrix and embedded events (Mucha 2015). Mucha presents an example from Gĩkũyũ which Cable (2013) uses to argue that graded past has pronominal semantics. Recent past tenses embedded under more remote past are not possible in Gĩkũyũ (68-b), and other Bantu languages, because the embedded tense can only be interpreted relative to the utterance time and not to the matrix evaluation time.

(68) Context: Yesterday, your friend Mwangi said 'I danced today.' You'd like now to describe what he said yesterday. (Mucha 2015:137)

a. Mwangi araugire ati nĩarainire.
Mwangi AgrS-NPST-say-PRV that ASRT-AgrS-NPST-dance-PRV
'Mwangi said that he danced'

b. *Mwangi araugire ati nĩarainire.
Mwangi AgrS-NPST-say-PRV that ASRT-AgrS-CPST-dance-PRV
'Mwangi said that he danced'

This is similar to what we observed for Bùlì. A current past embedded under a remote past is not possible. Example (41-c) is repeated below as (69) for convenience. Based on their similarity to the Gĩkũyũ data, I assume that TRMs in Bùlì are pronominal rather than quantificational.

(69) *Asibi dā:m wìen āyīn Asouk pō:m dì:nì
Asibi REM say C Asouk CUR play

'Asibi said (at least two days ago) that Asouk played (earlier today)'

7.4.3 'Before' clauses

Another argument Mucha advances for the quantificational analysis of Medumba TRMs comes from the inability of TRMs to occur in a *before*-clause (70). Following Sharvit (2014), who argues that past tense in Japanese is banned in before-clauses because they are quantificational, as opposed to the pronominal past tense in languages like English and Polish, Mucha concludes that past tense in Medumba is quantificational.

(70) Context question: Did Nana and Maurice meet each other at the party yesterday? (Mucha 2015:138)

a. ga, Nana (fə) că ká Maurice sə'ə
no, Nana NEAR leave before Maurice come
'No, Nana left before Maurice came.'

b. *ga, Nana (fə) că ká Maurice fə sə'ə
no, Nana NEAR leave before Maurice NEAR come
Intended: 'No, Nana left before Maurice came.'

Just like in English and Polish, TRMs in before-clauses in Bùlì are felicitous (71-b), therefore, they cannot be quantificational.

(71) a. Context question: Did Asibi and Asouk meet each other at the party yesterday?

b. Aya, Asibi dīem bàsì kāmā ālēgē-àtì Asouk (dīem) jàm pā:tīwá
no, Asibi IMM leave KAMA before Asouk IMM come party
'No, Asibi left before Asouk came to the party'

7.4.4 When questions

Another argument Mucha presents for a quantificational analysis is that TRMs in Medumba can be used to introduce times by way of answering when-questions. This is illustrated with the near and remote markers in (72).

(72) Context question: When did Marie go to the market? (Mucha 2015:140)

a. Marie fə nɛ́n ntn
Marie NEAR go market
'Marie went to the market recently'

b. Marie ná nɛ́n ntn
'Marie REM go market'
'Marie went to the market a long time ago'

As noted earlier in example (27), TRMs in Bùlì cannot be used as responses to when questions. The context and judgments in example (73), demonstrate that TRMs are not quantificational.

(73) Context question: When did Asouk go to the market ?

a. #Asouk dīem chèng yābā
Asouk IMMgo market
Intended: 'Asouk went to the market yesterday'

b. #Asouk dā:m chèng yābā
Asouk REM go market
Intended: 'Asouk went to the market sometime ago'

7.4.5 Contextual reference time

Finally, another argument for the quantificational analysis of the TRMs in Medumba comes from the felicity of the past markers in out-of-the-blue contexts. Since these markers are quantificational and not presuppositional, they can be used in contexts where an appropriate reference time is not provided. On the contrary, presupositional past markers should be infelicitous in these contexts. As shown in (74-b) and (75) for Medumba and Bùlì respectively, in the same contexts, the TRMs of Medumba are felicitous with either the near past marker or the remote past marker, while the TRMs of Bùlì are infelicitous. These data further suggest that TRMs in Bùlì are not quantificational, but rather are presupositional.

(74) Context: You meet your friend and he asks you where Elise is. You are not

sure, but you suspect: (Mucha 2015:139)

a. (Mu'djʉ) Elise fə nɛ́n Doula
maybe Elise NEAR go Doula
'Maybe Elise went to Doula'

b. (Mu'djʉ) Elise fə nɛ́n Doula
maybe Elise NEAR go Doula
'Maybe Elise went to Doula'

(75) a. #Elise dīem chèŋ ka Doula
Elise IMM go KA Doula
'Elise went Doula'

b. #Elise dā:m chèŋ ka Doula
Elise REM go KA Doula
'Elise went Doula'

If the distribution and interpretation of the TRMs in Mudemba, as observed by Mucha (2015), provide evidence for the quantificational analysis of the Medumba TRMs, then the fact that in Bùlì they behave differently can be regarded as an argument against the quantificational analysis. Therefore, I propose that TRMs in Bùlì be analyzed as optional presuppositional tenses rather than quantificational elements.

7.4.6 Modification of reference time

In this final section, I provide support for the claim that TRMs modify the reference time of the clause rather than the event time. Consider the following context:

(76) Context (adapted): Asouk has been telling us for a while that he intends to travel to New York. This morning we went to his house to say goodbye, but he had already left yesterday.

a. Tì-àlí-pà:rì-wà-yènní-sòlìukŭdē-lá, àlí wà pō:m tà:n kāmā.
When-we-got-to-his-house-this-morning, ALI 3SG CUR go KAMA
'When we got to his house, he had already left.'

b. #Tì-àlí-pà:rì-wà-yènní-sòlìukŭdē-lá, àlí wà dīem tà:n kāmā.
When-we-got-to-his-house-this-morning, ALI 3SG IMM go KAMA
'When we got to his house, he had already left.'

The 'when' clause supplies the topic time of the main clause, which is the time of arrival, this morning. The event time, which is the time of departure, is yesterday. The fact that the current past form (76-a) and not the immediate past form (76-b) is used in the main clause is evidence that the TRM tracks the topic time, which is this morning and is supplied by the 'when' clause, and not the event time. If it were the case that the TRM modified the event time, we would expect to see the immediate past marker, similar to what we saw in Gĩkũyũ, contrary to the facts (76-b).

Another context that illustrates the same point is given in (77). Although there is no temporal adverb nor a descriptive phrase that sets the topic time in the sentence in (77-a), the presence of the immediate past marker in (77-b), places the time of discovery (topic time) as yesterday which, as we know now, precedes the time of utterance.

(77) a. Mí chéŋ ʤɔ̀ yènní pō nyà Asouk dwà tēŋ
1SG go enter house in see Asouk lie floor
'I entered the house and saw Asouk lying on the floor.'

b. Wà dīem kpì kāmā
3SG IMM die KAMA
'He was dead.'

7.5 Temporal remoteness markers (TRMs): a cross-linguistic picture

This section presents an overview of temporal remoteness markers (TRM) found in other languages. Specifically, the TRMs of Gĩkũyũ, a Narrow Bantu language of Kenya, and Medumba, a Grassfields Bantu language of the Niger Congo language family. The similarities and differences of the TRMs in these languages can shed some light on the distribution of TRMs in Bùlì, as discussed in earlier sections.

7.5.1 TRMs in Gĩkũyũ

A past tense verb in Gĩkũyũ contains a prefix that provides further information about the distance between the event described and the time of speech. This is illustrated in (78). The current past form, in example (78-a), is used to describe events occurring within the day surrounding the moment of speech. The near past form, in example (78-b), is used to describe events occurring recently, but prior to the current day. The remote past, in example (78-c), is used to describe events that did not occur recently.

(78) *Gĩkũyũ* **Cable 2013:223**

a. Mwangi nĩ-a-kũ-in-aga
Mwangi ASRT-3sgS-CUR-dance-PST.IMP
'Mwangi was dancing (within the day)'

b. Mwangi nĩ-a-ra-in-aga
Mwangi ASRT-3sgS-NRP-dance-PST.IMP
'Mwangi was dancing (before today, but recently).'

c. Mwangi nĩ-a-a-in-aga
Mwangi ASRT-3sgS-REMP-dance-PST.IMP
'Mwangi was dancing (Some time ago: not recently).'

Cable (2013) discusses and accounts for the TRMs of Gĩkũyũ by claiming that these prefixes have a 'presuppositional semantics' similar to tense, but unlike tense, they restrict the event time as opposed to the reference time. Specifically, these prefixes introduce presuppositions concerning the location of the event time of the sentence. Crucial evidence for this analysis of the TRM comes from contexts where the speaker is ignorant of the time of the situation described. The remote past morpheme must be used in a context where a speaker is entirely ignorant of when a past event took place. The context in (79) along with the following judgments illustrate this point:

(79) Situation: You are visiting your friend Mwangi, who you haven't seen in weeks. There is a brand-new TV in his living room. You have no idea when he bought the TV. It could have been several days ago; it could have been yesterday; it could have been today. You want to ask when he bought it.

Cable 2013

a. U-a-gũr-ire rĩ TV iyo
2sgS-REM-buy-PST.PRV when TV that
'When did you buy that TV?'

b. #U-ra-gũr-ire rĩ TV iyo
2sgS-NRP-buy-PST.PRV when TV that
'When did you buy that TV?'

c. #U–gũr-ire rĩ TV iyo
2sgS-CUR-buy-PST.PRV when TV that
'When did you buy that TV?'

As shown, if the speaker is completely ignorant as to the time of the event, the remote past is used (79-a). The current past (79-b) and near past morphemes (79-c) are ill formed in this context. In addition, he claims that speakers must obey the TRM Specificity Principle. That is, speakers of Gĩkĩyũ have to use the most precise TRM that is compatible with their knowledge. Cable's description of the TRM Specificity Principle is given below:

(80) The TRM Specificity Principle:
Speakers must use the most specific TRM consistent with their knowledge. If the use of a particular TRM is 'licit' in some context, then the speaker cannot use any TRM weaker than α.

In contexts where the speaker knows that an event occurred recently but is not sure whether it occurred on the day of speech or not, the near past morpheme is used. Consider the context in (81).

(81) Situation: You are visiting your friend Mwangi, who you haven't seen since yesterday. There is a brand-new TV in his living room. You don't know exactly when he bought it. It could have been yesterday, after your visit. It could have been earlier today. However, it definitely could not have been before yesterday. You want to ask when he bought it. (Cable, 2013)

a. U-ra-gũr-ire rĩ TV iyo
2sgS-NRP-buy-PST.PRV when TV that
'When did you buy that TV?'

b. #U–gũr-ire rĩ TV iyo
2sgS-CUR-buy-PST.PRV when TV that
'When did you buy that TV?'

c. #U-a-gũr-ire rĩ TV iyo
2sgS-REM-buy-PST.PRV when TV that
'When did you buy that TV?'

As shown in (81) above, the only morpheme compatible with the speaker's knowledge in this context is (81-a), which has the near past morpheme *-ra-*. Both the current past and remote past morphemes are ill formed here because the speaker is not certain whether the buying of the TV happened today, or earlier, but definitely not before yesterday. This is thus taken as evidence for the presuppositional meaning of GĨkũyũ TRMs.

Cable explains the principle in (80) and the above data by referring to the Principle of Maximize Presupposition formulated below in (82):

(82) Maximize Presupposition (MP): Cable, 2013: 259.

a. LF_1 and LF_2 are identical, except that LF_1 contains lexical item α and LF_2 contains lexical item β.

b. The domain of α is a strict subset of the domain of β .

c. a. A speech act using either LF_1 or LF_2 would be licit in context. If all these conditions hold, then the speech act must be made with LF_1, not LF_2.

This explains why GĨkũyũ speakers must use the most specific (strongest) TRM that is compatible with their knowledge.

Cable also provides support for the claim that TRMs modify the event time of the clause rather than the topic time. An example of this is given below in (83):

(83) Situation: Mwangi has been telling us for a while that he intends to travel

to New York. Today, we went to his house to say goodbye, but unbeknownst to us at the time, he had already left yesterday. (Cable, 2013).

a. Rĩĩria tũ-$\theta - kiny - ire$ gwake, Mwangi nĩ-a-ra-thi-ĩte
when 1plS-CUR-arrive-P.PRV his Mwangi ASRT-3sgS-NRP-go-PERF
'When we arrived at his (house), Mwangi had already left.'

b. #Rĩĩria tũ-$\theta - kiny - ire$ gwake, Mwangi nĩ-a-kũ-thi-ĩte
when 1plS-CUR-arrive-P.PRV his Mwangi ASRT-3sgS-NRP-go-PERF
'When we arrived at his (house), Mwangi had already left.'

The when clause supplies the topic time of the main clause, which is the time of arrival, this morning. The event time, which is the time of departure, is yesterday. If the TRM modifies event time we would expect a near past, since the time of the event is yesterday; but if it modifies the topic time we would expect a current past, since the topic time is this morning. However, the use of the current past is infelicitous in this context (83-b), and so what we have instead is the near past (83-a), and the TRM modifies the event time. Thus, we see that TRMs have a 'presuppositional semantics' similar to tense. However, they restrict the event time as opposed to reference time.

7.5.2 TRM in Medumba

Another language that has been shown to have TRMs is Medumba. This section summarizes the discussion and analysis of the Medumba TRMs, as proposed by Mucha (2015). Mucha's (2015) proposal is that the TRMs in Medumba are Existential Quantifiers over times. The crucial evidence for this analysis is that the TRMs in Medumba are not allowed in situations where the speaker is ignorant of the time of the situation. Additionally, these markers are optional even in situations where the speakers know the exact time of the situation.

The following data illustrate the relevant TRMs in Medumba. When the speakers don't know when an event occurred, the bare form is used in this context (84-c). Both the near past (84-a) and remote past (84-b) morphemes are excluded.

(84) Context: You want to report that your friend Nana bought a new TV, but

you don't know when he bought it. **Mucha 2015:111**

a. #Nana fə ʒʉn zə télé nswó
Nana NEAR buy his TV new
'Nana bought a new TV'

b. #Nana na' ʒʉn zə télé nswó
Nana REM buy his TV new
'Nana bought a new TV'

c. Nana ʒʉn zə télé nswó
Nana buy his TV new
'Nana bought a new TV'

The past markers can also not be used to report two separate events, one of which occurred in the near past and the other in the remote past. The temporally unmarked form is used in this context as well. This shows that TRMs do not just differ in specificity, but rather pick out different intervals. Consider (85).

(85) Context: Marie went to the market yesterday and a week ago. What did she buy? (Mucha, 2015:112)

a. #A na' ʒʉn cə bu nzwə
she REM buy food and cloth
Intended: 'She bought food and clothes'

b. #A fə ʒʉn cə bu nzwə
she NEAR buy food and cloth
Intended: 'She bought food and clothes'

c. A ʒʉn cə bu nzwə
she buy food and cloth
'She bought food and clothes'

According to Mucha, the optional nature of the TRMs in the language, especially in situations where the speaker has the temporal information to motivate the use of a specific temporal morpheme, presents a strong argument for the lack of Maximize Presupposition effects in Medumba, unlike Cable's analysis of G̃ikũyũ. This is illustrated in (86). The fact that both (86-a) and (86-b) are licit in this situation, as the author argues, cannot be explained by the principle of Maximize Presupposition

effects.

(86) Context: You are visiting your friend Nana. There is a new TV in his living room. You are not sure when he bought the TV, but when you visited him a week ago, the TV was already there, so Nana must have bought the TV more than a week ago. You report to your brother the following: (Mucha, 2015:113)

a. Nana ná' ʒʉn zə télé nswó
Nana REM buy his TV new
'Nana bought a new TV'

b. Nana ʒʉn zə télé nswó
Nana buy his TV new
'Nana bought a new TV'

c. #Nana fə ʒʉn zə télé nswó
Nana NEAR buy his TV new
'Nana bought a new TV'

7.6 Conclusion

In this chapter, I explored the temporal reference of sentences in Bùlì. In the first part of the chapter, I considered how the temporal references of bare sentences are obtained, arguing that, in principle, both tense (Matthewson, 2006) and tenseless (Mucha 2012, 2015) analyses are available for morphologically tenseless sentences in the language. Secondly, I investigated TRMs and how they are interpreted. TRMs in Bùlì are contrasted with similar markers identified for other languages, in particular G̃ikũyũ (Cable 2013) and Medumba (Mucha 2016). From these cross-linguistic comparisons, I draw the conclusion that TRMs in Bùlì are best analyzed as optional tense markers.

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