Clause Chaining, Switch Reference and Coordination

by
Rafael Nonato

B.A. Linguistics, UNICAMP, 2005

M.A. Linguistics, UNICAMP, 2008

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Signature of Author .....
Rafael Nonato
Department of Linguistics and Philosophy

Certified by .....
Norvin Richards
Professor of Linguistics
Thesis Supervisor

Accepted by .....
David Pesetsky
Professor of Linguistics
Head, Department of Linguistics and Philosophy

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Abstract

In this thesis I ponder over a constellation of phenomena that revolve around switch reference and coordination, drawing mainly on their instantiation in Kĩsêdjê (Jê, Brazil). I start by investigating Kĩsêdjê's case system. In this language there is a case split along the finite/non-finite axis. I argue that *nominative* is assigned by Infl, whereas *ergative* is assigned to the subject of Infl-less clauses. Importantly, the particles I take to instantiated Infl in Kĩsêdjê don't have *tense* semantics, but rather *modal* semantics.

Investigating other properties of this modal Infl in Kĩsêdjê, I can determine the fine structure of its clause. This knowledge allows me to argue that the construction that has been identified elsewhere as *clause chaining* is actually *asymmetric clausal coordination*. The special properties that seem to distinguish clause chaining from asymmetric clausal coordination are argued to fall out from the structure of the clause in Kĩsêdjê. I further propose that the same type of structure is found in the other languages where asymmetric coordination has been called clause chaining.

Asymmetric clausal coordination in Kĩsêdjê features morphology which indicates whether adjacent conjuncts have the same or different subjects *(switch-reference marking)*. Important evidence for understanding how switch-reference is computed will come from the study of a deletion phenomenon that happens in the neighborhood of switch-reference markers in Kĩsêdjê. Besides isolating evidence for a direct agreement relation between switch-reference marking conjunction and the subject of one of the conjuncts, this study makes a contribution to the theory of morphology.

Knowing the structure of the clause in Kĩsêdjê and the featural composition of switch-reference markers allows me to support a specific theory of switch-reference computation. Given this theory, I argue that asymmetric coordination (the kind of coordination where switch-reference is marked) instances an $\bar{X}$-structure, whereas symmetric coordination (which can't be marked for switch-reference) instances a flat structure. Such structural difference also allows me to explain other differences between symmetric and asymmetric coordination.

Thesis Supervisor: Norvin Richards
Title: Professor of Linguistics

Acknowledgments

I would first like to thank the Kĩsêdjê people, who allowed me to come into their villages and taught me their language. Thanking the Kĩsêdjê feels a bit odd, though, because expressing one's gratitude orally isn't a big part of their culture. You ask what you need and accept what is given to you. Naturally, you also become thankful towards people who are helpful, and will be helpful towards them when you have a chance. Once I came to understand and accept this idea, the empty exchange of a gift for a word, what I grew up doing, started to seem a bit frivolous.

Anyways, I want to thank the Kĩsêdjê chief, Kuiussi,[1] not only because he accepted my research, but specially for adopting me into his numerous family as his *támthwâ* 'grandson'. I would like to thank my Kĩsêdjê grandmothers, mothers, sisters and aunts for making manioc flour and cooking for us, and my Kĩsêdjê fathers, brothers and uncles, who brought fish and game for us. And all of my family, for tolerating and laughing at my ineptness at living the way they do.

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Languages unfortunately don't only offer syntactic problems. Fortunately, I benefited a lot from meeting non-syntacticians. In particular, conversations with Adam Albright, Edward Flemming, and Morris Halle were of utmost importance for thinking through clitic deletion in Kĩsêdjê (chapter 4). Kai von Fintel, on the other side, helped me overcome my simplistic assumptions regarding the semantics of adjunct clauses, and Danny Fox helped me overcome all sorts of personal understated assumptions about coordination.

Livia Souza proof-read my whole thesis and, besides spotting every single agreement mistake, doubled words and missing words (hopefully), she also didn't let me get away with bad phrasing and confusing long-winded sentences that never came to an end. Before she helped me, I used to think I knew how to write.

[1] The Kĩsêdjê don't have family names but, rather, a long stretch of given names, of which here I am giving one.

I thank my parents, who didn't disinherit me when they found I wanted to be a linguist. The truth is it's actually all their fault. They were the ones who taught me to listen to the god in my heart, rather than the gods outside.

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Contents

Overview

When I first started writing this thesis I couldn't be entirely sure what it was going to become. All along the way I have been guided by one wish, though: I seriously want this thesis to still be useful after the theoretical framework it subscribes to withers away. Thinking of inspiring writings that have that trait, I realize that they have the following in common: they identified and documented interesting empirical issues and they proposed solutions that went beyond particular theoretical frameworks. I try my best to do the first of these here: for the latter, only time can tell.

In this thesis, I ponder over a constellation of phenomena that revolve around switch reference and coordination. My starting point was figuring out how these constructions are instantiated in Kĩsêdjê, a Jê language spoken by around 400 people living in the southeastern outskirts of the Brazilian Amazon. Trying to understand these phenomena in their cross-linguistic fullness directed my interest to other less studied languages and, finally, back to the well studied ones. This thesis was also organized from language-specific issues into general ones.

In chapter 1 I investigate Kĩsêdjê's case system. In this language there is a case split along the finite/non-finite axis. I will argue that *nominative* case is assigned by Infl, whereas *ergative* case is assigned to the subject of Infl-less clauses. Importantly, the particles I take to instantiated Infl in Kĩsêdjê don't have *tense* semantics, but rather *modal* semantics. In chapter 2 I investigate other properties of Infl in Kĩsêdjê and use them as evidence to determine the fine structure of the clause in the language. This knowledge allows me to argue, in chapter 3, that the construction that has been identified elsewhere as *clause chaining* is actually *asymmetric clausal coordination*. The special properties that would seem to distinguish clause chaining from asymmetric clausal coordination are argued to fall out from the structure of the clause in Kĩsêdjê, and I further propose that the same kind of structure must be found in other languages where asymmetric coordination has been called clause chaining.

Asymmetric clausal coordination in Kĩsêdjê features morphology which indicates whether adjacent conjuncts have the same or different subjects *(switch-reference marking)*. Important evidence for understanding how switch-reference is computed will come from the study of a deletion phenomenon that happens in the neighborhood of switch-reference markers in Kĩsêdjê. I investigate this deletion phenomenon in chapter 4. Besides isolating evidence for a direct agreement relation between switch-reference marking conjunction and the subject of one of the conjuncts, in that chapter I make a contribution towards a model of the relation between the morphological and the phonological components of human language.

In chapter 5 I exploit the knowledge accumulated in the previous chapters about the structure of the clause in Kĩsêdjê and the featural composition of its switch-reference markers to support a theory of switch-reference computation. Finally, in chapter 6, I make a proposal for the structure of clausal coordination: symmetric and asymmetric clausal coordination are argued to have different structures. The system of switch-reference computation I propose in chapter 5 plays a crucial role in the final chapter, as evidence that in one type of coordination conjuncts are in an asymmetric structural relation, whereas in the other type they are in a symmetric relation.

Glosses

DS	different subjects
SS	same subjects
1, 2, 3, 1+2	1^{st} person, 2^{nd} person, 3^{rd} person, 1^{st}+2^{nd} person
NOM or $_{nom}$	nominative
ACC or $_{acc}$	accusative
ERG or $_{erg}$	ergative
ABS or $_{abs}$	absolutive
PL	plural
LNK	linking consonant
$_{emb}$	embedded form
FACT	factual
FUT	future
INF	inferential
WIT	witnessed
COUNT	counterfactual
PROSP	prospective
DEFNT	definite
EMPH	emphatic

Chapter 1

The Kĩsêdjê case split*

Besides constituting a contribution to the broader project of figuring out how case and, in particular, how case splits work, understanding the Kĩsêdjê case system is prerequisite evidence for studying the clausal structure of the language (chapter 2). Furthermore, case agreement between conjunctions and subjects plays an important part in the explanation of a deletion phenomenon whose acknowledgment (chapter 4) allows us to properly characterize coordinating conjunctions in Kĩsêdjê.

1.1 Introduction

This chapter begins in section 1.2 with a description of Kĩsêdjê's case morphology and its distribution.[1] In section 1.3 I present a theory that deals with the initial dataset and in section 1.4 I proceed to investigate some apparently exceptional interactions between case and focus dislocation and between case and coordination. The structures that I argue underlie the apparently exceptional examples, however, allow me to derive their properties from the initial theory proposed in section 1.3. In section 1.5 I summarize the ideas advanced in this chapter.

Kĩsêdjê features a case split related to clause type that can be initially described as in (1). Ergative marking in Kĩsêdjê is of a kind that has been characterized as *prototypical* in Woolford (2013).[2] In prototypical ergative systems intransitive subjects are marked as absolutive across-the-board, as opposed to *active* ergative systems (like Hindi) where only intransitive subjects of unaccusative verbs are marked as absolutive, with intransitive subjects of unergative verbs being marked as ergative.

(1) Subordination Split
The core arguments of a main clause are marked as nominative-accusative, whereas the core arguments of an embedded clause are marked as ergative-absolutive.

The ingredients I need to explain this split are the following: I assume with Woolford (2013); Legate (2006) that ergative is a case that some flavors of little-v assign to the argument in [Spec, v]. I don't assume, however, that ergative is restricted to *agents* introduced in that position. It can also be assigned to arguments *dislocated* to [Spec, v]. Another case that is prominently featured in this discussion is the dative, which some flavors of little-v assign to the experiencer introduced in their specifier (rather than ergative).

*Part of this chapter was presented at CILLA on October 8th 2011

[1] Section A.2.3 of the Appendix offers a more complete description of the case system of the language

[2] Kĩsêdjê is a counterexample to Woolford's claim that prototypical ergative languages don't exist.

Nominative, accusative and absolutive, on the other hand, are assumed to be structural cases assigned respectively by Infl, little-*v* and *n* through Agree (Chomsky, 2000, 2001b). I assume that every nominal in a sentence must bear case for the sentence to be grammatical (the Case Filter), an idea that can be traced back to Vergnaud (1977). Finally, I assume that a single nominal can be assigned case multiple times (Bejar and Massam, 1999; Richards, 2007; Levin, 2012; Baker, 2013; Pesetsky, 2013).

I derive the subordination split stated in (1) with the proposal that in Kĩsêdjê the head responsible for assigning nominative case in main clauses, Infl, is inactive in embedded clauses. As for the nature of Infl in the language, we will see in section 1.3 that Kĩsêdjê main clauses obligatorily include a *modal particle*, whereas those particles are absent from embedded clauses. Given such a correlation, I propose that this particle with modal semantics instantiates Infl in Kĩsêdjê. The modal particle/Infl is responsible for licensing nominative case in main clauses. Its absence from embedded clauses makes them non-finite. Nominative case can't be assigned in non-finite clauses. Its absence is compensated by a property non-finite verb phrases have in Kĩsêdjê: their functional structure is of a kind that licenses absolutive and ergative case.

Assuming that in Kĩsêdjê modal particles instantiate Infl constitutes a departure from the commonly held view that Infl is synonymous with Tense. I attribute this common view to the combined effect of two widely influential proposals: in order to explain word-order differences between certain languages (mostly prominently English and French) Pollock (1989) proposed that Infl should be split into Tense and Agr(eement). Variants of this structure became standard in the area for many years (see, for instance, Haegeman, 1991). A number of subsequent works argued in favor of removing Agr from syntax (Iatridou, 1990; Chomsky, 1995; Thráinsson, 1996; Fukui, 1999). The Agr-less structure then became the standard in the area (among the textbooks that teach the Agr-less structure are Adger 2003, Radford 2004, Hornstein, Nunes, and Grohmann 2005 and Carnie 2012). A terminological effect of these changes was to rename the locus of nominative case assignment and subject-verb agreement: what used to be called Infl and was now called Tense, in spite of the fact that the head's case and agreement properties remained essentially the same.

If in spite of the historical contingency of the connection between Infl and Tense we still wanted to uphold that the category that heads finite clauses and licenses nominative case necessarily carries Tense semantics, we would be forcing ourselves to give up a most straightforward explanation to the correlation found in Kĩsêdjê between the presence of modal particles and nominative case licensing. I don't believe there is enough reason to want to keep the correlation between Infl and Tense.

Alternatively, we can adopt Ritter and Wiltschko's (2008) suggestion that Infl doesn't denote tense in every language. They formalize Infl as being the category obligatory in certain kinds of clauses (finite clauses) and absent from other kinds (non-finite), which furthermore fits a generalized semantic frame: Infl anchors the clause to the utterance situation. That anchoring is in terms of different parameters in different languages. Whereas Infl-anchoring is in terms of tense in English, they argue it is in terms of location in Halkomelem (Salish) and participant in Blackfoot (Algonquian). I will add the possibility that Infl can anchor a *world* variable in the clause to the world of the utterance situation, that being the semantics of Infl in Kĩsêdjê (the modal particles).

As stated above, the main reason to equate the Kĩsêdjê modal particles with Infl is the fact that they are obligatory in the clauses where nominative case is assigned and ungrammatical in the clauses where nominative case isn't licensed. In this chapter I will be capitalizing on this correlation, and as long as we accept the premise that Kĩsêdjê modal particles license nominative case, nothing I say in this chapter hinges on whether these particles actually instantiate Infl. If they don't, however, that would mean Infl is *not* the only category that can license nominative case on subjects, also a depart from received theories. A more thorough argumentation that the

Kĩsêdjê modal particles instantiate INFL is reserved for chapter 2.

In section 1.4 I look into two contexts where the generalization in (1) is apparently violated: in those contexts the transitive subject of an embedded clause appears with nominative case instead of the expected ergative case. The apparent exceptions come about in sentences that feature focus dislocation or clausal coordination. In those contexts we notice a functional layer being introduced on top of an embedded clause, namely, the layer of the modal particles (INFL), IP. I propose that in those contexts the subject is being assigned ergative case by little-v inside the embedded clause as well as nominative case by INFL (the modal particle). An optional (but most often than not applied) deletion process targeting the ergative link of the chain obscures that fact. As evidence for that proposal I present sentences where deletion doesn't occur, and where as a result both links of the chain are pronounced: the lower link with ergative case and the higher one with nominative case.

1.2 Case Marking

Table 1.1 below lists the Kĩsêdjê personal pronouns and table 1.2 list the case enclitics the language employs to mark its non-pronominal arguments.[3] Pronouns only have person features, with plurality being marked on a separate word. Since the plurality marker doesn't inflect for case, it doesn't figure in this chapter's discussion, but see chapter 4 if you are interested in the behavior of such morphologically independent plurality markers.

As stated in (1), Kĩsêdjê features a case split whereby main clause arguments are marked as nominative-accusative whereas embedded clause arguments are marked as ergative-absolutive.

person	nominative	ergative	absolutive	accusative
1	wa	ˈire	i-	
2	ka	ˈkare	a-	
1+2	ku	ˈkware	wa-	
3	∅	ˈkôre	s-/∅-	khu-/-s/∅-

Table 1.1: Pronouns

case	enclitic
nominative	=ra
ergative	=re/ra
absolutive	=∅
accusative	=∅

Table 1.2: Case enclitics

Morphophonologically, ergative pronouns are free forms, nominative pronouns are clitics (or, more precisely, leaners, c.f. Zwicky 1982), and accusative and absolutive pronouns are bound morphemes prefixed to the head that selects them.

Note that distinctive accusative morphology is only available for 3rd person pronouns, the rest of the accusative morphology being homophonous with absolutive morphology. The use of the unambiguously accusative pronoun *khu-* is restricted to heads with a certain morphophonological profile: a single open syllable with filled onset. Furthermore, verbs that don't have distinct nominal and main forms don't take *khu-* —compare (2) and (3).[4]

(2) A monosyllabic verb with two forms

a. Wa khu-khrẽ.
1_{nom} 3_{acc}-devour$_{main}$
'I devoured it.'

b. Ire ∅-khrẽn mã.
1_{erg} 3_{abs}-devour$_{emb}$ FUT
'I will devour it.'

(3) A monosyllabic verb with a single form

a. Wa ∅-khre.
1_{nom} 3_{acc}-plant$_{main}$
'I plant it.'

b. Ire ∅-khre mã.
1_{erg} 3_{abs}-plant$_{emb}$ FUT
'I will plant it.'

[3] For the Kĩsêdjê orthographic conventions, consult section A.1.6 of the appendix.

[4] More details on the verb forms can be found in section A.2.6 of the appendix.

I will discuss the case of the inalienable possessor in section 1.3, but in order to make the glosses of a few coming examples clear, let me advance right now that the case of the inalienable possessor is *absolutive* (at the very least, we need to say that genitive case in this language is completely homophonous with absolutive case).

Non-pronominal arguments are marked with the enclitics listed on table 1.2. Null morphology (which for consistency I am also representing as clitic) marks absolutive and accusative non-pronominal arguments (4). The enclitic *re* marks ergative non-pronominal arguments —note that *re* is also a formative of the ergative pronouns, something I don't try to explain here.[5] The ergative-marking enclitic re is in stylistic (and possibly generational) variation with *ra* (5), the latter also marking nominative non-pronominal arguments (6).

(4) [DP=**∅**]$_{abs/acc}$

a. Hẽn ∅ i-nã=**{∅**/*re/*ra} mu.
FACT 3$_{nom}$ 1$_{abs}$-mother=ACC see
'He saw my mother.'

b. Hẽn ∅ [i-nã=**{∅**/*re/*ra} thẽm] mu.
FACT 3$_{nom}$ [1$_{abs}$-mother=ABS go$_{emb}$] see
'He saw my mother going.'

(5) [DP=**re**/**ra**]$_{erg}$ and [DP=**∅**]$_{abs}$

a. Hẽn ∅ [i-nã=**{re**/**ra**/*∅} khwârâ=**{∅**/*re/*ra} khuru] mu.
FACT 3$_{nom}$ [1$_{abs}$-mother=ERG manioc=ABS eat$_{emb}$] see
'He saw my mother eating manioc.'

(6) [DP=**ra**]$_{nom}$

a. ∅ I-nã=**{ra**/*re/*∅} mbârâ.
FACT 1$_{abs}$-mother=NOM cry
'My mother cried.'

b. ∅ I-nã=**{ra**/*re/*∅} khu-ku.
FACT 1$_{abs}$-mother=NOM 3$_{acc}$-eat
'My mother ate it.'

The Kĩsêdjê case split —main clause arguments being marked as nominative-accusative and embedded clause arguments as ergative-absolutive— is nicely illustrated in the examples above. Example (4-a) shows a main clause object marked as accusative and the examples in (6) show main clause subjects (of a transitive and of an intransitive verbs) marked as nominative. The examples above also show arguments of embedded clauses being marked as ergative-absolutive —(4-b) shows the subject of an embedded intransitive verb marked as absolutive and (5) shows the subject of an embedded transitive verb marked as ergative and its object as absolutive.

Case marking on noun phrases is less contrastive than case marking on pronouns. In particular, absolutive is never distinguished from accusative on noun phrases, whereas they are distinguished on pronouns (though in the restricted fashion already discussed). In fact, looking only at examples with nominals —such as the examples from (4) to (6), we could model the case system with fewer case values. That is the reason why below I supply examples with all pronominal arguments. These examples illustrate the Kĩsêdjê case split with enough richness of overt detail. The example in (7) shows the pronominal arguments of a main clause marked as nominative-accusative and the examples in (8) show the arguments of an embedded clause marked as ergative-absolutive (as well as a nominative subject in the main clause).

[5] Though this fact support at least an obvious and credible common historical source.

(7) Main clause arguments are nominative/accusative

a. ∅ {**Wa**/*Ire} thẽ.
FUT {1_{nom}/*1_{erg}} go
'I am going.'

b. ∅ {**Wa**/*Ire} {**khu**/*∅}-ku.
FUT {1_{nom}/*1_{erg}} {3_{acc}/*3_{abs}}-eat
'I am going to eat it.'

(8) Embedded clause arguments are ergative/absolutive

a. ∅ Ka [{**ire**/*wa} {**∅**/*khu}-khuru] mu.
FUT 2_{nom} [{1_{erg}/1_{nom}} {3_{abs}/3_{acc}}-eat_{emb}] see
'You are going to see me eat it.'

b. ∅ Wa [**a**-thẽm] mu.
FUT 1_{nom} [2_{abs}-go_{emb}] see
'I will see you go.'

c. *∅ Wa [**ka** thẽm] mu.
FUT 1_{nom} [2_{nom} go_{emb}] see
'I will see you go.'

1.3 Case Licensing

Modal particles are obligatory in main clauses in Kĩsêdjê —these being precisely the clauses that mark their arguments as nominative-accusative— and banned from embedded clauses —these being precisely the clauses that mark their arguments as ergative-absolutive. Compare the main clause and the embedded clause in (9), and also the embedded clause in (10) with the semantically similar main clause in (11). In the examples below modal particles are placed in boxes.

(9) Main clauses require modal particles. Embedded clauses ban modal particles.
*(Hẽn) **wa** [hwĩkhá (*=n) khãm **a**-pôt] jarẽ.
(FACT) 1_{nom} [car (=FACT) in 2_{abs}-$arrive_{emb}$] say
'I said that you arrived in the car.'

(10) Embedded clauses ban modal particles
Hẽn wa [(*kôt) a-thẽm] mba.
FACT 1_{nom} [(*INF.FUT) 2_{abs}-$fall_{emb}$] know
'I know you (*may) fall'

(11) Main clauses require modal particles
*(Kôt) ka thãmã.
*(INF.FUT) 2_{nom} fall
'You may fall.'

The syntax of wh-questions in embedded clauses provides another illustration of the fact that embedded clauses ban modal markers. First note that dislocation of the wh-word to the left of a factual marker (to a position I argue is the specifier of the particle) is obligatory in main clauses inflected as factual —(12) is a question inflected as factual. Now look at a counterfactual whose restriction is an affirmative counterpart to (12): (13). Note that the restriction is introduced as an embedded clause (we know that because its subject surfaces as ergative and its verb surfaces in the embedded form).

(12) Obligatory wh-word dislocation (implemented via resumption)
Kupyt=ta wâtâ *(=n) ∅-kakô?
K.=NOM what *(=FACT) 3_{acc}-play
'What (instrument) is K. playing?'

(13) Affirmative counterfactual
[Kupyt=te s-õ si kakôrô] =arân ka ngõrõ.
[K.=ERG 3_{abs}-POSS instrument $play_{emb}$] =COUNT 2_{nom} sleep
'If K. were playing his flute you would be sleeping.'

Now let us try to construct a wh-question in the embedded clause —the clause between brackets in (13). In contrast to the main-clause question in (12), in the embedded clause the wh-word stays in

situ (14). The wh-word doesn't move to the specifier of a modal particle, as would be obligatory in a main clause. This is due to the fact that embedded clauses can't host modal particles at all. Note that embedded clauses are not islands for extraction, so this isn't a possible alternative explanation (15). Note as well that the wh-word can't move to the specifier of a modal particle in the *main clause* either (16), since main clauses can't host two modal particles. [6]

(14) Forbidden wh-dislocation in an embedded clause
[Kupyt=te wâtâ (*=n) kakôrô] =arân ka ngõrõ?
[K.=ERG what (*=FACT) play$_{emb}$] =COUNT 2$_{nom}$ sleep
'What instrument is such that you would be sleeping if K. were playing it?'

(15) Embedded clauses are not islands for extraction
Wâtâ =n ka [a-khra=re a-mã ∅ -khuru] hrãm khêrê?
what =FACT 2$_{nom}$ [2$_{abs}$-son=ERG 2$_{acc}$-to 3$_{abs}$-eat$_{emb}$] want$_{emb}$ be.not
'What doesn't your son want to eat for you?'

(16) Forbidden wh-dislocation from embedded clause into main clause
wâtâ (*=n) [Kupyt=te kakôrô] =arân ka ngõrõ?
what (*=FACT) [K.=ERG play$_{emb}$] =COUNT 2$_{nom}$ sleep
'What instrument is such that you would be sleeping if K. were playing it?'

Kĩsêdjê's modal particles are listed in (17) alongside an example of each. Other properties of those particles that aren't related to case licensing are going to be discussed in more detail in chapter 2. In the present chapter we are mainly interested in the role the modal particles play in the case system of the language.

(17) The modal particles

a. man 'witnessed'
Man ngô thyk=ta ta.
WIT coffee=NOM stand
'There is coffee (in the thermos).'

b. hẽn/=(n)a 'factual non-future'
Hẽn Ngaj =ta ngô thyk nhihwêrê.
FACT N. =NOM coffee make
'N. makes/made the coffee.'

c. waj 'inferential non-future'
Waj ngô thyk=ta ta.
INF coffee=NOM stand
'There must be coffee (left).'

d. arân 'counterfactual'
Ngô thyk =arân wa ∅-tho.ikhõ.
coffee =COUNT 1$_{nom}$ 3$_{acc}$-drink
'If there were coffee I would drink it.'

e. kê 'factual future'
Kê ngô thyk=ta ta.
FACT.FUT coffee=NOM stand
'There will be coffee.'

f. kôt 'inferential future'
Nhũm =kôt ngô thyk nhihwêrê?
who =INF.FUT coffee make
'Who would make the coffee?'

[6] There could be an alternative explanation to the ungrammaticality of (14), namely, the claim that it is impossible to embed a word with factual meaning inside a counterfactual restriction. That alternative explanation is straightforward to discard. Check the English example (i-a) and the Kĩsêdjê example (i-b) below, where factual-meaning adverbs are used in restrictions of counterfactuals.

(i) Factual adverb embedded in counterfactual environment

a. If he **actually** were a doctor, he would know what to do now.

b. [Kupyt=te **wi** s-õ si kakôrô] =arân ka ngõrõ.
[K.=ERG actually 3$_{abs}$-POSS instrument play$_{emb}$] =COUNT 2$_{nom}$ sleep
'If K. were actually playing his flute you would be sleeping.'

If INFL is characterized cross-linguistically as the head that licenses nominative case, the two-way correlation between presence of modal particles and licensing of nominative case in Kĩsêdjê constitutes strong evidence that these particles instantiate INFL in this language. The fact that INFL (the modal particles) are banned from embedded clauses means that embedded clauses in this language are non-finite in a very strong sense: embedded clauses are simply not headed by INFL, that is to say, IPs aren't embeddable in Kĩsêdjê. Other languages with this property are Hixkaryana (Carib, Brazil), as reported by Derbyshire (1979); Mebengokre (Jê, Brazil), as reported by Salanova (2007) and Kamayura (Tupian, Brazil), as reported by Seki (2000). In those languages, embedded clauses are usually claimed to be nominalizations, which is also how I think embedded clauses in Kĩsêdjê are best characterized.

Assuming the Case Filter, subjects of non-finite clauses still need to be assigned case somehow. Languages vary with respect to exactly which case is available to those subjects. In Latin, subjects of non-finite clauses can get accusative case. In English they can be assigned accusative case by a higher verb or preposition, or "null case" (in the contexts that license PRO). In Kĩsêdjê's non-finite clauses there is a mechanism through which ergative case is assigned to transitive subjects and absolutive case to intransitive subjects.[7]

Kĩsêdjê's embedded clauses can be analyzed as nominalizations, as Salanova (2007) proposes for the closely related language Mebengokre. There is plenty of empirical evidence for this point. Internally, we can observe that mono-argumental nouns (inalienably possessed nouns) pattern with embedded mono-argumental verbs in marking their single argument as absolutive (that single argument is the possessor in the case of mono-argumental nouns). Externally, embedded clauses also behave like nouns, in the sense that any position that subcategorizes for a noun will happily take an embedded clause as well.

The statement that mono-argumental embedded clauses behave internally like mono-argumental nouns, in taking absolutive arguments is true, at least as far as we can detect. Let us look at a context where it becomes unambiguous that mono-argumental nouns take absolutive arguments, just like mono-argumental embedded clauses. The conundrum is that accusative and absolutive are only distinguished on 3rd person pronouns, and only under a special condition. As we saw in section 1.2, the unambiguous 3rd person accusative pronoun *khu-* will only be attached to verbs that follow a certain phonological template: single open syllables with filled onset. There are nouns that follow this phonological template as well, but they never take the 3rd person accusative pronoun *khu-*. Even if they follow the phonological template, nouns only take the null pronoun, which in this situation is unambiguously absolutive (18).

(18) Mono-argumental nouns take absolutive arguments (possessors)

a. {✓∅-/*khu-}the
{✓3_{abs}-/*3_{acc}-}leg
'his leg'

b. {✓∅-/*khu-}tê
{✓3_{abs}-/*3_{acc}-}hammock
'his hammock'

Externally, embedded clauses also behave like nouns in the sense that any position that subcategorizes for a noun will happily take an embedded clause as well. Compare the embedded clause in subject position in (19) with the noun in subject position in (20). Note, for instance, how the embedded clause in subject position is marked as nominative. For a lengthier description of the syntactic equivalence between nouns and nominalized clauses consult section A.2.7.1 of the appendix.

[7] That is not the whole picture, the complexities of which I am holding back for a few more paragraphs.

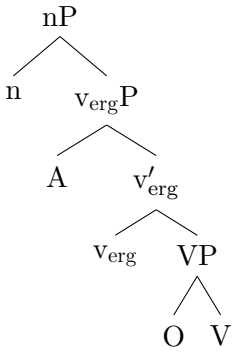
(19) Embedded clause in subject position
[Amtô ro s-andên]=nda ajkhruru.
[mouse with 3_{abs}-$press_{emb}$]=NOM be.two
'The pressings of it with the mouse are two.' i.e. 'Click twice.'

(20) Noun in subject position
Amtô=ra ajkhruru.
mouse=NOM be.two
'The mice are two.' i.e. 'There are two mice.'

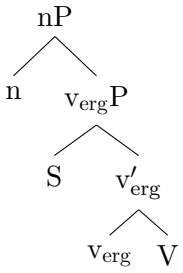
My analysis of nominalization differs from Salanova's in that I assume that embedded clauses are nominalizations of *v*Ps, whereas Salanova assumes embedded clauses are nominalizations of VPs, lacking *v* altogether (in his system the external argument of embedded clauses is introduced in [Spec, *n*]). Under my analysis, the structure of transitive embedded clauses is (21-a), that of unergative embedded clauses is (21-b) and that of unaccusative embedded clauses (21-c). I am postulating that embedded clauses use a special kind of *v*, namely, one that assigns ergative to elements in its specifier and doesn't assign structural accusative case, and I characterize absolutive as a structural case assigned by *n*.

(21) The structure of embedded clauses

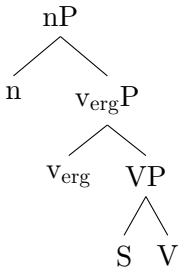
a. Transitive



b. Unergative



c. Unaccusative



I already advanced in the introduction that in Kĩsêdjê ergative isn't only assigned to agents (ergative is not an inherent case in this language). I didn't say further, which might have given the reader the idea that ergative is assigned in this language to and only to transitive subjects of non-finite/embedded clauses. That is also not true. Ergative is assigned not only to the transitive subject, but also to a dislocated and pleonastic replesentation of the intransitive subject in addition to its absolutive in-situ representation. In (22) we can see ergative being assigned to the pleonastic representation of an arguably unergative subject in addition to the its absolutive in-situ representation and in (23) we can see ergative being assigned to the pleonastic representation of an arguably unaccusative subject in addition to the its in-situ absolutive representation.

(22) Arguably unergative verb with absolutive subject doubled by ergative pronoun
[(Ire) mẽ kapẽrẽ khôt i-mbraj] khêrê
[1_{erg} meetings at 1_{abs}-go_{emb}] not.be
'It is not the case that [I went to those meetings].'
i.e. 'I didn't go to these meetings.'

(23) Arguably unaccusative verb with absolutive subject doubled by ergative pronoun
[(Ire) hwararo i-tê khãm i-thẽm] khêrê.
[1_{erg} yesterday 1_{abs}-hammock LOC 1_{abs}-$fall_{emb}$] not.be
'It is not the case that [I fell off my hammock yesterday].'
i.e. 'I didn't fall off my hammock yesterday.'

Examples of this kind make Kĩsêdjê's case system unique. Ergative is not the case assigned to agents (ergative as an inherent case: Woolford 1997; Legate 2006) nor is it the case assigned to and only to subjects. In Kĩsêdjê ergative is a third thing. It is the extra case.[8] In transitive embedded clauses, it is assigned to the subject. In intransitive embedded clauses, ergative is assigned to any extra pronoun that pleonastically represents the subject, in addition to the its absolutive in-situ representation (in the case system I develop below, this extra pronoun is modeled as the head of a chain whose tail receives absolutive case).

The fact that intransitive subjects can be expressed by an ergative pronoun in addition to the obligatory absolutive pronoun —(22) and (23)— lead me to propose that: **(a)** v_{erg} always assigns ergative case to the nominal in [Spec, v_{erg}] (due to examples like 22); **(b)** v_{erg} also assigns ergative case to an argument internally merged in [Spec, v_{erg}] —i.e. an argument *moved* to [Spec, v_{erg}]— (due to examples like 23), and **(c)** a nominal can be assigned case multiple times (due to these examples and others to be discussed in section 1.4, in which nominative is assigned to nominals that had been previously assigned ergative).

Besides these three non-standard assumptions, I also need to assume that **(d)** the EPP can be satisfied either before or after a probe associated with the same head is satisfied. This last assumption is important for the correct derivation of transitive embedded clauses, as it allows the EPP feature associated with n to move a potential intervener (the ergative subject) out of the way before the absolutive-assigning probe associated with the same head matches the as-of-yet caseless object in its base position and assigns absolutive case to it (the derivation of transitive sentences is detailed in section 1.3.1). My four non-standard assumptions are listed under (24) for future reference.

(24) Non-standard assumptions
a. v_{erg} always assigns ergative case to the nominal in [Spec, v_{erg}].
b. v_{erg} will assign ergative case to a nominal merged in [Spec, v_{erg}] through movement.
c. A nominal can be assigned case multiple times.
d. The EPP can be satisfied either before or after a probe associated with the same head.

Employing these non-standard assumptions plus three fairly standard ones, listed in (25) allows me to characterize the derivation of case in transitive embedded clauses (section 1.3.1), unergative embedded clauses (section 1.3.2) and unaccusative embedded clauses (1.3.3) in Kĩsêdjê.

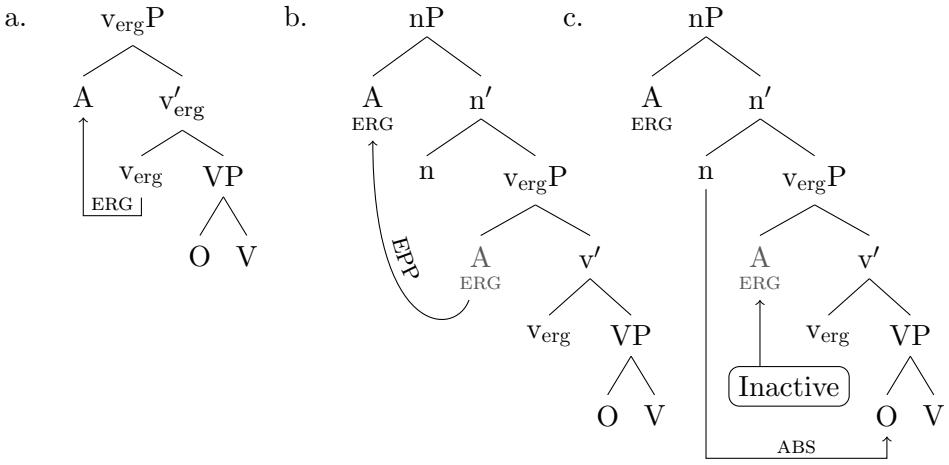
(25) Standard assumptions
a. The foot of a chain is syntactically inactive.
b. A probe's case feature must be discharged.
c. The case filter: every nominal in a convergent derivation must be assigned case.

[8] These examples could invite the idea that ergative is a default case. I have tried to implement that idea in previous versions of this work, but was convinced that it was wrong when I encountered examples, discussed in section 1.4, where nominative is assigned to an ergative argument at a later point of the derivation.

1.3.1 Case licensing in transitive embedded clauses

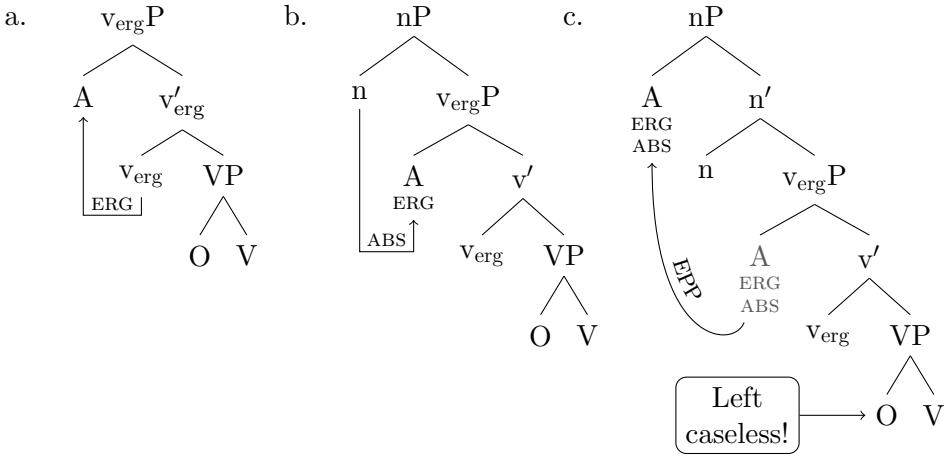
The subject of transitive embedded clauses is assigned ergative case in [Spec, v_{erg}] (26). After that, n is merged with v_{erg}P and the EPP feature associated with n is satisfied through movement of the subject to [Spec, n]. The probe associated with n is activated and matches the object, assigning absolutive case to it (26-c). Between n and the object is the foot of the subject chain, but since the foot of a chain is assumed to be syntactically inactive, it doesn't create an intervention effect.

(26) Derivation of transitive embedded predicates



Above I considered the derivation where the EPP feature associated with n is satisfied before the case probe associated with the same head is satisfied (an option I allowed myself by postulating (24-d)). Let us now take a look at the other possible derivation, where the EPP is satisfied only after the case probe associated with n is activated. That derivation crashes (27). Once the absolutive case feature is discharged on the subject (27-b) and then the EPP satisfied (27-c), all probes have been satisfied and the object is still caseless, in violation of the case filter.

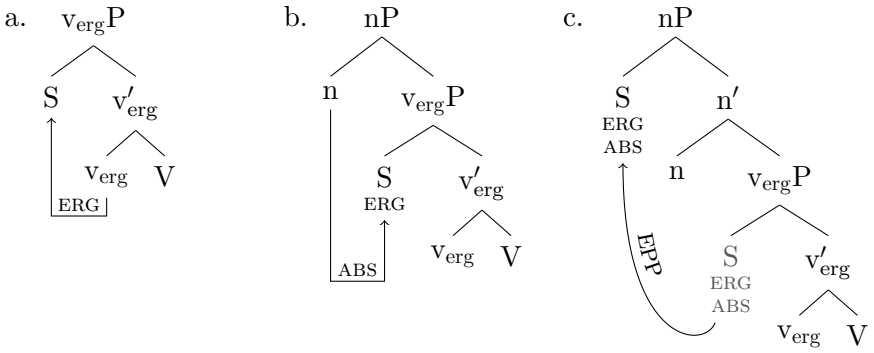
(27) Crash-bound derivation of transitive embedded predicates



1.3.2 Case licensing in unergative embedded clauses

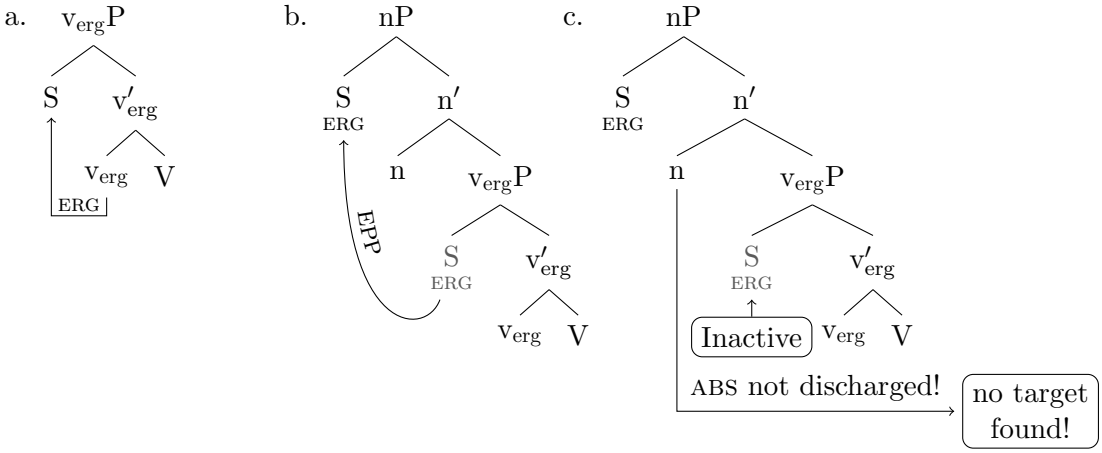
The subject of an unergative verb is introduced in the derivation in [Spec, v_{erg}], where it receives ergative case from v_{erg} (28-a). Once n is merged into the structure, it probes its c-command domain and further assigns absolutive case to the subject (28-b). Finally, n's EPP feature is satisfied by movement of the subject to [Spec, n] (28-c).

(28) Derivation of unergative embedded predicates



In this derivation the EPP on n was satisfied after the case probe associated with the same head was satisfied, as usually stipulated to be the case. But since I am giving up on that stipulation (24-d), I need to consider the alternative derivation, namely, the one where the EPP is satisfied *before* the absolutive-assigning probe is. Given the standard assumptions listed in (25), the alternative ordering crashes (29). After moving the subject to [Spec, n] to satisfy the EPP (29-b), there remains no active nominal in n's c-command domain to receive absolutive case (29-c), in violation of (25-b) —a probe's case feature must be discharged.

(29) Crash-bound derivation of unergative embedded predicates (EPP before case probe)



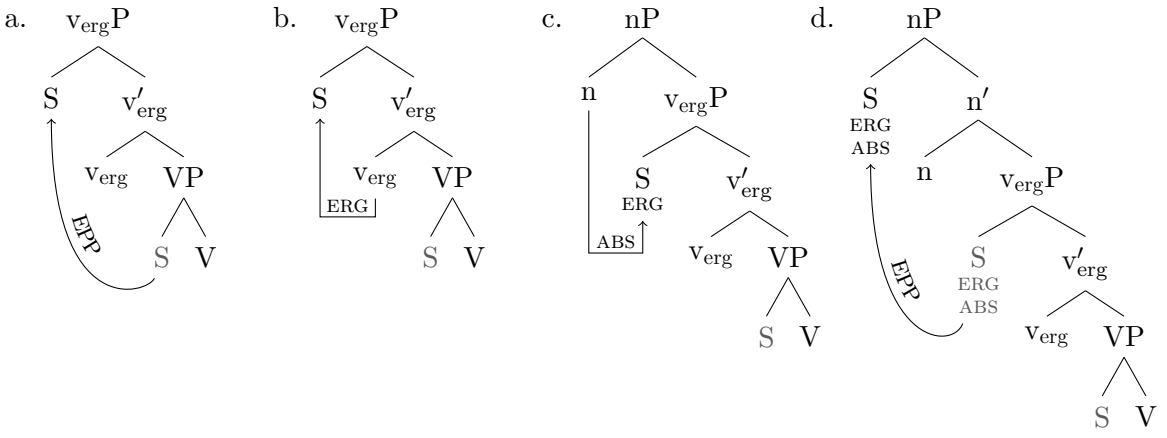
Do we really need to assume both (25-a) and (25-b)? If, for instance, we dropped (25-a) —the foot of a chain is syntactically inactive— the different orderings between EPP and case probing wouldn't alter the result of the derivation of unergative embedded clauses (with absolutive case being assigned to the foot of the chain in either case). Such system would not be able to derive the case patterns of transitive clauses, though. Only the ordering where the EPP was satisfied before the probe associated with the same head allowed a convergent derivation of transitive clauses, as detailed in section 1.3.1.

If, on the other hand, we dropped (25-b) —a probe's case feature needs to be discharged—, the alternative ordering would give us an unattested result, where at the end of the derivation the subject of an unergative verb has only been assigned ergative case. Were we, therefore, to drop (25-b), we would also have to drop special assumption (24-d) —the EPP can be satisfied either before or after a probe associated with the same head. Even though a system like that could work for the derivation of unergative clauses, once more it would give a wrong derivation for transitive embedded clauses, as detailed in section 1.3.1. It is therefore essential to keep (25-b)

1.3.3 Case licensing in unaccusative embedded clauses

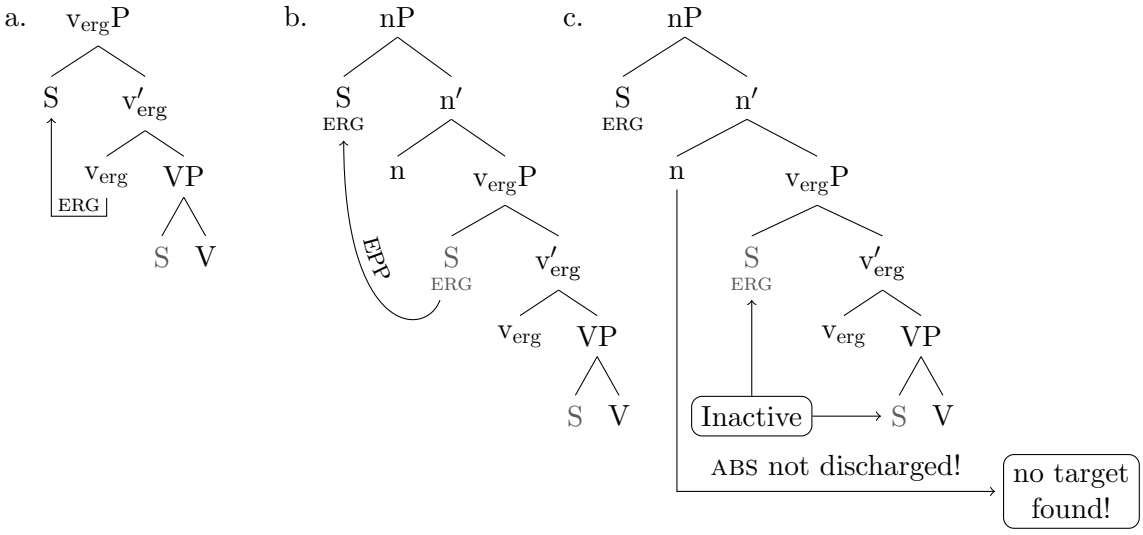
Below I am considering the derivation of unaccusative embedded predicates starting from the step at which v_{erg} is merged. Though the kind of little-v_{erg} that selects unaccusative VPs doesn't introduce an argument as its specifier, I take it to have an EPP feature. That EPP feature is satisfied through movement of the internal subject to [Spec, v_{erg}] (30-a). Once the subject is moved into that position, v_{erg} transfers its ergative case feature to it (30-b). The next step is merging n, which probes its c-command domain and assigns absolutive case to the subject (30-c). Finally, n's EPP feature is satisfied through movement of the subject to [Spec, n] (30-d).

(30) Derivation of unaccusative embedded predicates



Above I considered a derivation where the EPP associated with n was satisfied after the cases probe associated with the same head. Since I am assuming that this ordering isn't obligatory, I need to discuss the alternative derivation. As was the case with unergative predicates, the alternative ordering crashes (31).

(31) Crash-bound derivation of unaccusative embedded predicates



Similar considerations as those discussed at the end of the previous section (1.3.2) regarding the (im)possibility of dropping the assumptions listed in (24) and (25) apply here as well: unless we adopt the stipulation that an EPP feature associated with a head can *only* be satisfied after probes associated with the same head are satisfied, we need to assume that: **(a)** only the head of a chain is syntactically active (25-a), and **(b)** also that case probes need to discharge their case features for a derivation to converge (25-b). On the other hand, if we disallowed an EPP feature associated with a head to be satisfied before a probe associated with the same head were satisfied, we would get the wrong result for the derivation of transitive embedded clauses, as discussed in section 1.3.1.[9]

1.3.4 Morphological realization

Previous sections detailed how a specific set of assumptions allowed arguments to be assigned case multiple times in Kĩsêdjê. In those sections I glossed over the important issue of how the links of those multiply-cased argument chains are morphologically realized. I hope that by doing so I didn't give the impression that arguments could be pronounced in full in multiple positions. As a matter of fact, only case and person features are spelled out in intermediate positions, with the subject fully spelled out only at the head of its chain.

In the embedded clause in (32), for instance, (embedded by the predicate *janthã* 'to be possible') you can see that only the head of the subject chain is fully spelled out —as a nominal phrase marked with the ergative clitic *re*. Following it, an intermediary link is spelled out by a third person ergative pronoun —*kôre*– and, finally, attached to the verb, the tail of the subject chain is spelled out as an absolutive pronoun. This example features a final derivational step that I don't discuss, which consists of raising the subject to a higher position, though arguably not for case reasons.

[9] Richards (p.c.) has suggested an alternative system to account for the data discussed above. That data can be accounted for based on slightly different assumptions: **(a)** probes probe first down, then (if there's nothing in the down direction) up (as assumed by Béjar and Rezac 2009); **(b)** EPP is always satisfied before Agree, and **(c)** probes keep probing until they have agreed with something (even if that thing has already been agreed with). Given only the phenomena presented above, this system and the one I developed seem to me to be nearly notational variants. Choice between them would require evaluating how well (or badly) they fare in the derivation of other, unrelated phenomena. Both incorporate the key empirical claim of this chapter, namely, that an argument chain can be assigned case multiple times, and are furthermore compatible with the extra data to be discussed in section 1.4.

(32) Pronouncing multiple links of the chain (ergative, ergative and absolutive)
[**Khrajê**=**re** **kôre** tá khãm **s**-umbaj wyndu] janthã.
[children=ERG 3_{erg} something in 3_{abs}-worry$_{emb}$] be.possible
'(So that) it be possible that [the children put their minds to some use].'
(from *Me khwẽ tho pa kandêjê ro sujarẽni* 'Explanation on how people became chiefs')

Example (33) features a 4-clause coordinate complex embedded by the predicate *wyráká* 'to be so'. (Though I have only bracketed the individual clauses, it is the whole coordinate complex that is embedded by *wyráká*, not only the 4th clause. The subject of the first clause is fully spelled out only at the head of its chain —a nominal phrase marked with the ergative clitic *re*— whereas the base of the subject chain is spelled out as an absolutive pronoun. In the second clause you can also note the subject being spelled out both by an ergative pronoun and by an absolutive one.

(33) Pronouncing multiple links of the chain (ergative and absolutive)
[Hwararo **wa-khrajê**=**re** hrãm khãm **s**-ãm]$_1$ =nhy [**ire** **i**-thẽm]$_2$
[yesterday 1+2_{abs}-children=ERG hunger in 3_{abs}-stay$_{emb}$] =and.DS [1_{erg} 1_{abs}-go$_{emb}$]
=ne [ire ngrytxi=∅ pĩrĩ]$_3$ =ne [tho i-morõ]$_4$ wyráká
=and.SS [1_{erg} big.animal=ABS kill$_{emb}$] =and.SS [3.with 1_{abs}-come$_{emb}$] be.so
'It is so that [yesterday our children stayed hungry and I went and killed this big animal and brought it back].'
(from *Khátpy re wapãmjê thõ thurun tho them nda* 'Where Khátpy carries our ancestor')

1.3.5 Section summary

In this section I developed a case theory that accounts for the distribution of nominals in Kĩsêdjê. In embedded clauses Kĩsêdjê sports a system where absolutive is assigned across-the-board to all intransitive subjects, but in which in addition to being assigned absolutive, intransitive subjects are also assigned ergative on a higher position. This kind of system resists traditional accounts, and my account had of necessity to include a few special assumptions.

The Kĩsêdjê case system poses a particularly hard problem for dependent-case approaches to ergativity (Marantz, 1991; Salanova, 2007; Preminger, 2011; Baker, 2013). In dependent-case approaches, ergative case is assigned to a nominal in the same domain as a *distinct* unmarked nominal (34). Such a system can't make sense of the situations discussed above where a single argument is expressed both in the absolutive and in the ergative case.

(34) Dependent case is assigned by V+I to a position governed by V+I when a distinct position governed by V+I is:
a. not "marked" (not part of a chain governed by a lexical case determiner)
b. distinct from the chain being assigned dependent case
Dependent case assigned up to subject: ergative
Dependent case assigned down to object: accusative
(Marantz, 1991)

We could try to redeem the dependent-case approach by looking for evidence that what looks like an ergative pronoun in the problematic situations is actually a emphatic pronoun which happens to be homophonous with an ergative pronoun (in the same way emphatic pronouns in French are homophonous with oblique pronouns). The evidence doesn't seem to point in that direction, though. For one, Kĩsêdjê does have a set of emphatic pronouns, but it is not homophonous with the ergative pronouns —see table 1.3 and illustrative examples (35) and (36).

person	emphatic	nominative
1	pa	wa
2	ka	ka
1+2	(ku) pa	ku
3	thãm	∅

Table 1.3: Emphatic pronouns

(35) Use of emphatic pronoun
∅ Ku pa Internet pĩ.
FUT $1{+}2_{nom}$ $1{+}2_{emph}$ Internet kill
'We will turn the Internet off ourselves.'

(36) Emphatic pronoun in the focus position
Ky, turê, ka=n wa ng[a]-ariri!
Damn father you_{emph} 1_{nom} 2_{acc}-wait
'Damn, father, it was you I was waiting for!'

[a]Contraction of *a-* (2_{acc}) and *-j-* (linking consonant)

A final idea we could try to pursue is that there is an ergative-looking set of emphatic pronouns used exclusively in embedded contexts. That is also not true, as the emphatic pronouns used in embedded clauses are the same ones used in main clauses (37).

(37) Topic/focus pronouns in an embedded context
[Ire pa khwã i-kapẽrẽ] mã.
[1_{erg} 1_{emph} 3_{acc}-to 1_{abs}-$talk_{emb}$] PROSP
'I will talk to him myself.'

1.4 Apparently exceptional cases

In this section we will learn about two contexts that appear to license exceptions to the initial description of the Kĩsêdjê case split given in (1). More precisely, in these contexts we will see nominative case being assigned to the subject of an embedded verb. Once we learn about the details of each context, though, we will realize that their exceptionality is only apparent and that they actually provide further evidence for the claim made in section 1.3 that different links in an argument chain can be assigned different cases in Kĩsêdjê.

The two aforementioned contexts involve the use of certain modifiers which behave like (and therefore must be) unaccusative verbs that select only for a clausal complement. Among such modifiers are 'not be', as in (39), and 'be always', as in (38). Due to the accident that in English those clause-embedding unaccusative verbs are most straightforwardly translated as adverbs, it becomes important to show that the they are indeed verbal in Kĩsêdjê. First note in (39) and (38) that the Kĩsêdjê clause-embedding verbs can be translated in English (albeit a tad unnaturally) as clause-embedding predicates ('It is always the case that I eat it.' and 'It is not the case that you ate it.'). Now also note that these modifiers take a nominalized clause for object. The agents in these sentences, rather than being arguments of the clause-embedding modifier verbs, that is, of the main predicate, must be arguments of the embedded clauses the modifiers selects. These agents are, therefore, expected to display ergative case, an expectation that is borne out in (39) and (38).

(38) 'Always' is a clause-embedding modifier verb in Kĩsêdjê.
(*Hẽn) [ire Ø-khuru] **wiri**
FACT [1_{erg} 3_{abs}-eat_{emb}] be.always
'It is always the case that I eat it.' i.e. 'I always eat it.'

(39) *Negation* is a clause-embedding modifier verb in Kĩsêdjê
(*Hẽn) [kare Ø-khuru] **khêrê**
FACT [2_{erg} 3_{abs}-eat_{emb}] be.not
'It is not the case that you ate it.' i.e. 'You didn't eat it.'

It is also easy to verify that the bracketed clauses in these examples are embedded. Since most Kĩsêdjê verbs have a different form they surface in when embedded, we only need to check if the form used in these examples is indeed the embedded form. Notice how the form of the verb 'eat' in (38) and (39) is identical to that in the unquestionably embedded clause in (40) and different from that in the clearly main clause in (41) — the latter examples being duplicates of (8-a) and (7-b). The verb 'eat' must, therefore, be heading an embedded clause, as I claimed was the case.

(40) The embedded form of the verb 'eat'
Ø Ka [ire Ø-**khuru**] mu.
FUT 2_{nom} [1_{erg} 3_{abs}-eat_{emb}] see
'You are going to see me eat it.'

(41) The main form of the verb 'eat'
Ø Wa khu-**ku**.
FUT 1_{nom} 3_{acc}-eat
'I am going to eat it.'

Another characteristic of this kind of clause is a ban against the use of modal particles, which makes them exceptionally non-finite main clauses. We can notice this ban in (38) and (39). Under certain circumstances, however, main clauses headed by clause-embedding modifier verbs can take a modal particle (INFL). That is to say, under certain circumstances clauses headed by clause-embedding modifier verbs can be finite. One of such circumstances is the existence in the sentence of a focused constituent, as in (42) (apparently, only finite clauses include a focus position). As you can note in (42), when clauses headed by modifier verbs are finite, the subject of the *embedded* verb will surprisingly surface as nominative.

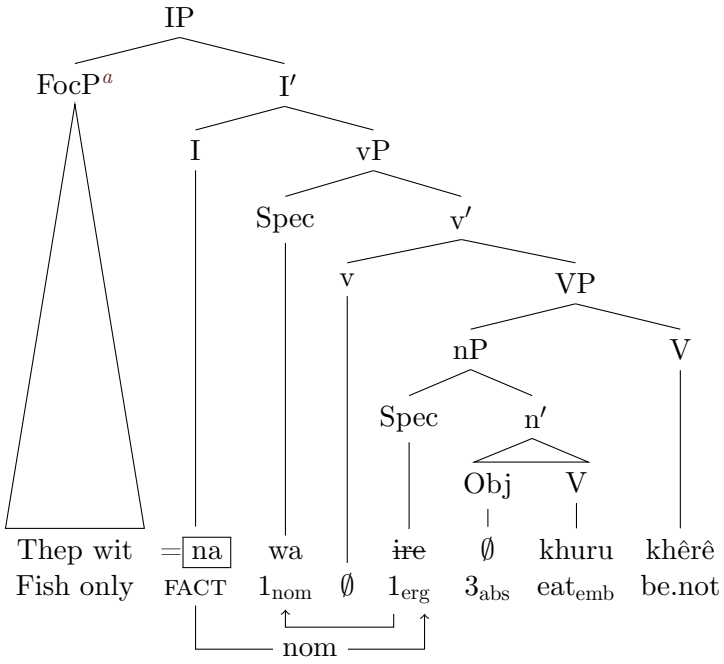
(42) Embedded subject surfacing as nominative (INFL in square)
Thep wit =na [**wa**/*ire Ø-khuru] khêrê.
fish only =FACT [1_{nom}/*1_{erg} 3_{abs}-eat_{emb}] be.not
'Only fish was it not the case that I ate.' i.e. 'Only fish didn't I eat.'

This example counters the generalization expressed in (1) because in it the subject of an embedded clause is in the nominative case (observe that the embedded verb is, as expected, in the embedded form). I argue that nominative is being assigned to a higher link of the subject chain by the newly added modal particle/INFL, with the ergative link of the chain going unpronounced.

Example (42) counters the simplistic generalization stated in (1), but not the licensing model developed in section 1.3. INFL —the modal particle— needs to discharge nominative case. Assuming the embedded clause is transparent to probing from the main clause, INFL matches the subject of the embedded clause, assigning nominative to it and displacing it to a higher position —as represented in the tree in (43).[10]

[10]Movement of the subject to a higher position but that is not the specifier of the probing head can be attributed to a prosodic requirement on probe-goal contiguity, as proposed by Richards (2011).

(43) INFL reaching inside an embedded clause



[a]In chapter 2, I argue that the specifier position of factual INFL —*hẽn/n(a)*— is a focus position.

In example (42), I argue that the link of the subject chain that is assigned ergative case goes unpronounced. Indeed, there are circumstances where this kind of deletion doesn't occur. Such examples obtain when there is overt phonological material between the position hosting the nominative link of the subject chain and the position hosting its ergative link, as in (44).

(44) Embedded subject can be doubly represented when there is overt intervening material
Thep wit =na [**wa** *mã* **ire** ∅-khuru] khêrê.
fish only =FACT [1_{nom} usually $\mathbf{1_{erg}}$ 3_{abs}-eat_{emb}] be.not
'Only fish is it not the cases that I usually eat.' i.e. 'Only fish don't I usually eat.'

These examples are compatible with a derivation where ergative is assigned to the agent argument at a lower position, after which it moves to a higher position where it is assigned nominative case by INFL. In Kĩsêdjê, when not adjacent, both links of the chain can be pronounced.

We could be tempted to suppose that the final position where nominative is assigned is [Spec, INFL], but there is evidence that the nominative subject actually sits lower than [Spec, INFL]. Part of the evidence comes from the linear position where the nominative pronoun is pronounced, to the right of INFL. Chapter 2 provides finer evidence for this point.

Arguably, INFL can match a nominal inside an embedded clause in (42) because the verb in the main clause (the modifier verb) doesn't have a subject. A syntactic minimal pair to (42) will illustrate this point. In (45) the verb in the main clause *has* a subject, whose intervention is arguably the reason why INFL can't assign nominative to the subject of the embedded clause.

(45) If the main clause has a subject argument, INFL can't probe into the embedded clause
Hẽn wa [kare/*ka a-kikhre nh-ihwêt] mba.
FACT 1_{nom} [2_{erg}/*2_{nom} 2_{abs}-house LNK-$make_{emb}$] know
nom ↑ ⋯×⋯ ^
'I remember you made your house.'

There is a second situation where nominative case is licensed on the subject of an embedded clause, contra the initial generalization (1). Once more, we will see that it does so in a way compatible with the case theory developed in section 1.3. Whenever a clause headed by a modifier verb is coordinated with a clause headed by a regular verb, the subject of the clause *embedded* by the modifier verb obligatorily surfaces as nominative. The sentences in (46) exemplify this situation (the regular verb in the first conjunct and the modifier verb in the second conjunct are underlined, and the subject of the clause embedded by the modifier verb, unexpectedly appearing in the nominative, is boldfaced).

(46) The subject of the embedded verb 'eat' surfaces as nominative in coordination.

a. Hẽn [∅ i-mã "hỹ" ne] [=**wa**[11] ∅-khuru wiri.]
FACT [3_{nom} 1_{acc}-to yes do] [=and.DS.**1_{nom}** 3_{abs}-eat_{emb} be.always]
'He did 'yes' to me and it is always the case that I eat it.' i.e. 'He let me always eat it.'

b. *Hẽn [∅ i-mã "hỹ" ne] [=nhy **ire** ∅-khuru wiri.]
FACT [3_{nom} 1_{acc}-to yes do] [=and.DS **1_{erg}** 3_{abs}-eat_{emb} be.always]
'He did 'yes' to me and it is always the case that I eat it.' i.e. 'He let me always eat it.'

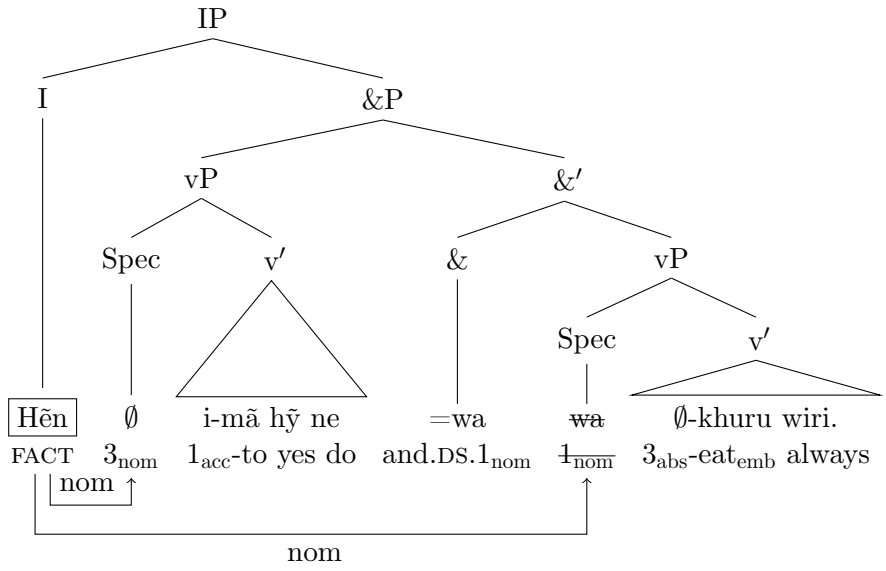
As already stated, This exception to the generalization (1) can also be explained within the case theory developed in section 1.3. In (46-a) a single INFL head dominates the whole coordinate complex and assigns nominative case to the subjects of both conjuncts. First note that this kind of phenomenon (where a c-comanding head licenses case on the subject of multiple conjuncts) is also encountered in better studied languages. For instance, in the ECM example in (47) a single accusative case licensor in the higher clause arguably conditions accusative case on the subjects of both conjuncts in the embedded coordinate complex.

(47) In ECM contructions a single source can assing case to multiple nominals
I want you to be here on time and him to bring the flour.
acc ↑ acc

I assume that the conjuncts in example (46-a) are vPs with internal subjects and that the &P formed by them is embedded under an IP layer. A simplified tree representation of the structure of (46-a) is given in (48). For the sake of completeness, in this tree I represent a deletion process that I am only going to discuss in chapter 4. For now, it suffices to understand that the φ- and case-features of the deleted node (the nominative subject pronoun) are represented on the conjunction, which thereby bears testimony to the fact that the deleted pronoun was indeed nominative.

[11] The portmanteau *wa* represents both the coordinating conjunction and the nominative pronoun. This phenomenon is discussed at length in chapter 4.

(48) INFL assigning nominative case to the subject of multiple conjuncts



As stated above, I assume that the &P lies below the level of INFL/modal particles, as represented in (48). Semantically, that is clearly the case, since the modality expressed by INFL in (46-a) indeed scopes over the whole coordinate complex. More evidence that coordination of this kind (often denominated clause chaining) has the structure represented here is given in chapter 3.

If we assume that the coordinate complex in (46) is embedded under INFL (the modal particle), and that INFL is the licensor of nominative in both conjuncts, we predict the possibility that similar coordinate complexes can be embedded under other heads, and that in such cases nominative isn't licensed in either conjunct.

This prediction is borne out. In (49-a) and (49-b) a coordinate complex is embedded as the object of a main verb and in (50-a) and (50-b) a coordinate complex is embedded by a non-finite modifier verb (remember that modifier verbs can optionally form non-finite main clauses). In these cases, since the coordinate complex isn't embedded under INFL, nominative isn't licensed in either conjunct.

(49) Coordinate complex embedded as verb object: ergative subject

a. Hẽn wa i-mã [&P i-hrõ=∅ thyk =**nhy** ire mbaj khêt khêt]
FACT 1nom 1acc-to [1abs-wife=ABS dieemb =and.DS 1erg remember be.notemb]
wymba.
fear
'I am afraid that my wife dies and I don't remember her.'

b. *Hẽn wa i-mã [&P i-hrõ=∅ thyk =**wa** (ire) mbaj khêt
FACT 1nom 1acc-to [1abs-wife=ABS dieemb =and.DS.1nom (1erg) remember
khêt] wymba.
be.notemb] fear
'I am afraid that my wife dies and I don't remember her.'

(50) Coordinate complex embedded by non-finite modifier: ergative subject

a. [$_{\&P}$ Kôre i-mã hỹ nhyry =**nhy** itaj i-nhon] wiri.
[$_{\&P}$ 3_{erg} 1_{acc}-to yes do_{emb} =and.DS here 1_{abs}-$sleep_{emb}$] be.always
'It is always the case that he does 'yes' to me and I sleep here'
i.e. 'He always lets me sleep here.'

b. *[$_{\&P}$ Kôre i-mã hỹ nhyry =**wa** itaj i-nhon] wiri.
[$_{\&P}$ 3_{erg} 1_{acc}-to yes do_{emb} =and.DS.1_{nom} here 1_{abs}-$sleep_{emb}$] be.always
'It is always the case that he does 'yes' to me and I sleep here'
i.e. 'He always lets me sleep here.'

We saw that clauses headed by clause-embedding modifier verbs —such as the second conjunct of (46-a), example repeated below as (52)— don't need to merge with INFL in order to become fully well-formed main clauses —that fact was illustrated with examples (38) and (39). Coordination of clauses headed by clause-embedding modifier verbs, as (51), also don't need to merge with INFL. If coordination of a clause headed by a modifier verb with a clause headed by a regular verb[12] *needs* to merge with INFL, as illustrated by (46-a) —repeated below as (52)—, such requirement must be posed by the clause headed by the *regular* verb.

(51) Coordination of clauses headed by modifier verbs doesn't need to be merged with INFL
[I-mã ∅-nhyry khêt] [=nhy ire ∅-khôt i-tẽm khêt to.]
[1_{acc}-to 3_{abs}-do_{emb} not] [=and.DS 1_{erg} 3_{abs}-with 1_{abs}-go_{emb} not FUT]
'He is not asking me and then I won't go with him.'

(52) =(46-a) INFL is obligatory in coordination involving "regular" verbs
*(Hẽn) [∅ i-mã hỹ ne] [=**wa** ∅-khuru wiri.]
FACT [3_{nom} 1_{acc}-to yes do] [=and.DS.$\mathbf{1_{nom}}$ 3_{abs}-eat_{emb} be.always]
'He did 'yes' to me and it is always the case that I eat it.' i.e. 'He let me always eat it.'

According to the case theory developed in section 1.3, the mixed coordinate complex in (46)/(52) needs to merge with INFL because otherwise there would be no way to assign case to the subject of the conjunct headed by the regular verb. Only embedded clauses can license ergative case on their subjects (as discussed in section 1.3). Since the verb in the first conjunct is not in an embedded clause, it doesn't have that capacity. If the whole coordinate complex were not merged with nominative-assigning INFL, the subject of the first conjunct would remain caseless —and to remain caseless constitutes a violation to the Case Filter.

As for the second conjunct, the one headed by the clause-embedding modifier verb, it is able to supply case to its subject by itself, since that subject originates in an embedded clause, and embedded clauses license ergative case on their agents. Given that the case requirement on the subject of the *first* clause can only be satisfied by merging the coordinate complex with INFL, though, the subject of the second conjunct also ends up in the domain of nominative-case assigning INFL. We expect one of two things to happens: either (i) ergative case isn't assigned to the agent of the embedded clause any longer and instead that agent is assigned nominative by INFL; or (ii) ergative case is still assigned to the agent of the embedded clause at a prior stage of the derivation, and once INFL is merged, it assigns nominative case to that agent. If (ii) is true, the agent argument of the embedded clause will end up with two case features.

Looking only at examples (46-a)/(52) and (42) (repeated below as (53)), hypothesis (i) could seem more reasonable, if only because it is more economic. Of course those examples are also compatible with hypothesis (ii) —assuming that the ergative morphology was somehow deleted.

[12] By regular verb I mean any verb that is not a clause-embedding modifier verb

(53) =(42) Embedded subject surfacing as nominative (INFL in square)
Thep wit =[na] [**wa**/*ire ∅-khuru] khêrê.
fish only =FACT [1_{nom}/*1_{erg} 3_{abs}-eat_{emb}] be.not
'Only fish was it not the case that I ate.' i.e. 'Only fish didn't I eat.'

Hypothesis (ii) is compatible with a characteristic of the Kĩsêdjê case system studied in section 1.3: argument chains can be assigned case multiple times. And, indeed, there are examples minimally different from (46-a)/(52) where the ergative link of the subject chain isn't deleted, as (54). The difference between (53) and (46) is that in the latter the subject of the embedded clause is represented twice: by a nominative pronoun —which already happens in (46)/(52) and (42)/(53)— and also by an ergative pronoun. For some reason, this kind of example becomes less acceptable if the coreferent pronouns are left linearly adjacent, and this is why in the following examples the coreferent pronouns are separated by adjunct PP's.

(54) Embedded subject can be doubly represented when there is overt intervening material
[Hẽn] [[∅ i-mã hỹ ne] [=**wa** *akatxi khôt* **ire** ∅-khuru wiri.]]
FACT [[3_{nom} 1_{acc}-to yes do_{main}] [=and.DS.1_{nom} days along $\mathbf{1_{erg}}$ 3_{abs}-eat_{emb} be.always]]
'He did 'yes' to me and it is always the case that I can eat it along the days.'
i.e. 'He let me eat it every day.'

1.4.1 Dative Subjects

Further evidence for the model developed in section 1.3, specially for the claims that: **(a)** arguments chains can be assigned case from multiple sources, and **(b)** ergative is a case assigned to the specifier of *v*, comes from the study of dative-subject verbs. The subject of some experiencer verbs is marked as dative, and if INFL dominates a clause headed by one such verb (i.e. if the clause is finite), the dative subject will be pleonastically expressed by a nominative pronoun in addition to the dative pronoun, as in (55) (INFL is inside a box).

(55) Dative subjects must be doubled by a nominative subject in finite clauses
I-tákuru khêt =[arân] *(wa) *(imã) hrãmã.
1_{abs}-eat_{emb} be.not =COUNT *(1_{nom}) 1_{dat} be.hungry
'If it were not the case that I have eaten, I would be hungry.'
i.e. 'If I had not eaten I would be hungry.'

Dative experiencer subjects behave a bit differently than ergative subjects of embedded clauses: whereas in embedded clauses, as we saw, an ergative pronoun can be pronounced alongside the higher nominative link of the subject chain or be suppressed altogether, a dative pronoun must *always* be uttered, even if the higher nominative link alone would, at least referentially speaking, suffice. I can't satisfactorily explain this difference beyond pointing out that, without the dative, the clause would become ambiguous. The verb *hrãmã* with a non-dative subject means 'to want' (56).

(56) *hrãmã* with a non-dative subject means
'want'
I-tákuru khêt =[arân] wa ∅-hrãmã.
1_{abs}-eat_{emb} be.not =COUNT 1_{nom} 3_{abs}-want
'If it were not the case that I have eaten, I would want it.'
i.e. 'If I had not eaten I would be hungry.'

Dative subjects are in complementary distribution with ergative subjects, that is to say, dative-experiencer verbs never feature ergative subjects in embedded contexts, as you can see in example (57). That follows naturally from the conception of dative and ergative subjects as cases assigned to the specifier of *v*. Dative is a more typical inherent case, whereas ergative can be assigned to subjects with different theta roles (as long as they are sitting in [Spec, v_{erg}] at some point in the derivation).

(57) Subjects of embedded experiencer verbs are dative, never ergative
(*Kare) a-mã hrãm khêrê?
(*2_{erg}) 2_{acc}-to be.hungry$_{emb}$ be.not
'Aren't you hungry?'

In some languages the dative experiencer can be shown *not* to be the subject of an experiencer verb. In Spanish, for instance, the subject of a verb with dative experiencers like *gustar* is its *theme* rather than its dative experiencer according to a number of diagnostics: the theme bears nominative case (where visible), triggers agreement on the verb, and in non-finite clauses can be controlled PRO.

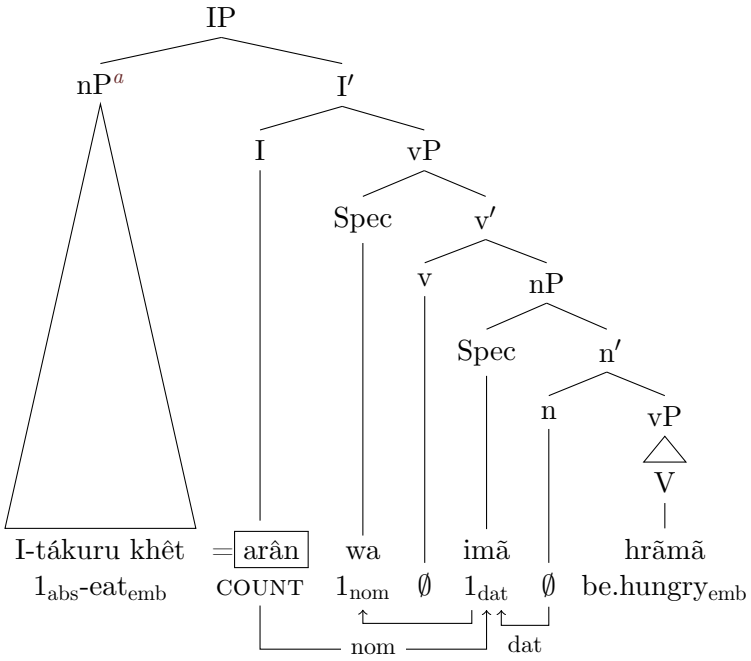
Kĩsêdjê verbs don't agree with their subjects, and there is also no controlled PRO in the language. Kĩsêdjê does feature a subject-tracking phenomenon we can use to find out if dative experiencers are indeed subjects: *switch-reference*. Switch-reference is a phenomenon whereby a conjunction marks whether the subjects of adjacent clauses are coreferent or have disjoint references (term coined by Jacobsen, 1967)). I will talk more about this phenomenon in chapter 3. For now, it will suffice to observe that dative subjects are subjects for purposes of switch-reference marking. When a dative experiencer in the first conjunct is coreferent with a nominative subject in the second conjunct, as in (58), the clauses are conjoined with a *same-subject* marker *ne*. When a dative experiencer in the first conjunct has reference disjoint from that of a nominative subject in the second conjunct, as in (59), the clauses are conjoined with a *different-subject* marker, *wa*.

(58) Dative experiencer with same reference as following nominative subject
∅ [Kwã wásy tán] [=ne ∅ ∅-kuka.]
FACT [3_{dat} corn like] [=and.SS 3_{nom} 3_{acc}-grill]
'He likes corn and grilled some.'

(59) Dative experiencer with different reference than following nominative subject
∅ [Kwã wásy tán] [=wa kwã ∅-kaj kêrê.]
FACT [3_{dat} corn like] [=and.DS.1_{nom} 3_{dat} 3_{abs}-grill$_{emb}$ be.not]
'He likes corn but I didn't grill some for him.'

Since ergative can only be assigned in embedded clauses, an interesting question to ask is why dative can be assigned to experiencer subjects both in main clauses —as in (55)— as well as in embedded clauses —as in (57). I propose that dative-experiencer verbs are actually only found embedded. Where it seemed it headed a main clause, like in (55), it is actually embedded by a phonologically null head. The spec of such dominating phrase would be the position where the higher link of the experiencer subject chain is instantiated as nominative. In (60) I flesh out that hypothesis. For concreteness, I propose the clause headed by the dative-experiencer verb is embedded by a light verb.

(60) The structure of (55)



[a]In chapter 2, I argue that the specifier of counterfactual Infl —*arân*— hosts the counterfactual restriction, which, in the example at hand, is an embedded (nominalized) clause.

As a matter of fact, none of the 5 dative-experiencer verbs I found in the course of my research have distinct embedded and main forms. The list below itemizes the dative-experiencer verbs I have in my database and their meanings, complemented by an example of use of each.

(61) Dative verbs

a. /hrãm/ 'to be hungry'
Amã hrãm khêrê.
2_{dat} be.hungry be.not
'You are not hungry.'

b. /kĩn/ 'to like'
Imã ∅-kĩn khêrê
1_{dat} 3_{abs}-like be.not
'I don't like it.'

c. /khôr/ 'to be thirsty'
Imã khôrô.
1_{dat} be.thirsty
'I am thirsty.'

d. /án/ 'to find tasty'
Imã ngô thyk táne.
1_{dat} coffee find.tasty
'I find coffee tasty.'

e. /ymba/ 'to fear'
Imã rop wymba.
1_{dat} jaguar fear
'I fear jaguars.'

Though these are not the only verbs that don't have distinct embedded and main forms, the fact that the entire class of dative experiencer verbs is made up of verbs with a single form is straightforwardly accounted for under the hypothesis that this class of verbs always occur in embedded clauses.

1.5 Conclusion

To the extent that the account of case in Kĩsêdjê developed in this chapter is successful, it constitutes evidence for an idea the rest of this thesis relies on: finite clauses in Kĩsêdjê are headed by a flavor of Infl with modal semantics —*the modal particles*— and this category has the expected Infl property of licensing nominative case on the highest argument of the clause it heads. This simple

mechanism extends beyond the core scenarios into more complex scenarios where different links of an NP chain are assigned different cases. In the next chapter I look at other properties of Kĩsêdjê's modal INFL in search of evidence to help me detect the structure of the clause in this language.

Chapter 2

The structure of the Kĩsêdjê clause

Understanding how under-described languages structure their clauses is important in itself, in that it is bound to provide novel evidence in light of which to reevaluate our ideas on how the world's languages structure their clauses. That was not, however, the only reason why I wrote this chapter. In the context of this thesis, a working understanding of Kĩsêdjê's clause structure constitutes a necessary foundation, not only for the ideas developed in the next chapters, but even for the ideas developed in the previous one (since I have already had to issue a few promissory notes regarding the structure of the Kĩsêdjê clause).

From the next chapter on I will be investigating a number of clause-combining phenomena from a number of different perspectives. In chapter 3, I will be looking at a construction called *clause chaining*, only to argue that it isn't a *sui generis* construction, as thought before, but rather a garden variety instance of coordination. In the final chapter of this dissertation, chapter 6, I will be exploiting richer morphology found in this kind of coordination to support a universal proposal about the structure of coordination. The richer morphology I will be exploiting is *switch-reference marking*. Between chapter 3 and chapter 6, I will be building knowledge of the structure of *switch-reference marking*: in chapter 4 I will inquire into the featural composition of switch-reference marking morphemes (by studying a deletion process that targets these morphemes), and in chapter 5 I will make specific proposals about the syntactic processes which put these features together and the binding relations these features trigger.

Very often, my results draw strongly from Kĩsêdjê. The reason is simple: for Kĩsêdjê, after the current chapter, I will be able to tell, with a reasonable degree of confidence, the size of the clausal constituent involved in these constructions. Wherever the relevant data was available, I tried to extend the results to other languages that also featured the same kinds of construction.

2.1 Introduction

Given the standard assumption that vP is dominated by IP and that IP is dominated by CP, the single most informative landmark to establish the size of a clause is Infl. If a clausal constituent doesn't include that category but includes a subject, it must be a vP. If it includes that category and no extra functional categories, it must be an IP. If it includes that category and further functional categories, it must be a CP.

The scenario gets more complicated once we start considering the possibility of null functional heads. I will adopt the assumption that, in the absence of strong and clear evidence, functional projections are simply absent. Null heads are not only a methodological problem, they are also difficult for an infant to acquire. Note that by adopting this assumption I am not challenging

Cinque (1999) and related work. Cinque argues for a hierarchy that corresponds empirically either to the existence of ordered and overt functional heads or ordered and overt AdvPs that occupy the specifier position of null functional heads. This kind of evidence is arguably sufficient for purposes of language acquisition.

Unlike English, Kĩsêdjê doesn't mark its clauses for tense —(62). If we assumed that tense-marking is a necessary characteristic of INFL, we would be forced to conclude that Kĩsêdjê's INFL head is always null, thereby giving up any hopes of distinguishing clausal constituents of different sizes. Rather than making that assumption, which at the very least is inconsistent with the model of acquisition I support, I will adopt Ritter and Wiltschko's (2008) suggestion that different languages can have their clauses headed by elements expressing semantic categories other than Tense. That is to say, $\text{INFL}_{\text{tense}}$ is just one of the possibilities.

(62) Kĩsêdjê doesn't mark its clauses for tense
[∅] Pasi=ra thẽ.
FACT P.=NOM go
'P. is gone/going'

I have already introduced Kĩsêdjê's modal particles in the previous chapter. These particles are in complementary distribution with each other and occur exclusively and obligatorily in finite clauses. In the previous chapter we have already seen that the modal particles are correlated with nominative case assignment. These seem to be the kind of syntactic traits we expect from the element that heads finite clauses. These Kĩsêdjê particles don't carry tense semantics, though: they have a modal meaning. Given the possibility open by Ritter and Wiltschko's (2008) suggestion, I will pursue the hypothesis that these modal particles actually instantiate INFL in Kĩsêdjê.

Table 2.1 lists the different values of the Kĩsêdjê modal particle, some of which select for a specifier that receives specific semantics. In (63) you find example sentences containing each of these particles. It might seem surprising that the specifier position of INFL isn't a position reserved for displaced arguments. Bear with me. I will soon provide arguments for that claim.

form	meaning	specifier
man	witnessed	*no specifier*
hẽn/=n(a)/∅	factual non-future	subject/topic/focus
waj	inferential non-future	*no specifier*
arân	counterfactual	c/factual restriction
kê/∅	factual future	*no specifier*
kôt	inferential future	focus

Table 2.1: Modal particles

(63) The modal particles
a. man 'witnessed'
[Man] ngô thyk=ta ta.
WIT coffee=NOM stand
'There is coffee (in the thermos).'

b. hẽn/=(n)a 'factual non-future'
Ngaj =[na] ngô thyk nhihwêrê.
N. =FACT coffee make
'It is N. who makes/made the coffee.'

c. waj 'inferential non-future'
Waj ngô thyk=ta ta.
INF coffee=NOM stand
'There must be coffee (left).'

d. arân 'counterfactual'
Ngô thyk =arân wa ∅-tho.ikhõ.
coffee =COUNT 1_{nom} 3_{abs}-drink
'If there were coffee I would drink it.'

e. kê 'factual future'
Kê ngô thyk=ta ta.
FACT.FUT coffee=NOM stand
'There will be coffee.'

f. kôt 'inferential future'
Nhũm =kôt ngô thyk nhihwêrê?
who =INF.FUT coffee make
'Who would make the coffee?'

Since in spite of their modal semantics the Kĩsêdjê modal particles have the *syntactic* properties traditionally attributed to the category that heads finite clauses, I will pursue the hypothesis that they are a language-specific instantiation of INFL. In section 2.2 I reiterate the importance of identifying the source of nominative case with INFL in languages that make such case distinctions (which is actually not the case with the languages Ritter and Wiltschko discuss). In section 2.3 I apply Ritter and Wiltschko's (2008) INFL diagnostics to Kĩsêdjê's modal particles (in order to argue that they are indeed heads rather than, say, adverbs), and in section 2.4 I relate the semantics of the modal particles to the generalized INFL semantics proposed by Ritter and Wiltschko (2008).

2.2 Modal particles license nominative

Ritter and Wiltschko (2008) identify common syntactic properties among English tense marking, Halkomelem location marking and Blackfoot person marking that they argue indicate their common status as INFL. In section 2.3 I will show that Kĩsêdjê modal marking also instantiates those properties. Before I go there, though, I would like to revisit an observation discussed in the last chapter, namely, the fact that Kĩsêdjê modal marking head has the property usually attributed to INFL of licensing nominative case.

The categories Ritter and Wiltschko (2010) identify as INFL in Halkomelem and Blackfoot don't have the property of assigning nominative case, which could be claimed to be evidence that those categories are *not* INFL. Ritter and Wiltschko respond to that obstacle with the claim that only $\text{INFL}_{\text{tense}}$ licenses nominative case, a state of affairs they argue follows straightforwardly from the combination of their own framework and the hypothesis, due to Pesetsky and Torrego (2001), that nominative case on nominals is an uninterpretable instance of a tense feature on INFL (even though Pesetsky and Torrego 2001 don't make attempts at generalizing their discussion beyond English).

If the claim that only $\text{INFL}_{\text{tense}}$ licenses nominative case is indeed true, the correlation between the Kĩsêdjê modal particles and nominative case licensing would be a mere coincidence. Kĩsêdjê is not the only language where that correlation holds, though: Aissen (1992), for instance, presents an account of case in three Mayan languages where nominative licensing is correlated to the presence of *aspectual inflection*.

Note that in Halkomelem and Blackfoot nominals don't seem to bear case distictions at all. Ritter and Wiltschko point out that case distinctions in those languages are not only absent at the morphological level, there also don't seem to be any processes or restrictions that can could be linked to an underlying case distinction.

In order to be able to explain the correlation found in English, Kĩsêdjê and Mayan between INFL and nominative case licensing, while still leaving room for languages like Halkomelem and Blackfoot, which don't seem to make case distinctions at all, I propose that there are languages where the case filter holds and languages where it doesn't hold. Among the former are English, Kĩsêdjê and Mayan languages and among the latter are Halkomelem and Blackfoot. In languages where the case filter holds, INFL is the licensor of nominative case.

2.3 The properties Ritter and Wiltschko (2008) attribute to INFL

Some of the INFL properties discussed by Ritter and Wiltschko (2008) are general properties of functional categories, that is, properties that distinguish functional categories from lexical modifiers such as clausal adjuncts. I will begin this section by showing that Kĩsêdjê modal particles have two properties that characterize functional categories, and then move on to one INFL property proper. Ritter and Wiltschko propose more than only these three properties. These, however, are the only ones that could be conclusively tested in Kĩsêdjê.

Functional head property 1: Functional heads can occur only once in a given domain, whereas lexical modifiers aren't thus restricted.

English allows multiple adverbial modifiers to pleonastically express past tense, as can be seen in (64) below. The same isn't true of multiple tense inflexion (65). That is due to the fact that inflection, as a functional category, is instantiated in a single well-defined position in the structure of the clause.

(64) Multiple adverbial modifiers expressing past tense
He cut paper squares months ago in the last winter.

(65) Multiple past-tense denoting inflection is ungrammatical
*He didn't did it.

Kĩsêdjê's modal particles occur only once per finite clause, besides being in complementary distribution with each other. That is to say, they have *Property 1.* Below I try to come up with a context in which it would be plausible to use two different modal particles in the same finite clause, and then note that the resulting sentence is ungrammatical.

First note that dislocation is obligatory in factual questions, the wh-word being dislocated to the left of the factual particle (to a position I argue is the specifier of the particle) —(66) is a question inflected as factual. Now look at a conterfactual question with similar content (67). In contrast to the factual question in (66), in a counterfactual question the wh-word stays in situ. We certainly can't move the wh-word to the already occupied specifier position of the counterfactual particle (the specifier of the particle is taken by the restriction of the counterfactual), but we also can't add a modal particle *hẽn/n(a)*, implementing wh-word dislocation —see (68). That is due to these particles competing for the same position, namely, INFL.

(66) **Wh-word** dislocation is obligatory when a sentence includes a factual particle

a. **Nhum** =na ka amne tho thẽ?
who =FACT 2_{nom} to.here 3_{abs}.bring
'Who did you bring here?'

b. *Hẽn ka amne **nhum** ndo thẽ?
FACT 2_{nom} to.here who bring
'Who did you bring here?'

(67) In-situ wh-questions in sentences with a counterfactual modal
[Mẽ thõ =ra hwĩká mã mbet] arân ka amne **nhum** ndo thẽ?
[person a =ERG vehicle fix] COUNT 2_{nom} to.here who bring
'If someone had fixed the car, who would you have brought here?'

(68) Impossible to implement wh-word dislocation in counterfactuals

*[Mẽ thõ =ra hwĩká mã mbet] arân (ka)[1] **nhum** =na (ka)[1] tho thẽ?
[person a =ERG vehicle fix] COUNT (2_{nom}) who =FACT (2_{nom}) 3_{abs}.bring
↑ * ↑

'If someone had fixed the car, who would you have brought?

There could be an alternative explanation to the ungrammaticality of (68), namely, the possibility that it is unacceptable to embed a word with factual meaning in a counterfactual environment. This alternative explanation is straightforward to discard.[2] It is simply not true that you can't embed a word with factual meaning inside a counterfactual environment. Check the English example (69-a) and the Kĩsêdjê example (69-b) below, where factual-meaning adverbs are used in counterfactuals.

(69) Factual adverb embedded in counterfactual environment

a. If he were a doctor, he would **actually** know what to do now.

b. [Kupyt=te s-õ si kakôrô] =arân ka **wi** ngõrõ.
[K.=ERG 3_{abs}-POSS instrument $play_{emb}$] =COUNT 2_{nom} actually sleep
'If K. were playing his flute you would actually be sleeping.'

Wh-words stay in-situ in counterfactual questions in Kĩsêdjê for the same reason why double tense is banned in English, namely, because each clause hosts a unique INFL head: in English that head marks tense, in Kĩsêdjê that head marks modality (and so there can't be a dislocation-implementing factual particle in a sentence that already includes a counterfactual particle).

Functional head property 2: Only functional heads, but not lexical modifiers, can have null allomorphs.

Though a number of linguistic analyzes have recourse to null lexical modifiers, such words pose a challenge for acquisition. If null lexical modifiers are possible, for every sentence an infant comes across, they have to ask themselves whether it contains one or more of them. Null functional heads, on the other hand, are easier to detect, as long as they form part of a paradigm with overt counterparts. Since functional heads are obligatory in their domains, an infant can automatically assume, in the absence of an overt value, that the domain contains a null version of that head. Though such difficulty by itself doesn't constitute a final argument against the existence of null lexical modifiers, it certainly indicates that their existence should be considered fragile, and that learner-triggered change could more often than not have the effect of weeding null lexical modifiers out of languages.

Be that as it may, Kĩsêdjê's modal particles have *Property 2*: the modal particle *kê* is null when the subject is 1st or 2nd person (70-a) and optionally null otherwise (70-b). The modal particle *hẽn* is optionally null with third person subjects (71-a) and obligatory otherwise (71-b).

(70) *Kê*'s null allomorph

a. {∅/*Kê} wa khu-ku.
FACT.FUT 1_{nom} 3_{acc}-eat
'I will eat it.'

b. (Kê) ∅ khu-ku.
FACT.FUT 3_{nom} 3_{acc}-eat
'He/she will eat it.'

[1]Nominative pronouns immediately follow modal particles. Other orders tend to result in ungrammaticality. In order to exclude the possibility that it is this factor that makes this example ungrammatical, I had indicated that it remains ungrammatical even when a copy of the nominative pronominal subject follows every modal particle. Nor can a requirement that the subject be instantiated only once be called upon. As we saw in chapter 1, Kĩsêdjê is very liberal when it comes to instancing an argument multiple times.

[2]I have already approached this issue in footnote 6 and what I am now presenting is a variant of the same argument.

(71) *Hẽn*'s null allomorph

a. (Hẽn) ∅ khu-ku.
FACT 3_{nom} 3_{acc}-eat
'He/she ate it'

b. *(Hẽn) wa khu-ku.
FACT 1_{nom} 3_{acc}-eat
'I ate it.'

Ritter and Wiltschko argue that any functional heads would pass those two tests. In order to ascertain that a functional head so diagnosed is indeed INFL, as opposed to, say, VOICE or C, we have to further show that it has specific INFL-like syntactic properties. In chapter 1 I showed that modal particles are correlated with nominative licensing, a property usually ascribed to INFL. Below I apply a test proposed by Ritter and Wiltschko based on another such property, namely, I test for the local relationship INFL entertains with C.

INFL property If a functional head instantiates INFL, it is c-selected by C. We expect a functional head that instantiates INFL to be obligatory in certain kinds of clauses and absent from others, possibly coming in different flavors selected by different types of C.

As already discussed in section 1.3, modal particles are absent from embedded clauses (i.e. in Kĩsêdjê embedded clauses are all non-finite) —see (72). In finite main clauses, with one exception to be treated below, use of a modal particle is obligatory (73).

(72) No modal particles in Embedded clauses
Hẽn wa [(*kôt) a-thẽm] mba.
FACT 1_{nom} [(*INF.FUT) 2_{abs}-$fall_{emb}$] know
'I know you (*may) fall.'

(73) Obligatory modal particle in main clauses
*(Kôt) ka thãmã.
*(INF.FUT) 2_{nom} fall
'You may fall.'

In principle modal particles would appear to be absent from imperative sentences (74). However, imperative sentences mark their arguments as nominative-accusative. In order to maintain the case theory developed in chapter 1, in which modal particles are nominative licensors, I need to assume that modal particles *are* present in imperative clauses. Assuming that C is the locus of illocutionary force, imperative clauses contain null INFL because that is a selectional requirement imposed by imperative C on its complement.

(74) No overt modal particles in imperatives
(*Kê) (ka) rik khu-ku!
(*FACT.FUT) (2_{nom}) quick 3_{acc}-eat
'Eat it (quickly)!'

Though Ritter and Wiltschko's (2008) diagnostics don't necessarily constitute conclusive evidence that an element instantiates INFL, they are good indications of it. At the end of the day, I believe a clear correlation with nominative case licensing (as discussed in section 2.2) makes a stronger case for the status of a head as INFL (at least in languages which make case distinctions). Since besides Ritter and Wiltschko's properties Kĩsêdjê's modal particles are also involved in nominative case licensing, I assume that they instantiate INFL in this language.

Note that in Ritter and Wiltschko's (2008) framework there is no constituent labeled TP. Occupying its place is the more general and meaning neutral IP. In some languages the substantive

content of INFL is Tense; in others, like Kĩsêdjê, it is modality. I will use the presence of modal particles/INFL as an indication that a clausal constituent is equal or larger than IP and their absence as an indication that a clausal constituent is smaller than IP.

2.4 The Semantics of INFL

Ritter and Wiltschko propose that INFL has the generalized semantics of anchoring the clause to the utterance situation.[3] Whereas in English anchoring is in terms of *time*, it is in terms of *location* in Halkomelem (Salish), and in terms of *participant* in Blackfoot (Algonquian).

Within that framework, past and present tense in English translate respectively into the relations $t_{utt} > t_{ref}$ and $t_{utt} = t_{ref}$, that is, past tense inflection states that the time of the utterance situation is posterior to the reference time, and present tense means that the time of the utterance situation is the same as the reference time. In Halkomelem, $\text{INFL}_{\text{location}}$ is either distal or proximal. Distal would translate into the relation $l_{utt} \neq l_{rep}$ and proximal into the relation $l_{utt} = l_{rep}$, that is, distal means that the location of the utterance situation is different than the location of the reported situation, and proximal means that the location of the utterance situation is the same as the location of the reported situation. The relation established by $\text{INFL}_{\text{participant}}$ in Blackfoot is more elaborated than those established by $\text{INFL}_{\text{tense}}$ and $\text{INFL}_{\text{location}}$ and for its characterization I refer the reader to the original paper.

Kĩsêdjê's modal particles can be described as anchoring the clause to the utterance situation in terms of *worlds*. Given the framework proposed by Ritter and Wiltschko, I argue that the modal particles constitute the different values of INFL in Kĩsêdjê.[4] The set of Kĩsêdjê *modal particles*, their meaning, and the meaning each of them attributes to its specifier were listed in table 2.1, with some examples of the use of each modal particle given in (63).

Though I can't fully specify the denotation of the Kĩsêdjê modal particles, some general considerations are in order to show that their meaning falls under the general definition of INFL proposed by Ritter and Wiltschko (2008). The cursory notes I make in the following paragraphs are unfortunately all I dare say about the semantics of the Kĩsêdjê modal particles. I can't be sure to have fully grasp their meaning.

The Kĩsêdjê modal particles can be modeled as establishing a relation between the world in which a clause is evaluated and the world of the utterance situation. They can be divided into three groups: there are two factual particles, two inferential particles and one counterfactual particle. One of the factual particles marks future events, while the other marks non-future events. The same contrast exists between the two inferential particles. The lonesome courterfactual particle is employed in future and non-future contexts alike.

The semantic entry of the factual particles *hẽn* (non-future) and *kê* (future) must include the relation $w_{eval} = w_{utt}$; that of the inferential particles *waj* (non-future) and *kôt* (future) the relation w_{eval} *is epistemically accessible from* w_{utt}; and that of the counterfactual particle *arân* the relation $w_{eval} \neq w_{utt}$. A treatment of the future/non-future contrast in terms of worlds can proceed along the general lines of the system proposed by Abusch (1985). She argues that the English auxiliaries

[3] They actually propose that INFL anchors the *reported situation* to the utterance situation, but that can't be true for languages where INFL does its anchoring in terms of time, like English. In those languages, INFL clearly doesn't relate the time of the reported situation to the time of the utterance situation, but rather the *reference* time to the time of the utterance situation.

[4] In a later work (2010), Ritter and Wiltschko attribute to *C* the role of anchoring the clause to the utterance situation in terms of worlds. Given their original definition of INFL from the 2008 paper, though, it doesn't seem to me that there is a principled way to exclude world-anchoring INFL.

will/would, rather than being tense markers, are manifestations of the modal "*woll*". This modal combines with past/non-past tense to give rises to the surface morphological forms *will/would*.

If those considerations are on the right track, the meaning of the Kĩsêdjê modal particles makes them good candidates for INFL within Ritter and Wiltschko's (2008) framework. More important, though, than establishing that these particles have such semantics is to confirm that they have the right kind of syntactic properties, which is what I did in the two previous sections and in chapter 1.

2.5 Subjects in Kĩsêdjê stay in situ

Though Kĩsêdjê is generally head-last, the directionality parameter inverts at the INFL level, with INFL (the modal particle) sitting to the left of its complement vP.[5] This makes linear evidence about the position of the subject available: in Kĩsêdjê subjects are located to the right of INFL and to the left of the VP (object plus verb), and therefore must be in situ inside the vP. The position to the *left* of INFL, which I take to be its specifier, is reserved for focus —if INFL is factual (75-a) or inferential future (75-b)—, and for counterfactual restrictions —if INFL is counterfactual (75-c). Other modal particles don't take a constituent to their left, that is to say, they don't take a specifier, as indicated in table 2.1.

(75) Kĩsêdjê's [Spec, IP] isn't occupied by the **subject**

a. [Hwĩkhá ndêkrêt] =na **ku** s -ariri.
[car part] =FACT $1{+}2_{nom}$ 3_{abs}-wait
'It is the car part we are waiting for.'

b. [Nhy hwĩkhá] =kôt **wa** ∅ -tho thẽ?
[which car] =INF.FUT 1_{nom} 3_{abs}-with go
'What car would I take?'

c. [Kôre anhi nharẽn$_{emb}$ khêt] =arân **wa** i-thẽm$_{emb}$ khêrê.
[3_{erg} self tell not] =COUNTER 1_{nom} 1_{abs}-go not
'Had he not told his deeds I wouldn't have come.'

From a textbook-centric point of view, it might seem unexpected to claim that [Spec, IP] is a position with semantic and selectional characteristics. This has been claimed for a number of languages, though. Aissen (1992) argues, based on intonational phenomena, that in the Mayan languages Tzotzil, Jakaltek and Tz'utujil [Spec, IP] is also the position focused constituent move into. [Spec, IP] has also been claimed to be a focus position for a number of European languages: Spanish (Uribe-Etxebarria, 1991; Zubizarreta, 1998), Catalan (Bonet, 1990; Vallduví, 1990; Solà, 1992), Romanian (Dobrovie-Sorin, 1994) and Yiddish (Diesing, 1990).

The argument that subjects in Kĩsêdjê are in-situ in [Spec, vP] because they are to the right of INFL and to the left of VP only remains sound if evidence can be provided that INFL stays in situ in Kĩsêdjê, that is to say, that it doesn't adjoin to C. If I don't control for this factor, the position of the subject to the right of INFL could also compatible with a derivation where subjects move out of their vP-internal position into [Spec, IP], with INFL subsequently moving to adjoin to C. Below I show evidence that I-to-C movement doesn't happen in Kĩsêdjê.

[5] Since this change in head directionality is from head-final to head-initial, and taking C also to be to the left of its complement (see chapter 5), Kĩsêdjê complies with the FOFC (final-over-final constraint, see Biberauer, Holmberg, and Roberts 2008).

Kĩsêdjê doesn't allow multiple questions in simple clauses (76).[6] We can explain this by having resource to the standard assumption that question force originates in C, with C in Kĩsêdjê bearing at most *one* wh-feature. That feature can't, however, be what triggers movement in sentences like (77), though, or we would expect every wh-question to feature movement, which is simply not the case in Kĩsêdjê. Wh-dislocation obtains in (77) because factual INFL triggers movement of focused constituent to [Spec, IP]. When the INFL particle heading a wh-question sentence is the counterfactual *arân*, on the other hand, no movement obtains —see (78).

(76) No multiple questions in Kĩsêdjê

a. *Nhũm =na wâtâ pĩ?
who =FACT what kill

b. *Nhũm =na wâtâ =n khu-pĩ?
who =FACT what =FACT 3_{acc}-kill

c. *Nhũm wâtâ =n khu-pĩ?
who what =FACT 3_{acc}-kill
'Who killed what?'

(77) Obligatory movement in sentences with focus-taking INFL
Nhũm mã *(=n) s-ámbra thẽ?
who to *(=FACT) 3_{abs}-$shout_{emb}$ go
'Who is/was he shouting to?'

(78) Counterfactual questions are asked with wh-word in situ.
Wipãn =arân nhum mã s-ámbra tẽ?
$be.drunk_{emb}$ =COUNT who to 3_{abs}-$shout_{emb}$ go
'If he were drunk, who would he be shouting to?'

Since the counterfactual question (78) must have the same wh-feature bearing C as the factual questions (77), dislocation of the wh-constituent in the factual question must be triggered by something else than C. Arguably, the movement seen in (76) is triggered by an EPP-marked focus feature on the factual INFL head *na*. A focus feature can drive movement of wh-constituents because wh-constituents are under contrastive focus. There is no dislocation in counterfactual questions because the counterfactual INFL particle *arân* doesn't have an EPP-marked focus feature.[7]

If the wh-constituent to the left of the factual inflectional particle *=n* in (77) has been moved to this position due to a requirement of the very inflectional particle, that position must be [Spec, IP] rather than [Spec, CP].

We could also account for these facts in a system that featured I-to-C movement provided we allowed INFL's EPP-marked focus feature to remain unsatisfied until I-to-C occurred, after which INFL would percolate its focus feature up to C. Since this system would need extra assumptions and doesn't seem to cover more empirical ground, it should be dispreferred.

There is a second piece of evidence that INFL stays in situ in Kĩsêdjê. Example (79) features coordination of two clauses, each with its own inflection (modal particle). Note that the subject of each conjunct is focused and therefore dislocated to the focus position to the left of INFL, a position I argue is [Spec, IP]. I had to employ this kind of structure at elicitation time to make sure I would get coordination of inflected clauses. Since main-clause C is null in Kĩsêdjê, sentences like (79) could be IP coordination or CP coordination, with different predictions. Remember that Kĩsêdjê

[6] Other languages that have been claimed not to allow multiple questions are Italian and Irish.

[7] As previously stated, the specifier of the counterfactual inflection particle is the position that hosts the restriction of the counterfactual.

allows only one question per CP. If coordination of inflected clauses like (79) is CP coordination, each conjunct can bear its own question word. If coordination of inflected clauses like (79) is IP coordination (dominated by a single CP layer), among the two conjunct there can be only one question word.

(79) Coordination of inflected clauses
[Khupyt =na itha pĩ] [=nhy Nuki =n itha pĩ.]
[K. =FACT this kill] [=DS N. =FACT this kill]
'It was K. that killed this one and then Nuki killed that one.'

As we see in (80), Kĩsêdjê doesn't allow each inflected conjunct to bear its own question word. Ergo, coordination of inflected clauses like (79) must be coordination of IPs under a single CP layer. That implies that the INFL head in each conjunct is in situ (both INFL heads can't move to adjoin to a single C head). If INFL is in situ in coordination, it is arguably also in situ in main clauses.

(80) Kĩsêdjê doesn't allow one question per inflected clause
*[Wâtâ =n ∅ khu-py] [=n nhum mã =n ∅ khu-ngõ.]?
[what =FACT 3_{nom} 3_{acc}-get] [=SS who to =FACT 3_{nom} 3_{acc}-give]
'Who caught it and who did he give it to?'

Note that the ungrammaticality of (80) can't be due to the lack of focus sites for the wh-words. As we see in (79), each inflected conjunct has its own focus position.

As a last point: coordination of CPs does exist in Kĩsêdjê, in which case one wh-question is allowed in each clause —(81). What makes it clear that cases like (81) are CP coordination is the fact that they display different morphology than IP or vP coordination, namely, in CP coordination there is no contrastive switch-reference marking. I will talk more about the kind of coordination that doesn't mark switch-reference (symmetric coordination) in chapter 6.

(81) CP coordination in Kĩsêdjê has different morphology
[Wâtâ =n ∅ khu-py] [nenhy nhum mã =n ∅ khu-ngõ.]?
[what =FACT 3_{nom} 3_{acc}-get] [and who to =FACT 3_{nom} 3_{acc}-give]
'Who caught it and who did he give it to?'

2.6 What you have to remember from this chapter

This chapter was meant to complement the discussion begun in chapter 1. The landmark knowledge we got from finding out the category that corresponds to INFL in Kĩsêdjê will allow us to proceed, in the next chapter, to argue that the construction that has been labeled as clause chaining is a variety of asymmetric clausal coordination. That is not so clear *prima facie* due to some particular confound-generating properties found in precisely the languages in which asymmetric clausal coordination has been called clause chaining. The main points built to this point were 1) Kĩsêdjê's modal particles instantiate INFL, 2) Kĩsêdjê's embedded clauses are non-finite (i.e. don't contain INFL/Modal Particles) and 3) Subjects don't move to [Spec, IP] in Kĩsêdjê (unless they are focused).

Chapter 3

Clause chaining is asymmetric coordination*

A wealth of work in functional-typological linguistics posits a *sui generis* construction called "clause chaining" (or *clause sequencing*), attributing various specific properties to it (see Dooley, 2010a,b and the works cited therein). This construction has been a pebble in the shoe of fieldwork linguists for quite a while. To quote Ken Hale:

> "For as long as I can remember, there has been debate concerning the structural relations involved in clause sequencing. The debate centers around the question of whether the relation is one of asymmetrical dependency, as implied by the adjunction theory of the structure, or coordination ..." (Hale, 1992, p. 70)

In this chapter I argue that clause chaining doesn't exist as a construction of its own. Once a few independent language-specific properties are factored out, the construction is indistinguishable from asymmetric vP coordination (Postal, 1998; Culicover and Jackendoff, 1997; Bjorkman, 2011). In my argument I have recourse to data from Kĩsêdjê, supplemented with data from Mbyá (Guarani, South America, Dooley 2010b), Kanite (Trans New Guinea, Papua New Guinea, McCarthy 1965), Amele (Trans New Guinea, Papua New Guinea, Roberts 1988), Pima (Uzo-Aztecan, Arizona, Langdon and Munro 1979), Gungbe (Niger-Congo, Benin, Aboh 2009), Choctaw (Muskogean, Broadwell 1997) and Supyre (Niger-Congo, Mali, Carlson 1987)

The interest in dispensing with the special notion of *clause-chaining* doesn't stem only from Occam's Razor. The richer morphology found in the type of coordination that has been identified as clause chaining constitutes a valuable new source of data for understanding the nature of clausal coordination. Clausal coordination and, in particular, the difference between symmetric and asymmetric clausal coordination is far from well-understood (see Culicover and Jackendoff, 1997; Postal, 1998; Progovac, 1998a,b; Bjorkman, 2011). In chapter 6, I exploit the novel data identified in the present chapter to argue that symmetric and asymmetric coordination have different structures.

3.1 Introduction

This chapter is organized in the following fashion: in section 3.2 I exemplify the clause chaining properties identified by Dooley (2010a,b) with sentences from Kĩsêdjê and some other languages. At the end of that section, I give two arguments that clause chaining is vP-coordination: in section 3.2.1

*Parts of this chapter were presented at NELS 42.

I show that the clause chaining property of *operator dependence* is best explained if clause chaining is a *vP-combining* construction and in section 3.2.2 I argue that chaining markers are coordinating conjunctions rather than, as commonly thought, verbal inflection. My argument is based on data from non-verb-last chaining languages, where chaining markers appear unambiguously between clauses, in the precise position we would expect to find coordinating conjunctions.

Finally, in section 3.3 I introduce the contrast between symmetric and asymmetric clausal coordination and argue that, once we factor out certain independent language-specific properties, clause chaining is indistinguishable from asymmetric vP coordination (see Postal, 1998, ch. 3). In particular, in section 3.3.1 I revisit the argument introduced in section 3.2.1 that the "operator dependence" property of clause chains is best explained if we characterize clause chaining as vP coordination, and further argue that clause chaining should be characterized as *asymmetric* coordination of *subject-in-situ vPs*.

The "operator dependence" property of clause chains stands for the fact that only one of the clauses in a chain looks fully inflected, the other clauses being, however, interpreted as if they bore identical inflection. This chaining property can be straightforwardly derived from a structure where a single IP dominates a coordination of vPs, as argued in section 3.2.1. In such structure, Infl scopes semantically over the whole coordinate complex, though phonologically it would seem to combine with only one of the peripheral clauses. This kind of structure also provide an explanation to the generalization that in inflection-initial languages the seemingly inflected clause is the first whereas in inflection-final languages the seemingly inflected clause is the last. Since chaining isn't restricted to same-subject clauses, though, it must be the case that the vP conjuncts in a chain include their subjects, that is, it must be the case that subjects can stay *in situ* inside the vP in chaining languages. Evidence that this is the case in Kĩsêdjê was presented in section 2.5. In this chapter I propose that the same is true of the other languages where asymmetric coordination has been labeled clause chaining.

My argument is based on the generalization that most of the chaining languages are inflection-final. In light of my proposal that clause chaining is asymmetric coordination of subject-in-situ clauses, I can derive this typological generalization from the hypothesis that subjects stay in situ in inflection-final languages more commonly than they do in inflection-initial languages.

This hypothesis is unfortunately not easy to demonstrate (or discard) through a simple typological study. In inflection-initial languages like Kĩsêdjê and English it is possible to tell the position of the subject from its linear position (in situ subjects are to the right of Infl and dislocated subjects are to the left of Infl, assuming, as usual, that specifiers of functional heads[1] are never pronounced to their right). This strong kind of evidence is *not* available in inflection-final languages. To tell the position of the subject in the latter languages it is necessary to employ subtler evidence, such as the semantic scope of sentential and DP-level operators. Miyagawa (2001) looks at this kind of evidence in Japanese, concluding that subjects aren't always required to move out of the vP in this inflection-final language.

In section 3.3.1 I argue that the type of movement operation that can target subjects in Japanese is the only kind of movement operation that can target subjects in inflection-final languages at all, deriving that as a consequence of Richards's (2011) movement theory.

Language acquisition provides another argument that subjects stay in situ in inflection-final languages: if the default for a child acquiring language is to assume non-movement, the very fact that subject movement to [Spec, IP] in inflection-final languages is harder to detect predicts that children acquiring these languages will model them as subject-in-situ.[2]

[1] Infl, Asp, C, and so on

[2] I thank David Pesetsky for making me aware of this argument.

The final sections of this chapter complete the picture by looking at other kinds of coordination besides asymmetric vP coordination, and at how they are instantiated in languages where chaining has been identified. In section 3.4 I look at IP-combining constructions. These constructions don't comply with all of the properties described in Dooley (2010a,b). Not surprisingly, the properties such IP-combining constructions lack with respect to vP-combining clause-chaining are the same properties IP coordination lacks with respect to vP coordination. Lastly, section 3.5 looks at *symmetric* coordination in chaining languages and section 3.6 summarizes the main results of the chapter.

3.2 Clause chaining

According to Dooley (2010a), the prototypical clause chaining construction has properties (A)–(C). Dooley (2010b) gives evidence that amounts to property (D). I will take these properties for a diagnostics and proceed to identify a clause chaining construction in Kĩsêdjê. Note though that Dooley doesn't claim to propose a formal diagnostics: he is solely describing the prototype of a construction. My goal here is to factor that prototype into language-specific properties and properties of the construction proper, in hopes of demonstrating that clause chaining is asymmetric vP coordination as instantiated in subject-in-situ languages.

(82) Properties of Clause Chains (Dooley, 2010a,b)
- (A) Each clause is individually asserted and advances the timeline of the discourse;
- (B) Though only one peripheral clause is inflected, all other clauses are interpreted as if identically inflected, and *may* furthermore be marked for switch-reference;
- (C) The number of clauses in a chain isn't limited.
- (D) Constituents can be fronted in a non-ATB fashion from clause-chains.

Example (83) below exemplify properties (A), (B) and (D) of Kĩsêdjê clause chains. In what follows I will make reference to this example in the individual discussion of each of those properties.

(83) Example of chain in Kĩsêdjê (bracketing is provisory)
[**Wâtâ**$_i$=n ka ∅-khajtu] [=nhy ∅ Canarana mã thẽ] [=n ∅ a-mã
[what=FACT 2_{nom} 3_{acc}-order] [=and.DS 3_{nom} Canarana to go] [=and.SS 3_{nom} 2_{acc}-to
khu$_i$-py] ?
3_{acc}-get] ?
'What$_i$ is such that you gave him orders, he went to Canarana, and bought it$_i$ for you?'[3]

[3]The most common way to express the same question in English would be 'What did you order him to go to Canarana to buy?' In Kĩsêdjê, though, purpose clauses tend to only be used when the truth value of the dependent clauses isn't known, or is known to be false, such as in (i) under the scenario in which the speaker knows Ngajtxi didn't do her reading assignment.

(i) A purpose clause in Kĩsêdjê
Jaká=ra [hwĩsôsôk=∅ j-arẽn] mã Ngajtxi=∅ kajtu.
J.=NOM [paper=ABS LNK-say_{emb}] to N.=ACC order
'J. ordered N. to read.'

(A) Each clause is individually asserted and advances the timeline of the discourse.

The first part of this property –*each clause is individually asserted*— stands for the fact no clause in a chain merely serves as the presupposition for another. In order to understand what the difference is, compare (84) —a simplified version of (83)— with (85) —a subordinated counterpart of (84). The when-clause of (85) is presupposed, as can be diagnosed from the fact that it is taken to be true even if the sentence is negated (86). On the other hand, if (84) is negated, as in (87), the first conjunct is just not taken to be true anymore.[4]

(84) I gave him orders and he went to Canarana.

(85) When I gave him orders he went to Canarana.

(86) It is not true that when I gave him orders he went to Canarana
... * because I didn't give him orders.

(87) It is not true that I gave him orders and he went to Canarana
... because I didn't give him orders.

The second part of property (A) —*each clause advances the timeline of the discourse*— stands for the fact that in clause chains each clause is iconically interpreted with respect to the following clause, mostly as preceding it temporally, but sometimes also causally, as is the case for instance between the first and second clauses in (83). In fact, though in Kĩsêdjê the precise relation between those clauses is left ambiguous, there are languages whose richer morphology will actually specify the relation that holds between adjacent clauses thus combined. See, for instance, the Kanite examples below (from McCarthy, 1965).

(88) Simultaneous Action
A-ke-**n**-o-ke-no ne?-v-i-e.
3-see-**simultaneous**-1s-DS-3s progressive-go-3s-indicative
'I was looking as he was going.'

(89) Consecutive Action
A-ke-**te**-?na u-kah-u-e.
3-see-**consecutive**-1s go-will-1s-indicative
'I will first look and then go.'

Even in languages where that specification is at its richest, though, the iconic relation between the clauses is kept, with the preceding sentence being interpreted as somehow prior to the following sentence, as we can understand from an examination of the set of *switch-reference* markers of Eastern Pomo (Pomoan, USA) in table 3.1 on page 49 (from Finer, 1985, p. 47).

[4]The semantics of (87) is actually not so simple. Negation could also be applied to the connective, which would have the effect of denying a connection between the giving of orders and the trip. This is interesting but possibly beside the point.

Table 3.1: SR Markers in Eastern Pomo

	Same Subject	*Different Subject*
Action of suffixed verb precedes in time that of main verb	-ly	-qan
Action of suffixed verb (i) explains, justifies that of main verb; (ii) is simultaneous with that of main verb	-in	-sa (only meaning (i))
Action of suffixed verb is prior to and a prerequisite for the realization of the action expressed by the main verb.	-p^{h}i	-p^{h}ila
Action of main verb continues over same period or begins with time specified by suffixed verb.	-baya	-iday

(B) Though only one peripheral clause is inflected, all other clauses are interpreted as if identically inflected, and may furthermore be marked for switch-reference.

All the clauses in the chain (83) are interpreted as factual (remember from chapter 2 that inflection in Kĩsêdjê has a modal meaning), even though only the first clause is explicitly marked with a factual particle (enclosed in a box). In a different example of chaining in Kĩsêdjê, (90) below, all the clauses are interpreted as *inferential future* even though, as in the previous example, only the first clause is explicitly marked with a modal particle (also enclosed in a box).

(90) Chain inflected as hypothetical future (bracketing is provisory)
[Kôt Hwajitxi=ra hwĩsôsôk to nhy] [=**nhy** Ajuwelu=ra hrõn=ne mbra.]
[INF.FUT H.=NOM paper with sit] [=and.DS A.=NOM run=and.SS stay]
'H. could be writing and then A. would be running.'

In Kĩsêdjê, as well as in the Kanite examples above, adjacent clauses are connected by morphology that indicates whether their subjects are the same SS (same subject) or different DS (different subject). Dooley (2010a) considers switch-reference marking to be an optional element of clause chaining, indicating Korean as an example of a language with chaining but no switch-reference marking. On the other hand, Hale (1992) presents some clear cases of *subordinated constructions* in Hopi (Uzo-Aztecan) that mark switch-reference (91). Since switch-reference marking is not a defining characteristic, nor an exclusive characteristic, of clause chaining, it can't be claimed to relevantly distinguish clause chaining from asymmetric vP coordination as instantiated in languages that don't mark switch-reference, as is the case with English.

(91) Switch-reference markers on clauses embedded as objects in Hopi
a. Nu' 'as [EC kweewa-t tu'i-ni-qa-**y**] naawakna.
I PRT [belt-ACC buy-FUT-NC-ACC:SS] want
'I want to buy a belt.'
b. Nu' ['i pava 'inu-ngam kweewa-t yuku-ni-qa-**t**] naawakna.
I [my bro me-for belt-ACC make-FUT-NC-ACC:DS] want
'I want my brother to make me a belt.'

(C) The number of clauses in a chain isn't limited.

Property (C) can only be inferred from the way long sequences of clauses are usually chained in discourse. An example of a 6-clause chain is given in (92).

(92) A chain of six clauses
[Akatxi khêt]$_1$ [=nhy Ø Ø-thok]$_2$ [=nhy aj Ø-thẽm]$_3$ [=ne Ø
[day not] [=and.DS 3$_{nom}$ 3$_{acc}$-wake.up] [=and.DS PL 3$_{abs}$-go$_{emb}$] [=and.SS 3$_{erg}$
thep jarit mã]$_4$ [=nhy Ø-khãm Ø-ngryk]$_5$ [=ne Ø Ø-thithiki.]$_6$
fish search$_{emb}$ PROSP] [=and.DS 3$_{abs}$-with 3$_{acc}$-be.angry] [=and.DS 3$_{nom}$ 3$_{acc}$-beat]
'It was before dawn and he$_i$ woke him$_j$ up and they$_{i+j}$ were to go and look for fish and he$_j$ became angry with him$_i$ and beat him$_i$.'

(D) Constituents can be fronted in a non-ATB fashion from clause-chains.

In (83) the fronted constituent is linked with a single gap in the last clause. Data on extraction from chains in other languages are rare in the literature, but where available seem to pattern with Kĩsêdjê. Below I provide an example from Mbyá (Guarani, Brazil, Dooley 2010b, p.105, ex.51) and an example from Choctaw (Muskogean, Broadwell 1997, p.11, ex.13).

(93) Non-ATB extraction from chain in Mbyá
Mava'e tu [nha-vaẽ ramo] [Ø nhane-mo-ngaru 'rã?]
who brusqueness [1+2-arrive and.DS] [3 1+2-CAUS-eat FUT]
'Who$_i$ is such that we arrive and he$_i$ will feed us?'

(94) Non-ATB extraction from chain in Choctaw
Katah-oosh$_i$ John-at taloowa-nah t$_i$ hilhah?
who-foc:nm John-nm sing:l-DS dance
'Who$_i$ is such that John$_j$ sang and t$_i$ danced?'

In section 3.3 I will define asymmetric vP coordination and show how, once you factor out a few confounds due to independent language-specific properties, clause chaining can be reduced to asymmetric vP coordination, that is, they have the same syntactic and semantic properties. Before going there, though, I intend to establish the following: chaining is a vP-combining construction (section 3.2.1) and chaining morphology is hosted by a coordinating complementizer, rather than being verbal inflection, as commonly thought (section 3.2.2).

3.2.1 Chaining is a vP-combining construction

Independently of whether clause chaining is coordination or a *sui generis* construction, property (B) can only be properly explained if we assume that chaining is an operation that combines clauses smaller than IP. For the sake of concreteness, I will assume that INFL immediately dominates vP, and therefore these clauses must be vPs. They also can't be smaller than that, because these clauses must include transitive subjects and subject-oriented adverbs.

I can think of two ways[5] of formalizing the first half of clause-chaining property (B) —*though only one peripheral clause is inflected, all other clauses are interpreted as if identically inflected.* I will go over one of those ways, argue against it, then go over the second way and accept it.

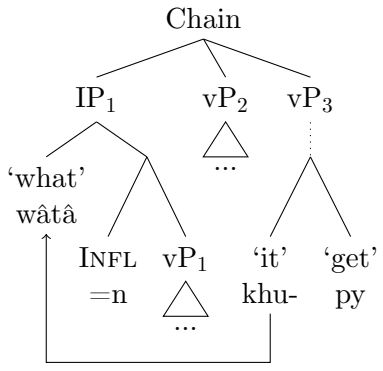
[5]There is actually a third way, which I don't discuss here: a proposal due to Sohn (1995) meant to account for a tense dependence in Korean chaining (which she correctly calls coordination). She proposes that in tense dependence situations non-final conjuncts are IPs headed by null anaphoric INFL heads. Such anaphoric heads would be coindexed with the next conjunct's INFL head, null or otherwise.

Chaining could be a construction where one IP is combined with one or more vPs, the INFL head from that IP taking scope over the vPs in the chaining construction by some special mechanism, say, for concreteness, by the same mechanism whereby main-clause INFL takes scope over embedded-clause INFL in dependent tense scenarios.

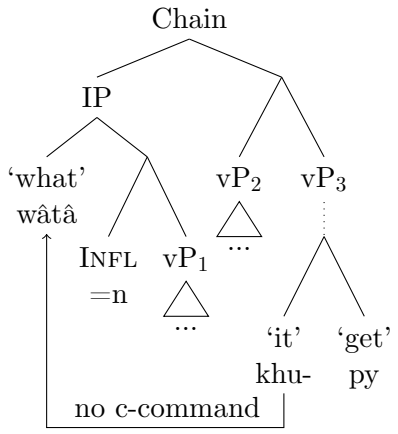
This is how I have originally bracketed (83) —repeated below as (95). Note that if we accept this IP-cum-vPs model, besides having to postulate a mechanism to make INFL scope out of the inflected clause into the uninflected clauses, we will also have to deal with a troublesome structural relation between the displaced phrase and the base argumental position it is associated with. The relation is troublesome in Kĩsêdjê because, as I argued in chapter 2, the position occupied by focused constituents is [Spec, IP]. In an IP-cum-vPs structure, this position doesn't c-command its associated argumental position, as illustrated in the representation of (83)/(95) given in (96). Though in (96)/(95) the IP is represented as symmetrically combining with the vPs, the problem of the landing site that doesn't c-command its extraction site would also obtain in an asymmetric representation (97).

(95) Example of chain in Kĩsêdjê (bracketing is provisory)
[**Wâtâ**$_i$=n ka ∅-khajtu] [=nhy ∅ Canarana mã thẽ] [=n ∅ a-mã
[what=FACT 2_{nom} 3_{acc}-order] [=and.DS 3_{nom} Canarana to go] [=and.SS 3_{nom} 2_{acc}-to
khu$_i$-py] ?
3_{acc}-get] ?
'What$_i$ is such that you gave him orders, he went to Canarana, and bought it$_i$ for you?'

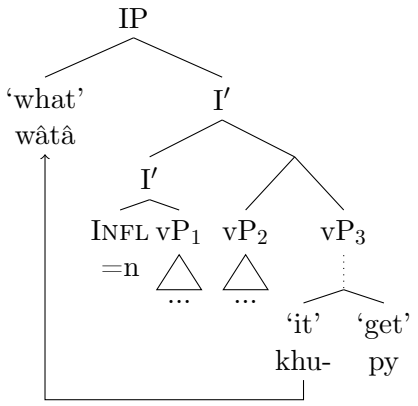
(96) IP-cum-vPs version 1



(97) IP-cum-vPs version 2



(98) IP-cum-vPs version 3



The only way to combine an IP with vPs so that the movement's landing site c-commands its extraction site is to have the vPs as adjuncts with attachment lower than [Spec, IP]. In (98), I have attached them to the IP itself, but attaching them anywhere lower would have solved the problem.

Chaining seems to be anything but adjunction, though. The clause chaining properties discussed above distinguish them from adjuncts, specially properties (A) —*clauses in a chain are asserted, not presupposed, and advance the timeline of the discourse*— and property (C) —*the number of clauses in a chain isn't limited.* Temporal adjuncts are often presupposed information (see discussion of property A above) and don't advance the timeline of the discourse —an adjunct can be following a clause but providing information about an event prior to it (99). Furthermore, adjunct clauses are limited in number (100)[6].

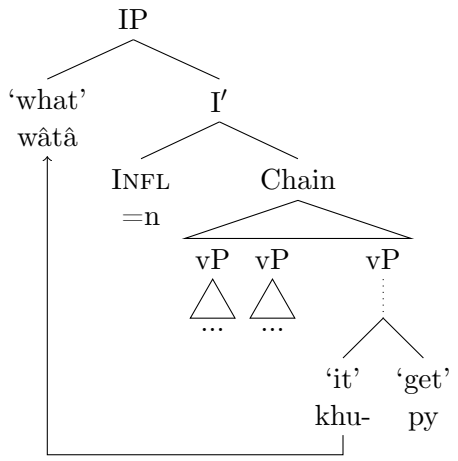
[6]Though maybe this issue is related to center embedding. Changing the complementizer in the embedded adverbial

(99) I took a shower after I shaved.

(100) *When when it rained I came to the department it was closed.

As an alternative to the IP-cum-vPs theory I propose that chaining is actually a vP-combining construction dominated by a single IP layer (101). This theory solves the problems observed with the IP-cum-vPs model. The fact that only one clause seems to be inflected in clause chains (property B) is straightforward to explain: since the single INFL head dominating the whole vP-combining construction is necessarily outside of it, it is going to appear either to its left or to its right, making it look like only the leftmost, or only the rightmost, clause of the vP-combination is inflected. Such a characterization also naturally accounts for *operator dependence*, the fact that a single INFL takes scope over the whole chain. Furthermore, this account avoids the issue of a landing site that doesn't c-command its extraction site: after INFL merges with the vP-combination, it c-commands the combination as well as anything inside of it, and so does its Specifier, the site where the dislocated constituent lands in Kĩsêdjê.

(101) Chaining as a vP-combining construction



A strong argument in favor of the latter model is the fact that it accounts for a robust correlation found in chaining languages between directionality of INFL and direction of operator dependence: in inflection-initial languages the single seemingly inflected clause in a clause chain is the initial one, whereas in inflection-final languages the single seemingly inflected clause in a chain is the final one (Dooley, 2010b, p. 8).[7]

Kĩsêdjê is an inflection-initial language and, as we saw in the previous examples, it accords with that generalization. Below I provide an example from another inflection-initial language, Supyre (Niger-Congo, Mali, Carlson 1987) and an example from an inflection-final language, Amele (Trans New Guinea, Papua New Guinea, Roberts 1988) to further illustrate the correlation between the direction of operator dependence in a chain and the directionality of INFL in a language (coordinating conjunctions are **boldfaced** and INFL heads are inside boxes).

clause seems to improve the sentence somewhat: *When after it rained I came to the department it was closed.* On the other hand, if we give up on trying to make adjunct clauses advance the timeline of the discourse (property A), we seem to be able to squeeze more of them in: *Before John arrived, when Mary was still here, whenever I wanted to go to school, I would ask her for a ride.* However, none of these attempts displays property (A) and (C) as properly as coordination (or chaining) do.

[7] I thank Mark Baker for suggesting this argument.

(102) In inflection-initial Supyre, the single seemingly inflected clause in a chain is the first.
[ceè-ŋi wà[8] u màha pyà si] **kà** [u ú fáá́] **kà**
[woman-DEF.G1 IND.G1 PN.G1S PAST child give.birth.to] DS [PN.G1 SEQ wilt] DS
[u ú nkárá] **á** [sà ù wà dù-gé ŋwɔ̀-gé na] **ma**
[PN.G1S SEQ go] SS [go PN.G1S throw stream-DEF.G2S mouth-DEF.G2S on] SS
[á ǹtàsɔ́ ' ywɔ́]
[SEQ toad take]
'A certain woman gave birth to a child and she became paralyzed and she went and threw her away (=exposed her) at the edge of the stream and took a toad (in her place).'

(103) In inflection-final Amele, the single seemingly inflected clause in a chain is the last.
[Mun buic oso wa lal n] **-ece** -b [f -i] **-m** -ei
[banana ripe one water surface come_down] -DS -3sg [see -APPL] -SS -3sg
[uut] **-oi** [uqa wac -i -t -on.]
[SIM.give.3sg] -3sg.SS [3sg peel -APPL -3sg -3sg.REM.P]
'And then she saw a ripe banana floating on the surface of the river and as she gave it to her she peeled it for her.' (Roberts, 2007, narrative "The Man with the Closed Mouth")

This robust generalization would be harder to explain if we adopted the IP-cum-vPs theory. In the absence of special proviso, an IP-cum-vPs theory would predict the existence of INFL-initial languages where the last clause is inflected (because nothing short of a stipulation would prevent the combination of multiple vPs with a final IP) or a INFL-last language where the first clause is inflected. In a vP-combining theory of chaining, however, since the INFL-layer is merged to the vP-combination in the same way it would merge with a single vP, we predict that in languages where INFL combines to the left of a vP, it will combine to the left of a vP-chain/coordination, which creates the illusion that INFL is combining with the first of those vPs, whereas in languages where INFL combines to the right of vP, it will combine to the right of the vP-chain/coordination, which creates the illusion that it is combining only with the last of the vPs.

Kĩsêdjê shows, moreover, that this generalization is actually not about the general headedness of the language, but about the linear position of INFL. Though Kĩsêdjê is generally final-headed, the headedness parameter inverts at the level of IP, with INFL to the left of vP. As a result, in Kĩsêdjê the single clause that seems to get inflected in clause chains is actually the leftmost, as we can see in the example provided in (83). In (104) below I am rebracketing (83) according to the vP-combination theory of clause chains.

(104) A better bracketing for (83)
Wâtâ$_i$=n [ka ∅-khajtu] [=nhy ∅ Canarana mã thẽ] [=n ∅ a-mã
what=FACT [2_{nom} 3_{acc}-order] [=and.DS 3_{nom} Canarana to go] [=and.SS 3_{nom} 2_{acc}-to
khu$_i$-py] ?
3_{acc}-get] ?
'What$_i$ is such that you gave him orders, he went to Canarana, and bought it$_i$ for you?'

Another argument for the vP-combining theory of chaining is the existence of chains with no inflected verb at all (105). The vP-combination theory predicts the existence of such chains, since it doesn't require a chain to be necessarily embedded under INFL. What we see in (105) is a clause chain embedded as the object of the verb 'wymba'. That this chain isn't embedded under

[8] Under the vP-cum-vPs theory we have to assume that inflection probes into its complement (the vP combination), matches the subject of the first conjunct, agrees with it and triggers its movement to [Spec, IP].

INFL is made further clear from the fact that the arguments of both chained clauses are marked as ergative-absolutive (which, remember from section 2.2, is a hallmark of embedded, INFL-less clauses).

(105) Chain embedded as a verbal argument
Hẽn wa i-mã [[i-hrõ=∅ thyk] [=nhy ire ∅-mbaj khêt khêt]] wymba.
FACT 1_{nom} 1_{acc}-to [[1_{abs}-wife=ABS die] [=and.DS 1_{erg} 3_{abs}-remember not]] fear
'I am afraid that my wife dies and I forget her.'

It might be pointed out that if we took a strict stance on how the properties in (82) define chains, the non-finite chain in (105) wouldn't constitute a chain at all. By not having an inflected verb, it doesn't satisfy property (B) —operator dependence. Unless Kĩsêdjê is the only language that features non-finite chains, though, the strict stance is simply untenable. I would find it very surprising if non-finite chains were ungrammatical in other languages that distinguish between finite and non-finite clauses and I don't know of any claims to that effect.

3.2.2 Switch-reference morphology is hosted by coordinating conjunctions

Positional evidence that switch-reference markers are hosted by conjunctions rather than, for instance, verbal inflection, as usually assumed, isn't available in most of the languages where these markers have been found. This is so because most of the languages where SR markers have been found are verb-last. There fortunately *are* a few non-verb-last languages that display SR in chaining. In Pima (Uzo-Aztecan, data from Langdon and Munro 1979) and Gungbe (Niger-Congo, data from Aboh 2009) SR appears precisely in the position we would expect to find a coordinating conjunction —examples (106) and (107).

(106) Linear evidence from non-verb-last language Pima that SR is a coordinating conjunction

a. [Brent 'a-t 'am ṣohñi heg Eric] **c** ['am keihi heg Sylvia]
[B. aux-perf there hit art E.] and.SS [there kick art S.]
'Brent hit Eric and kicked Sylvia'

b. [Brent 'a-t 'am ṣohñi heg Eric] **ku**-t [heg Eric 'am ṣohñi
[B. aux-perf there hit art E.] and.DS-perf[9] [art E. there hit
heg Sylvia]
art S.]
'Brent hit Eric and Eric hit Sylvia.'

(107) Linear evidence from non-verb-last language Gungbe that SR is a coordinating conjunction

a. [Sésínú ɖà lésì] **bɔ̀** [Súrù ɖù nǔsɔ́nú]
[Sesinou cook rice] and.DS [Suru eat soup]
'Sesinou cooked the rice and Suru ate the soup.'

b. [Sésínú ɖà lésì] **bò** [pro_i ɖù nǔsɔ́nú]
[Sesinou cook rice] and.SS [eat soup]
'Sesinou cooked the rice and ate the soup.'

Another non-strictly-verb-last language that marks switch-reference is Supyre (Niger-Congo, data from Carlson 1987). Though Supyre is SOV, adjuncts are located after the VP, which allows us to

[9] It is interesting that the perfective inflection directly follows different-subject switch-reference markers, instead of following the subject like it does in the first clause of both examples. I don't know how to interpret this.

test the prediction that switch-reference morphology is hosted by coordinating conjunctions. We can see in (102), copied below as (108), that SR markers appear after the last element of the clause, whether it is a verb (clauses 1, 2, 3 and 5) or a verbal adjunct (clause 4). That is to say, in Supyre switch-reference morphology appears between the clauses in a chain, as predicted by my claim that chaining is coordination and SR morphology is hosted by coordinating conjunctions.

(108) Linear evidence from non-verb-last Supyre that SR is a coordinating conjunction
[ceè-ŋi wà u màha pyà si]$_1$ **kà** [u ú fáá]$_2$ **kà**
[woman-DEF.G1 IND.G1 PN.G1S PAST child give.birth.to] DS [PN.G1 SEQ wilt] DS
[u ú nkárá]$_3$ **á** [sà ù wà dù-gé ɲwɔ̀-gé na]$_4$ **ma**
[PN.G1S SEQ go] SS [go PN.G1S throw stream-DEF.G2S mouth-DEF.G2S on] SS
[á ǹtàsɔ̃́ ' ywɔ́]$_5$
[SEQ toad take]
'A certain woman gave birth to a child and she became paralyzed and she went and threw her away (=exposed her) at the edge of the stream and took a toad (in her place).'

The fact that switch-reference markers appear between clauses has been widely neglected in the study of clause chaining. This is understandable, since most languages that feature chaining are strictly verb-final. Only in languages where the position of the verb doesn't (always) coincide with the end of the sentence is it possible to observe that switch-reference morphology appears between clauses, in a position compatible with the hypothesis that SR morphology is hosted by coordinating conjunctions, rather immediately after the verb, as verbal inflection.

3.3 Asymmetric vP coordination

I argue that the construction that has been identified in some languages as clause chaining is simply a garden variety of asymmetric vP coordination (Ross, 1967; Postal, 1998). The misidentification is due to conflating two independent language-specific properties of those languages with properties of asymmetric vP coordination that are common to all languages. These independent properties are *subject-in-situ* and *switch-reference marking*.

Since this is the first time I am talking about symmetric and asymmetric coordination, let me introduce the concepts. Clausal coordination is symmetric when its conjuncts can be swapped around without affecting the semantics of the whole coordinate, as in (109-b). It is asymmetric if swapping its conjuncts around results in a different meaning, as in (109-a).

(109) *Symmetric* vs. *asymmetric* clausal coordination
a. Asymmetric Coordination (AC)
(i) You can use this magic herb and get cured of cancer.
(ii) ≠ You can get cured of cancer and use this magic herb.
b. Symmetric Coordination (SC)
(i) Matthew dates a veterinarian and hopes to date a surgeon.
(ii) = Matthew hopes to date a veterinarian and dates a surgeon.

In the example of asymmetric clausal coordination in (109-a), the clauses are related in a causative way (i.e. the first clause is interpreted as a cause and the second clause as an result). Lakoff (1986) presents three different ways in which clauses can be related in asymmetric coordination: *in order to* coordination (110-a), *despite* coordination (110-b) and *cause-result* coordination (110-c). To these types could be added the *conditional* type, discussed in Culicover and Jackendoff (1997) (110-d).

(110) Different semantics of asymmetric coordination

a. *In order to* coordination
John went to the store and bought three bottles of wine.
≈ John went to the store in order to buy three bottles of wine.

b. *Despite* coordination
No student can take this many courses and still hope to defend in time.
≈ No student can hope to defend in time despite taking this many courses.

c. *Cause-result* coordination
You can use this magic herb and get cured of cancer.
≈ Using this magic herb can have the effect of healing you from cancer

d. *Conditional* coordination
You just need to point out the thief and we arrest them on the spot.
≈ If you point out the thief we arrest them on the spot

Asymmetric vP coordination displays clause chaining properties (A), (B), (C) and (D). Properties (A), (B) and (D) will be illustrated with example (111) below (Postal 1998, p. 66, ex. 50a). In what follows I will proceed to discuss each of these properties in turn.

(111) Asymmetric vP coordination

[Which$_i$ student] did Nora go to the store, come home and talk to t_i for one hour?

(A) Each clause is individually asserted and advances the timeline of the discourse.

This is a hallmark property of asymmetric coordination, which distinguishes it from logical/symmetric coordination. In asymmetrical coordination, preceding clauses are interpreted as temporally, causally, argumentatively or conditionally prior to following clauses. As is typical of coordination, clauses are asserted, as opposed to being presupposed.

(B) Though only one peripheral clause is inflected, all other clauses are interpreted as if identically inflected, and may furthermore be marked for switch-reference.

In (111) inflection only appears once, to the left of the coordinated vPs. There are also examples of asymmetric vP coordination where each verb gets its own inflection, like in (110-a). In the latter example all verbs receive identical inflection, though, which suggests that it also has a structure where asymmetric coordination of vPs merges with a single Infl head. The requirement that all verbs be inflected according to that single Infl head would follow from the affixal nature of English past tense inflection. In an affix hopping account, Infl could be said to hop across-the-board onto the verbs on each of the coordinated vPs. In a checking account, a null Infl head could be said to check the inflectional morphology on the verbs of each of the coordinated vPs. The evidence available doesn't allow us to pick one account, and the problem at hand doesn't require picking one. Note that asymmetric IP coordination also exists, like (110-d), in which case, for obvious reasons, the inflection on each verb can be different.

(C) The number of clauses in a chain isn't limited.

Another hallmark of coordination is the possibility of keeping adding new clauses without prejudice to processing or understanding. That is not true of the other clause combining constructions that doesn't create argumenthood relations between clauses, namely, clausal adjunction. In section 3.2 I

discussed relevant examples that show that the number of clauses in clausal adjunction is restricted when compared to the number of clauses in an asymmetric coordinate complex.

(D) Constituents can be fronted in a non-ATB fashion from clause-chains.

Constituents can be non-ATB extracted from both clause chains and asymmetric vP coordination: see (111) for English and (83) for Kĩsêdjê. As already stated in section 3.2, though relevant data on extraction from chains in other languages are rare in the literature, where available they seem to pattern with Kĩsêdjê and English asymmetric vP-coordination, as in examples (93) and (94).

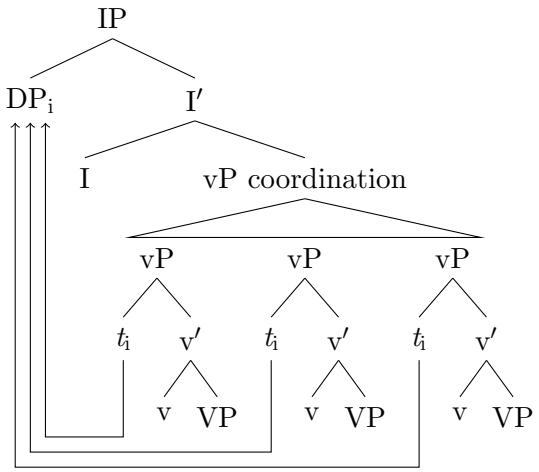
The kind of asymmetric vP coordination studied by Postal (1998) differs from chaining in I) always involving clauses that share the same subject II) licensing different extraction possibilities and III) not marking switch-reference. I argue below that these differences are not fundamental, but rather follow from independent syntactic differences between English and the languages where clause chaining has been identified.

3.3.1 Same-subject requirement

An important difference between English asymmetric vP coordination and clause chaining is the requirement, exclusive to English asymmetric vP coordination, for all clauses to share a unique subject. It is easy to understand why such a requirement holds in English. In English, subjects must move out of their vP-internal base position into [Spec, IP]. That type of movement is usually thought to be motivated by requirements both on Infl (EPP) as well as the subject DPs (Case). Since there is a single Infl, and therefore a single specifier of Infl dominating the coordination of vPs, there isn't room to accommodate movement of a different subject coming from each vP. Though in principle movement of a single subject should be enough to satisfy the requirement on Infl, it would leave the requirements of the subjects left in situ unsatisfied. The only way to satisfy the requirements of all the parties in vP coordination is by extracting vP subjects across-the board into [Spec, IP] —(112). Since there is no such thing as across-the-board extraction of non-identical elements, the subjects extracted across-the-board from coordinated vPs must be identical.[10]

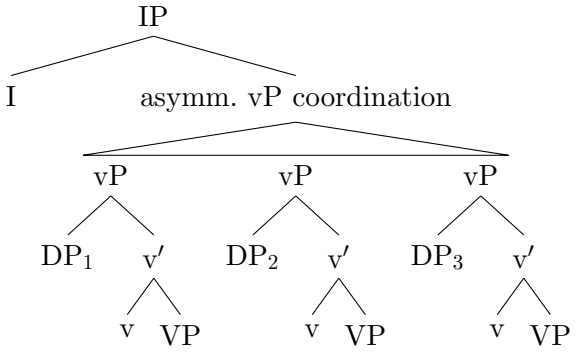
[10]Contrary to appearances, this theory is not at odds with Johnson's (2004) account of Gapping. This is the apparent clash: Johnson assumes that the computation of Gapping involves precisely the non-ATB movement operation that I have just proposed is ungrammatical (movement of the subject of a single vP into [Spec, IP] while leaving the subjects of the other coordinated vPs in situ). And this is why the clash is only apparent: Gapping is an operation on *symmetric* coordinate complexes (for references on this claim, see section 6.2.4), whereas here I am discussing *asymmetric* coordinate complexes. That is to say, Johnson's theory and my theory apply to different domains. On a slightly different note, assuming Johnson's theory and my theory are both on the right track, it becomes puzzling that precisely in the domain where the Coordinate Structure Constraint (CSC) is strongest (symmetric coordination) it would be grammatical to violate it by A-movement of the subject, and precisely in the domain where the CSC is weakest (asymmetric coordination) it would be ungrammatical to violate it by A-movement of the subject.

(112) ATB extraction of the subject in English vP coordination



I argued in section 3.2.1 that Dooley's property (B) (operator dependence) can be straightforwardly accounted for by taking chaining to be a vP-combining construction. At that point I ignored an important problem that I am now going to address. Clauses in a chain can have the same or different subjects. As shown in the discussion above regarding English, the only way coordinated vPs can have different subjects is if the subjects don't need to ATB-move to a single c-commanding position. That is to say, the only way coordinated vPs can have different subjects is if these subjects stay in situ (113). In section 2.5 of the last chapter I showed evidence that Kĩsêdjê is a subject-in-situ language. In this language, therefore, coordination of vPs with different subjects doesn't pose a problem. Though I lack specific data to demonstrate the same for other chaining languages, I will, building on Richards's (2011) movement theory, propose that inflection-final languages — which not accidentally happen to be the most common type of language where chaining has been identified (see Dooley, 2010a)— are subject-in-situ languages. Furthermore, there is an argument from language acquisition that points in the same direction.

(113) Chaining is asymmetric coordination of subject-in-situ vPs



If my proposal is correct, part of the reason why asymmetric vP coordination in some under-studied languages has appeared exotic to the point of being described as its own *sui generis* construction is the fact that these are subject-in-situ languages. This constitutes an independent difference between such languages and the languages where asymmetric vP coordination has been properly identified, but conflating subject-in-situ with the already puzzling properties of asymmetric coordination would

have led to the fictitious creation of clause chaining.

As far as I have been able to check, the literature on chaining languages doesn't discuss the position of the subject in those languages. To find the position of the subject in Kĩsêdjê, I had to rely on a careful analysis of its syntactic structure. I wouldn't hope to be able to proceed to such an analysis for other languages based solely on data from the literature. Making the task even more daunting is the fact that in inflection-final languages —only 2 out of the 11 languages surveyed by Dooley (2010a) are SVO inside clause chains— linear evidence about the position of the subject is unavailable. Furthermore, assuming Ritter and Wiltschko's (2008) framework, before I could even talk about an vP/IP distinction in these languages I would have to employ formal diagnostics to identify the functional category that corresponds to Infl in each of them, as it might not be Tense!

Fortunately, there are two general cross-linguistic remarks I can make with respect to the position of the subject in head-final languages (which make up most of the chaining languages). One is based on a conjecture about the acquisition of inflection-final languages and the other builds on Richards's (2011) movement theory.

In the absence of evidence indicating otherwise, the default for infants acquiring a language must be to assume non-movement. Given this conjecture, the very fact that the position of the subject in inflection-final languages is hard to detect means that infants must analyze subjects in such languages as being in situ.

Richards (2011) proposes there exist two independent mechanisms that can trigger subject movement. One is *affix support*: affixal inflexion requires for there to be material with metrical structure in the relevant direction of affixation (that is, to the right of Infl if it is a prefix and to the left if it is a suffix). This requirement will be satisfied without recourse to movement if by the time Infl is merged into the structure there already is material with metrical structure in the relevant position. If that is not the case, some c-commanded material containing metrical structure will have to be dislocated to the relevant position (that material doesn't necessarily have to be the subject). Richards claims this is the mechanism that underlies the EPP.

Another reason why a subject would move from its base position is *Probe-Goal Contiguity*: once an agreement relation is established between a higher probe and its goal, those two elements are required to be contained in the same prosodic phrase. If the probe is to the left of the goal, it might be necessary to front the latter to satisfy this condition. Assuming there is no rightwards movement, movement can't approximate a goal to a probe to its right.

In inflection-final languages only the EPP could cause a subject to move out of the vP, never Probe-Goal Contiguity. As explained above, when inflection is to the right, moving the subject it agrees with to a higher specifier position will only place it farther away from inflection. That is the opposite of what probe-goal contiguity requires. The EPP, on the other hand, though it can indeed be active in inflection-final languages, doesn't require for *the subject* to move. In fact, movement of any phrase with metrical structure can satisfy EPP's requirements.

This is precisely the conclusion Miyagawa (2001) reaches with respect to inflection-final Japanese. He concludes, based on an investigation of the scopal relations between DP-level quantifiers and sentence level operators, that the EPP is the only mechanism that can target the subject out of its base position. In agreement with Richards's theory, Miyagawa concludes that the EPP in Japanese can also be satisfied by nominals other than the subject, that is, he concludes that the EPP in Japanese doesn't specifically target the subject.

On the one hand, Richards's (2011) movement theory predicts that subjects never *have* to move to [Spec, IP] in inflection-final languages. On the other hand, given the conjecture that infants acquiring a language default to non-movement, subjects in inflection-final languages must be more often than not analyzed as staying in situ. If those two remarks are on the right track, inflection-final languages feature asymmetric coordination of subject-in-situ vPs. Not coincidentally, then, are most

languages where chaining has been identified inflection-final. The operator dependence property ascribed to clause chains (Dooley's property B) is an expected property of asymmetric coordination of subject-in-situ vPs, as I explained in section 3.2.1. This is the reason why consistently head-final SOV languages tend to have their asymmetric vP coordination mislabeled as clause-chaining.

3.3.2 Different Extraction Possibilities

A less immediate difference between English asymmetric vP coordination and the constructions identified as clause chaining and are the possibly different extraction possibilities licensed in each case. According to Postal (1998), extraction is never possible out of the first constituent of constructions like (111) —see (114). Note that within Postal's classification of asymmetric coordination, the kind of coordination instantiated in (111) is type-A. Type-B, type-C and type-D asymmetric coordination all instantiate different extraction possibilities. For the sake of illustration, I will restrict myself to type-A.

(114) No extraction from the first conjunct in English *Postal (1998, p.66, ex.49c)*
*the store which$_t$ Harry went to *t*, bought stuff, went home, ate it, and returned to *t* for more

In Kĩsêdjê chaining, on the other hand, extraction **is** possible out of the first conjunct (115).

(115) Kĩsêdjê extraction from the first clause
Wâtâ$_t$=n [ka $\emptyset_t$-pyry khêt] [=ne thẽ?]
what=FACT [2_{nom} 3_{abs}-take$_{emb}$ not] [=and.SS go]
'What is such that you didn't get it and went (away)'

Different extraction possibilities aren't an obstacle for characterizing chaining as an instance of asymmetric vP-coordination, since they can be derived from independent factors. Note that different extraction possibilities in asymmetric vP coordination were already recognized in Postal (1998) between English and French. Though French, like English, allows asymmetric vP coordination (116), it apparently doesn't license any kind of non-ATB extraction (117). On the other hand, many English speakers think extraction from the first conjunct in asymmetric vP coordination is fine, and would disagree that (114) is ungrammatical at all.

(116) Asymmetric vP coordination in French
Jacques a couru au marché, a acheté du pain, a foncé chez lui, et l'a mangé.
'Jacques ran to the market, bought some bread, rushed home, and ate it.'

(117) No extraction from asymmetric vP coordination in French
*le pain que$_t$ Jacques a couru au marché, (a) acheté *t*, (a) foncé chez lui, et (a) mangé *t*
'the bread which$_t$ Jacques ran to the market, bought *t*, rushed home, and ate *t*'

According to Postal, asymmetrically conjoined vPs are islands in both English and French. English and French differ only in the strength of their islands. Whereas in French asymmetrically conjoined vPs are strong islands, they are weak islands in English. Postal argues that extraction out of *weak* islands is possible as long as there is a resumptive pronoun in the extraction site, which is what he proposes happens in English. Of course Postal sees that sentences like (111) don't contain overt resumptive pronouns, but he provides arguments for believing that in such cases the extraction site contains a *null* resumptive pronoun. For instance, he points out that the extraction site can't be an antipronominal context, that is, it can't be a position where you couldn't otherwise "plug" an overt weak pronoun.

An example of anti-pronominal context is the object of the verb 'dye', as in (118). We can "plug" a color name (green) or a pronominal NP (that color) into that position, but we can't plug a weak pronoun (it) there. Postal argues that since we also can't non-ATB extract from an anti-pronominal context, this is evidence that there is a pronoun in that position. In this case, the pronoun is covert (because we can't see it), and resumptive (because it can otherwise license weak island violations).

(118) Anti-pronominal context
He dyed his beard green/that color/*it.

(119) Non-ATB extraction from anti-pronominal context (Postal, 1998, ex. 55b)
[Which color]did she (*fly to Vancouver and) dye her hair *t*?

The extraction differences between English and Kĩsêdjê could also be framed within Postal's resumptive pronoun account. Postal (1998) claims that extraction in English out of the first conjunct is impossible because that conjoint is a strong island. Extraction out of strong islands would only be possible if there is an *overt* resumptive pronoun in the extraction site. That is an idea Postal attributes to Ross (1967). In Kĩsêdjê there always are overt resumptive pronouns in sites of extraction —see (83) and (115). That could explains why in Kĩsêdjê extraction is always possible, out of any conjunct of asymmetric coordination.[11]

3.3.3 Switch-reference marking

Dooley (2010a) does not take switch-reference marking to be a defining feature of chaining (and thence the use of 'may' in the second half of clause-chain property (B). He identifies Korean, for instance, as a chaining language that doesn't mark switch-reference. As observed in section 3.2, we also find switch-reference marking in subordination. In addition, Kĩsêdjê features constructions whose properties diverge from some of Dooley's criteria while still displaying switch-reference. In the section 3.4 I show one of these constructions and argue it instantiates asymmetric IP coordination. In section 3.5 I look at another construction I argue instances *symmetric* clausal coordination.

3.4 IP coordination

In the clause combining construction instantiated in (120) below each clause has its own inflection (contra B). In this kind of coordination, non-ATB extraction is ungrammatical (contra D) —see (121). Morphologically, however, this construction is very similar to asymmetric vP coordination/clause chaining (observe the use of switch-reference markers between clauses).

(120) IP-combining chaining
[Khupyt=na itha pĩ] [=nhy Nuki=n itha pĩ]
[K.=FACT this kill] [=DS N.=FACT this kill]
'K. killed this and N. killed that'

(121) IP-combining chaining doesn't allow non-ATB extraction
*[nhy mbry=n Roptxi ra ita pĩ] [=nhy nuki ra khu-pĩ]?
[which animal=FACT R. NOM this kill] [=DS N. NOM 3_{acc}-kill]
'Which animal$_i$ is such that R. killed this one and N. killed it$_i$?'

[11] As far as I have tested, there are no islands for extraction in Kĩsêdjê.

Examples like these pose problems to the profile Dooley (2010a,b) draws of clause chains, exhibiting however properties expected of IP coordination. We obviously expect each conjunct in IP coordination to feature independent inflection, and the fact that this construction doesn't license non-ATB extraction receives an independent explanation in Kĩsêdjê: as I argue in chapter 2, extraction in Kĩsêdjê is to [Spec, IP]. With each conjunct containing its own IP layer, a question word in a conjunct could only be attracted to the specifier of its own IP layer.

The discovery of IP coordination in Kĩsêdjê, with conjuncts connected by switch-reference markers strengthens our claim that clause chaining is vP coordination with switch-reference markers simply being a morphologically richer instantiation of coordinating conjunctions.

3.5 Symmetric Coordination

I have defended the position that the construction that has been labeled clause chaining is actually asymmetric vP coordination. Then I proceeded to show that asymmetric *IP* coordination is also instantiated in at least one language where chaining has been identified, namely, Kĩsêdjê. What about *symmetric* coordination, then? Symmetric coordination is naturally also instantiated in those languages. Interestingly, however, it seems that switch-reference can't be marked in symmetric coordination. We can notice this in the Kĩsêdjê example (122): even though the subject is the same across both clauses, a DS marker is employed.

(122) Symmetric coordination in Kĩsêdjê
rátãm kh-wã rop wymba =nhy/*ne tarãm kh-wã s-umba khêrê
now 3-to jaguar fear =DS/*SS before 3-to 3-fear not
'Now he fears jaguars but before he didn't fear them.'

Though I haven't been able to locate other studies that correlate switch-reference marking and the symmetric/asymmetric distiction, virtually every example I spotted in the literature on switch-reference seems to be asymmetric. One of the few sentences I found that seems to feature symmetric coordination is (123), from Tauya (Trans New Guinea, Papua New Guinea). MacDonald (1990), who provides the example, actually calls it a *listing*. In this example, the language also doesn't mark switch-reference, employing *same-subject* markers thorough, even though the clauses coordinated have different subjects.

(123) Symmetric Coordination in Tauya doesn't mark SR
[Aresa fofe-] pa [Towe fofe-] pa [Maʔarafa fofe-] pa [Nowe fofe-]
[A. come] SS [T. come] SS [M. come] SS [N. come]
pa [Boriye fofe-] pa [ʔai-i-ʔa.]
SS [B. come] SS [do-3P-IND]
'Aresa came, Towe came, Makarafa came, Nowe came and Boriye came.'

Roberts (1988) presents evidence that SR might also not be contrastively marked in symmetric coordination in Amele (Papuan, Papua New Guinea). In symmetric coordination, different-subject marking seems to be indiscriminately employed. Note that he doesn't characterize the context as symmetric coordination. That is my interpretation of his characterization, though:

> "In text material DS markings can occur across clauses that have the same subject NPs. The explanation given by native speakers for such instances is that 'something has changed' or this is 'a new situation'."

Asymmetric coordination obtains when conjuncts are in a tight semantic relation, which seems to be the opposite of how Roberts reports native speakers delimit the semantic of the candidates to symmetric coordination in Amele. One of the examples he employs is copied as (124) below.

(124) Symmetric coordination in Amele
Eu 1977 jagel November na odo-co-b cul-ig-en.
that 1977 month November in do-DS-3s leave-lp-3s-rem.p
'That was in November 1977 that he_i did that and then he_i left it for us.'

The study of the contrast between symmetric and asymmetric coordination in languages that mark switch-reference will be resumed in chapter 6.

3.6 Conclusion

Given some data on the structure of the clause in Kĩsêdjê, complemented by a generalization about the position of the subject in inflection-final languages, and unambiguous data on the position of chaining morphology in non-verb-last languages, I argued that clause chaining is asymmetric coordination of subject-in-situ vPs. An IP-combining construction with very similar morphology as asymmetric vP coordination/chaining was also found. It lacked some of the prototypical properties of chaining, namely, precisely those IP coordination lacks with respect to asymmetric vP coordination. Lastly, I also showed examples of symmetric coordination in chaining languages, with interesting differences in what regards switch-reference marking.

Having provided evidence that clause chains are a mere descriptive label for asymmetric coordination of subject-in-situ vPs, I have laid a foundation for studying the crosslinguistic properties of coordination. In chapter 5 I will propose a mechanism for switch-reference computation based on the hypothesis that SR morphology is hosted by conjunctions (the coordinating conjunction in coordination and the subordinating conjunction in subordination). In chapter 6, I will capitalize on the fact that switch-reference is only marked in asymmetric coordination to make a proposal on the structural difference between symmetric and asymmetric coordination.

Chapter 4

The morphology-phonology interface in Kĩsêdjê

This chapter completes the foundation for my theory of switch-reference. In the last chapter I argued that: **(a)** clause chaining, a clause-combining construction in which switch-reference is often marked, is nothing more than asymmetric coordination of subject-in-situ vPs, and **(b)** switch-reference morphology is hosted by coordinating conjunctions. The current chapter provides evidence about the *featural composition* of switch-reference markers: through the study of a deletion phenomenon that involves these markers, I conclude that in Kĩsêdjê switch-reference markers carry the same φ-features as the subject of the clause that follows them. This language-particular result is supported by evidence from other languages in which switch-reference markers also seem to bear copies of (at least some) features of the subject of the following clause.

The switch-reference theory I develop in the next chapter derives the featural composition of switch-reference markers from an AGREE operation. A probe present in switch-reference marking conjunctions matches and copies features from the subject of the conjunction's complement clause (I am assuming asymmetric coordinative conjunctions take one conjunct as complement and another as specifier). Switch-reference marking is argued to be parasitic on the success of this AGREE operation. In chapter 6, I explain the fact that switch-reference is only marked in *asymmetric* coordination, but never in *symmetric* coordination, by proposing that in symmetric coordination the AGREE operation that switch-reference marking is parasitic on invariably fails. This failure is argued to be due to structural differences between symmetric and asymmetric coordination.

In spite of this chapter's importance, it can feel like a showstopper for hardcore syntacticians who don't sympathize with Optimality Theoretical approaches to morphology. If this is your case, you can skip the rest of this chapter after you read the next section.

4.1 Take-out lessons from this chapter

Asymmetric vP coordination in Kĩsêdjê involves agreement between switch-reference marking coordinating conjunctions and the subject of the clause that follows them. This agreement is covert for same-subject markers (125) and overt for different-subject markers (126).

(125) Covert agreement between same-subject marker and following subject

Agreement

[Canarana mã=n =ka pâj] [=**ne** wâtâ kapẽrẽ=n =**ka** s-arẽ?]
[Canarana to=FACT =2_{nom} arrive] [=&.SS.2_{nom} what language=FACT =2_{nom} 3_{acc}-say]
'You went to Canarana and what language did you speak there?'

(126) Overt agreement between different-subject marker and following subject

Agreement

[Atha=n =ka khu-py] [=**wa** nhum=na =**wa** tho ∅-kande mã?]
[that=FACT =2_{nom} 3_{acc}-get] [=and.DS.1_{nom} who=FACT =1_{nom} 3.with 3_{acc}-treat PROSP]
'You got that (medicine) and who will I treat with it?'

In Kĩsêdjê when stressless words are adjacent and one of them bears a copy of the features of the other, the one with the least features isn't pronounced. This deletion process targets nominative pronouns (which are stressless) adjacent to switch-reference marking conjunctions (which are stressless and contain a copy of the features of the nominative pronoun). See (127) and (128).

(127) Deletion when same-subject conjunction and pronoun are adjacent
Hẽn [=ka pâj] [=**ne** =~~**ka**~~ s-arẽ.]
FACT [=2_{nom} arrive] [=and.SS.2_{nom} =2_{nom} 3_{acc}-say]
'You arrived and (then) you said it'

(128) Deletion when different-subject conjunction and pronoun are adjacent
Hẽn [=ka khu-py] [=**wa** =~~**wa**~~ tho ∅-kande mã.]
FACT [=2_{nom} 3_{acc}-get] [=and.DS.1_{nom} =1_{nom} 3.with 3_{acc}-treat PROSP]
'You got it (the medicine) and (then) I treated him/her with it.'

In this chapter I investigate contexts other than the one presented above where this kind of deletion is also triggered and explain why sequences of stressless words should be subject to deletion in Kĩsêdjê. My explanation is based on Wolf's (2008) model of the interaction between phonology and morphology and constitutes an extension of this theory to the domain of prosodic phrases. If you believe the promissory notes I issued in this section, though, and aren't interested in checking my assumptions and theoretical developments, you can jump to page 93. You just need to believe me when I say that: **(a)** there is agreement between switch-reference marking conjunctions and the subject of the coming clause, and **(b)** if the surface form of a sentence doesn't include both conjunction and pronoun, this is due to deletion of the pronoun.

4.2 Introduction

This chapter bears on the relation between morphology and phonology. As general framework I assume the *Optimal Interleaving* (OI) theory proposed by Wolf (2008). In order to account for a clitic deletion phenomenon found in Kĩsêdjê, I will formalize an aspect of that model which, though central, is treated somewhat vaguely in Wolf (2008). Wolf assumes that the domain of application of morphophonological constraints is the *morphosyntactic word*, a notion which he eventually loosens to include adjacent clitics (Wolf, 2008, p. 233). In order be able to account for this Kĩsêdjê phenomenon, I will propose that the domain at which morphophonological constraints apply is the *prosodic phrase*.

Optimal Interleaving is based on *Optimality Theory with Candidate Chains* (McCarthy, 2007). As far as the phenomenon I discuss here is concerned, a version of OI *without* Candidate Chains is enough. The principal point I borrow from OI is the idea that syntactic terminals have their

phonological exponents inserted in the phonology, with exponent insertion constraints and phonological markedness constraints evaluated in parallel. In this sense, the current chapter represents empirical support to that idea.

I discuss a previously undocumented clitic deletion phenomenon found in Kĩsêdjê and explain its peculiarities by having recourse to an optimality-theoretical system that relates inputs made up of syntactic terminals *without* phonological exponents to outputs made up of syntactic terminals *with* phonological exponents. The input is not a complete sentence, but rather the chunk contained between two prosodic phrase boundaries. The constraints relevant for the optimal computation of the output are exponent insertion faithfulness constraints and phonological markedness constraints (see Walter 2007 for an account of repetition avoidance effects in unrelated languages that also derives them from independently necessary phonological markedness constraints).

In Kĩsêdjê, there are certain contexts in which two clitics[1] would be expected to appear side by side, but in which only one ends up being pronounced. Not all clitic sequences are subject to this form of deletion. Deletion is dependent on a recoverability condition, namely, a clitic will only suffer deletion if its features have correspondents in the surviving clitic.

A piece of evidence that both clitics are indeed present in the input is the fact that they become immune to deletion once stressed material intervenes between them. A stressed interventor creates a prosodic phrase boundary to the right of the leftmost clitic, effectively placing it in a different prosodic phrase than the rightmost clitic. Given my proposal that the domain of evaluation of morphophonological constraints is the prosodic phrase, deletion doesn't occur in those cases because phonology doesn't "see" those clitics simultaneously anymore.

The core cases of deletion involve adjacent clitics, but let me stress that adjacency is not the relevant precondition for deletion. The relevant precondition for deletion is for two clitics to be simultaneously visible to phonology, that is to say, for both to be in the same prosodic phrase. Though adjacent clitics will more often than not be in the same prosodic phrase, there are examples in which adjacent clitics are parsed into different prosodic phrases, becoming thus immune to deletion. This situation obtains when the leftmost clitic is stress-dependent on a word to its left, whereas the rightmost clitic is stress-dependent on a word to its right, with a prosodic phrase boundary in-between. Examples of this kind will be discussed in section 4.5.2.

Substitution of one clitic by a non-clitic allomorph also bleeds deletion. I take this as evidence that deletion is in order to avoid dispreferred sequences of unstressed syllables. The existence of this dispreference is attested independently of the deletion process that I indent to explain. As we will see in section 4.4, a dispreference against sequences of unstressed syllables is detectable in how word-level stress is assigned in Kĩsêdjê.

In the core cases, deletion constitutes an optimal strategy to avoid dispreferred sequences of unstressed elements. Whenever deletion isn't possible, an optimal output can be arrived at through other operations. I have already mentioned that deletion is parasitic on a recoverability condition. When that condition doesn't hold (i.e. when the surviving clitic wouldn't bear features in correspondence to those of the deleted clitic), an optimal surface form is sometimes obtained through dislocation. Examples of that kind will be provided and discussed in section 4.3.2.2.

An important novelty of my account is the introduction of a mechanism for chunking up structures built by narrow syntax into smaller pieces that are then input to morphological derivation. Such a component is essential for transitioning from derivations that take single words as input —as done by Wolf (2008)— to derivations that take multiple words, but not whole sentences, as input.

[1] By clitics I simply mean phonologically dependent words, that is to say, words that don't bear stress by themselves. It could be more appropriate to call these creatures *leaners*, following Zwicky (1982), but I don't think the distinction is illuminating for the current purposes.

For instance, Distributed Morphology (Harley and Noyer, 1999), the late-insertion theory OI gets its inspiration from, seems to tacitly assume that the input to morphology is a complete sentence, or maybe a phase. A mechanism for chunking up structures built by narrow syntax into smaller pieces that are then input to morphology is absent from Wolf's (2008) theory. Though he briefly lists a few phenomena that could be accounted for with derivations taking inputs larger than words Wolf (2008, sec 3.9), the core data discussed in his thesis is derived under the simpler assumption that inputs are single words, even though that definition has to occasionally be relaxed into including neighboring clitics. The chunking mechanism I propose ships *prosodic phrases* to morphological derivation, with prosodic boundaries mapped from syntactic structure in a language-specific way from either the left or the right boundary of certain syntactic phrases, as proposed by Selkirk (1986).

This chapter is organized in the following fashion: section 4.3 presents the core data relevant to understanding the Kĩsêdjê clitic deletion effect, section 4.4 discusses stress placement in the language and section 4.5 proposes an account for the Kĩsêdjê effect. I derive the effect from an interaction of the stress-related markedness constraints discussed in section 4.4 and the morphological faithfulness constraints proposed by Wolf (2008). In section 4.6 I offer some closing remarks.

4.3 The data

In this section I present two scenarios where deletion targets a clitic that would otherwise surface adjacent to another clitic, and two scenarios where adjacent clitics are tolerated. As we will see, these scenarios contrast with respect to a recoverability condition to the effect that a clitic will only be deleted if the features it carries find correspondents in the surviving clitic.

The first scenario of *deletion* involves plural clitic markers (section 4.3.1.1). The second scenario involves a coordinating clitic conjunction and a nominative clitic pronoun (section 4.3.1.2). The latter scenario is the most important in the context of this thesis, because it is the one that informs us about the featural composition of the switch-reference-marking coordinating conjunctions in Kĩsêdjê. The fact that there is an independent scenario where the same deletion happens due to the same reasons, however, provides independent evidence for my analysis.

The first scenario of *tolerance* involves an inflectional clitic and a nominative clitic pronoun (section 4.3.2.1). The second scenario involves a nominative clitic pronoun and a plural clitic marker (section 4.3.2.2).

All of the examples discussed in this section feature adjacent clitics. As I mentioned in the introduction, that is not the necessary and sufficient condition for deletion. Deletion targets adjacent clitics in the *same prosodic phrase*. When clitics are adjacent, they are most often than not parsed in the same prosodic phrase, but examples featuring adjacent clitics that *aren't* parsed in the same prosodic phrase exist and will be discussed in section 4.5.2, following a description of how Kĩsêdjê parses its words into prosodic phrases.

4.3.1 Intolerable sequences of clitics

4.3.1.1 Sequences of plural markers

Kĩsêdjê personal pronouns don't carry number features. The plural feature is contributed by a separate clitic plural marker, *=aj*. Plural markers occur to the right of nominative pronouns and to the left of accusative and absolutive pronouns. In (129) we can observe two pluralizers, the first of which is linked to the nominative argument, the other being linked to the absolutive argument. If those markers are both visible in (129), it is because there is a PP intervening between them

(Ø-khãm 'in it'). The left edge of that PP is mapped to a prosodic phrase boundary, and as a result the clitics are parsed into different prosodic phrases. If that PP were left out, the resulting sentence would contain only one plural marker, and would be three-way ambiguous (130).[2]

(129) Plural subject + intervener + plural object
Hẽn =wa kê =**aj** |$_{\text{PPh}}$ Ø-khãm =**aj** s-õmu.
FACT =1_{nom} also =PL 3_{abs}-in =PL 3_{acc}-see
'We also saw them there'

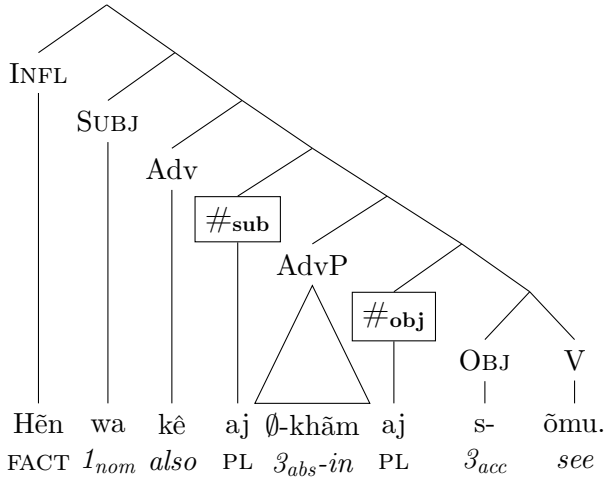
(130) No intervener: deletion

a. Hẽn =wa kê =**aj** s-õmu.
FACT =1_{nom} also =PL 3_{acc}-see
'We also saw them'
or 'We also saw him'
or 'I also saw them'

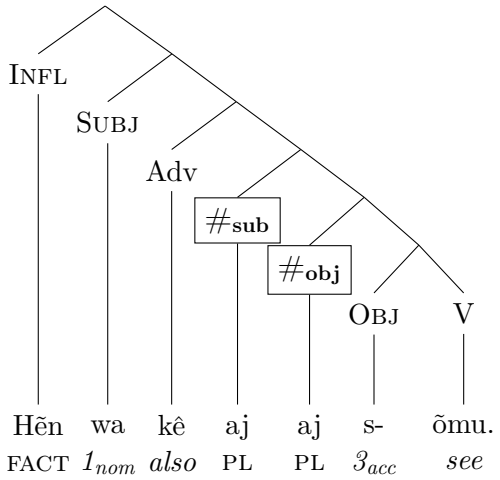
b. *Hẽn =wa kê =**aj** =**aj** s-õmu.
FACT =1_{nom} also =PL =PL 3_{acc}-see

The ambiguity of (130-a) is due to the fact that there are three different underlying representations all of which, after being input to morphology, end up being pronounced as (130-a). One of those representations contains two pluralizers, namely, the one that corresponds to the meaning "We also saw them". This representation is identical to that of (129) minus the AdvP. A schematic representation of the structure of (129) is given in (131). The input representation of (130-a)/"We also saw them", is identical to (131) minus the AdvP. It is schematically represented in (132). Though in that underlying representation both plural positions are filled, a language-specific dispreference for sequences of unstressed syllables forces an output with only one plural marker. This single marker in the output is in correspondence to both plural markers present in the input representation.

(131) Input representation of (129)



(132) Input representation of (130-a)
("We also saw them")



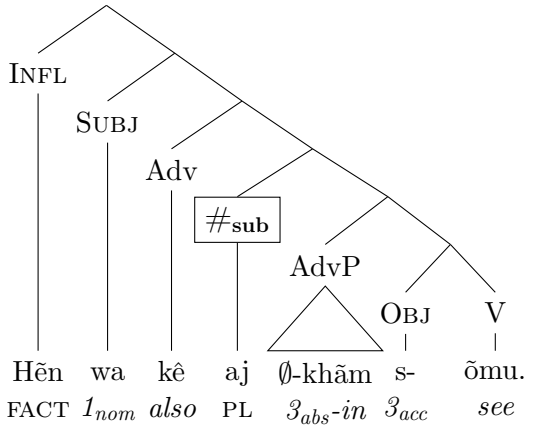
The other two meanings of (130-a) correspond to input representations that are identical to those of sentences (133) and (134), minus the AdvP. Schematic representations of the structure of (133) and (134) are shown in (135) and (136).

[2] If we hadn't found out that the relevant factor for deletion was co-occurrence within the boundaries of a prosodic phrase, we could be tempted into thinking that Kĩsêdjê had omnivorous number marking (see Nevins 2011).

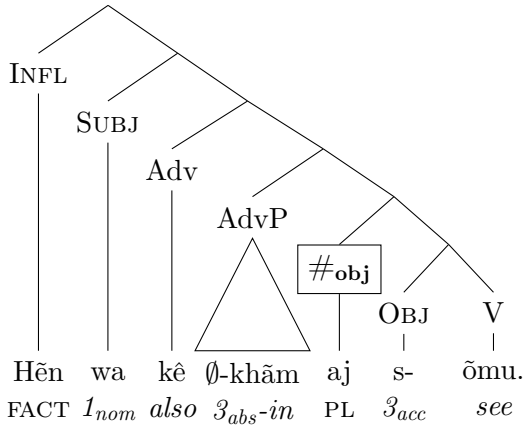
(133) Plural subject + Intervener + Singular object
Hẽn =wa kê =**aj** ∅-khãm s-õmu.
FACT =1_{nom} also =PL 3_{abs}-in 3_{acc}-see
'We also saw him there'

(134) Singular subject + Intervener + Plural object
Hẽn =wa kê ∅-khãm =**aj** s-õmu.
FACT =1_{nom} also 3_{abs}-in =PL 3_{acc}-see
'I also saw them there'

(135) Input representation of (133)

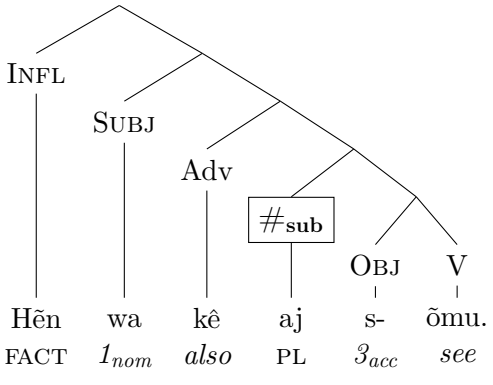


(136) Input representation of (134)

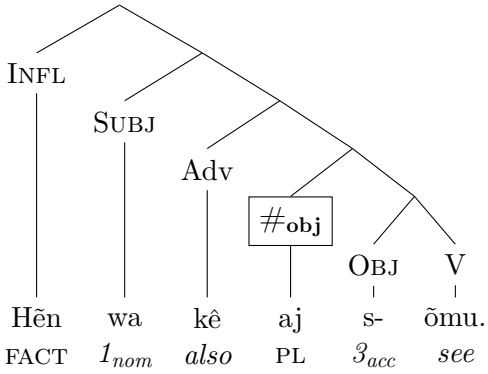


By removing the AdvP from (135) and (136) we obtain the input representation of the two other meanings of (130-a) ("We also saw him"/"I also saw them"). They are schematically represented, respectively, in (137) and (138). Although the input representations that generate those two meanings are distinct, when the AdvP is absent it becomes impossible to parse the position of the plural marker as either the one linked to the subject or the one linked to the object. However, these input representations don't contain sequences of clitics anyways and are thus not relevant for the phenomenon under investigation.

(137) Input representation of (130-a)
("We also saw him")



(138) Input representation of (130-a)
("I also saw them")



4.3.1.2 Coordinator plus nominative pronoun

The other scenario where deletion of clitics obtains is when a clausal coordinating conjunction is adjacent to a nominative pronoun in the same prosodic phrase. As I argued in chapter 3, Kĩsêdjê clausal coordinating conjunctions differ from those of most well studied languages in having distinct forms that mark whether the subjects of their conjuncts are the same (139-a) or different (139-b) (switch-reference marking). Also note that Kĩsêdjê's different-subject coordinator overtly agrees in person with the subject of the clause that follows it. In section 4.5.3, I argue that the same sort of agreement is covertly present on same-subject markers. Until that section, though, I won't be glossing covert agreement on same-subject conjunctions.

(139) Kĩsêdjê clausal coordinating conjunction

a. Same-subject "and"
Hẽn [∅ pâj] [=**ne** ∅ khu-ku.]
FACT [3_{nom} arrive] [=and.SS 3_{nom} 3_{acc}-eat]
'He_i arrived and (then) $he_{i,*j}$ ate it'

b. Different-subject "and"
Hẽn [∅ pâj] [=**nhy** ∅ khu-ku.]
FACT [3_{nom} arrive] [=and.DS.3_{nom} 3_{nom} 3_{acc}-eat]
'He_i arrived and (then) $he_{j,*i}$ ate it'

These examples don't involve deletion, since they don't contain sequences of clitics. This is due to the fact that the third person nominative pronoun is null. Example (140) below also doesn't feature deletion, but for a different reason: there is a prosodic phrase boundary intervening between the same-subject clitic conjunction and the clitic nominative pronoun.

(140) No deletion when same-subject conjunction and pronoun aren't in the same prosodic phrase
[Canarana mã=n =ka pâj] [=**ne** $|_{PPh}$ wâtâ kapẽrẽ=n =**ka** s-arẽ?]
[Canarana to=FACT $=2_{nom}$ arrive] [=and.SS what language=FACT $=2_{nom}$ 3_{acc}-say]
'You went to Canarana and what language did you speak there?'

The prosodic phrase barrier in (140) is due to the material that intervenes between the clitics. If that material is removed, the clitics are parsed into a single prosodic phrase. As a consequence, the second clitic will delete (141).

(141) Deletion when same-subject conjunction and pronoun are adjacent

a. *Hẽn [=ka pâj] [=**ne** =**ka** s-arẽ.]
FACT [$=2_{nom}$ arrive] [=and.SS $=2_{nom}$ 3_{acc}-say]
'You arrived and (then) you said it.'

b. Hẽn [=ka pâj] [=**ne** s-arẽ.]
FACT [$=2_{nom}$ arrive] [=and.SS 3_{acc}-say]
'You arrived and (then) you said it.'

The same phenomenon is observed in coordination of clauses with different subjects. First observe different-subject coordination in a sentence that doesn't feature deletion (142). Note the different-subject conjunction agreeing in person with the subject of the following sentence, as it did in (139-b). It is a common trend for inflecting conjunctions to agree with subjects. Kanite (Trans-New-Guinea), for instance, is another language where switch-reference marking conjunctions inflect for anticipatory subject agreement (see McCarthy, 1965).

(142) No deletion when different-subject conjunction and pronoun aren't adjacent
[Atha=n =ka khu-py] [=**wa** |PPh nhum=na =**wa** tho Ø-kande
[that=FACT =2_{nom} 3_{acc}-get] [=and.DS.1_{nom} who=FACT =1_{nom} 3.with 3_{acc}-treat
mã?]
PROSP]
'You got that (medicine) and who will I treat with it?'

If we leave the intervening material out, the different-subject clitic conjunction is parsed into the same prosodic phrase as the nominative clitic subject, and as a result one of them deletes. Unlike deletion in same-subject coordination (141), here it is not obvious which clitic deletes (since they have the same phonological shape). For now, if only to be consistent with the case of deletion in same-subject coordination, I will assume the second clitic deletes and notate the examples accordingly. The theory I develop in section 4.5 substantiates that assumption.

(143) Deletion when different-subject conjunction and pronoun are adjacent
a. *Hẽn [=ka khu-py] [=**wa** =**wa** tho Ø-kande mã.]
FACT [=2_{nom} 3_{acc}-get] [=and.DS.1_{nom} =1_{nom} 3.with 3_{acc}-treat PROSP]
b. Hẽn [=ka khu-py] [=**wa** tho Ø-kande mã.]
FACT [=2_{nom} 3_{acc}-get] [=and.DS.1_{nom} 3.with 3_{acc}-treat PROSP]
'You got it and I will treat him with it.'

It would seem like this language, faced with a dispreferred sequence of clitics, chooses to keep the one with the most information content and delete the other one. The account I present in section 4.5 is but a formalization of this intuition, which I will spend the next few paragraphs developing a bit further.

In same-subject coordination, since the reference of the subject of the coming clause can be fully determined from the information carried by the same-subject conjunction, it becomes redundant to pronounce the coming clause's subject pronoun, which can therefore be deleted without semantic loss. It could seem like the opposite, namely, deleting the same-subject conjunction while leaving the pronoun intact, would be equally informative. In that latter case, though, deletion would target the element that carries same-subject coordination semantics, information that couldn't be recovered from the surviving pronoun in the coming clause. The resulting sentence would become indistinguishable from different-subject coordination.

In Kĩsêdjê, different-subject coordination with subjects of the same {+participant} person in both clauses is not a contradiction. That is so because different-subject conjunctions, rather than indicating that the subjects of the coordinated clauses are completely disjoint, actually indicate that the subject of the second conjunct doesn't include the subject of the first conjunct, as can be seen in (144). On the other hand, same-subject conjunctions also don't indicate perfect co-reference, but rather that the subject of the coming clause contains the subject of the preceding clause. This fine contrast would be lost if the conjunction were deleted instead of the pronoun, and it is in that sense that the conjunction contains information the pronoun doesn't.

(144) Different-subject coordination of clauses with subjects of the same {+participant} person
Hẽn [=ka =aj a-hwêtri khikhre nhihwêt] [=**ka** karit =aj Ø-khãm mbra.]
FACT [2_{nom} =PL 2_{abs}-all house build] [=and.DS.2_{nom} only.2 =PL 3_{abs}-in live]
'All of you built the house, and only you (two) live there.'

In the same vein, in different-subject coordination, since agreement in the conjunction already determines the reference of the coming subject, the latter can be left out with no damage to

recoverability. If we deleted the conjunction instead, the sentence would lack the element that carries the notion of different-subject coordination, a notion which, as we just explained, is richer in set theoretical semantics than is given away by the name "different-subject conjunction".

Deletion so far seems to be due to a dispreference for clitics in the same prosodic phrase (a dispreference which I derive from independently necessary stress-related phonological constraints in section 4.5). We have already seen that when the relevant clitics are not in the same prosodic phrase no deletion happens. If deletion is indeed due to a dispreference for clitic sequences rather than, say, a dispreference for following a conjunction with a pronoun, we predict that whenever the subject pronoun following the conjunction is not a clitic, both that subject as well as the conjunction are pronounced. That prediction is borne out. No deletion occurs when a coordinating conjunction is followed by an ergative pronoun (which is a free form) (145-a) or an absolutive pronoun (which is a verbal prefix) (145-b). Note that the kind of agreement holding between different-subject conjunction and following nominative subject —examples (139-b), (142) and (143)— doesn't obtain overtly when the coming subject is of ergative or absolutive case. Instead, the conjunction surfaces morphologically in a default form (the same one used in agreement with 3rd person nominative subjects). In section 4.5 I argue that such examples involve covert agreement.

(145) Deletion only happens with clitic pronouns

a. No deletion when the pronoun is *ergative* (accented)

(i) Different-subject "and" and ergative pronoun
[[I-pôt] [=**nhy** **kare** ∅-khuru]] mã.
[[1_{abs}-$arrive_{emb}$] [=and.DS.3_{nom} 2_{erg} 3_{abs}-eat_{emb}]] PROSP
'I will arrive and (then) you will eat (it)'

(ii) Same-subject "and" and ergative pronoun
[[I-pôt] [=**ne** **ire** ∅-khuru]] mã.
[[1_{abs}-$arrive_{emb}$] [=and.SS 1_{erg} 3_{abs}-eat_{emb}]] PROSP
'I will arrive and (then) I will eat (it)'

b. No deletion when the pronoun is absolutive (preffix)

(i) Same-subject "and" and absolutive pronoun
[[Ire ∅-khuru] [=**ne** **i**-pôt]] mã.
[[1_{erg} 3_{abs}-eat_{emb}] [=and.SS 1_{abs}-$arrive_{emb}$]] PROSP
'I will eat and (then) I will arrive'

(ii) Different-subject "and" and absolutive pronoun
[[Ire ∅-khuru] [=**nhy** **a**-pôt]] mã.
[[1_{erg} 3_{abs}-eat_{emb}] [=and.DS.3_{nom} 2_{abs}-$arrive_{emb}$]] PROSP
'I will eat and (then) you will arrive'

These examples suggest an alternative proposal whereby deletion is triggered by the nominative rather than by the clitic nature of the pronoun following the clitic conjunction. That theory is easy to counter: I have already introduced an example with a nominative pronoun that doesn't delete when preceded by a different-subject conjunction, namely, the 3rd person nominative pronoun. 3rd person nominative pronouns differ from 1st and 2nd person pronouns by having null rather than clitic exponents. Compare (143) above with (146) below.

(146) No deletion when the pronoun is 3rd person nominative (null)
Hẽn [=wa pâj] [=**nhy** **∅** khu-ku.]
FACT [=1_{nom} arrive] [=and.DS.3 3_{nom} 3_{acc}-eat]
'I arrived and (then) he ate it'

Kĩsêdjê doesn't have non-nominative clitics, and therefore we can't test the prediction that such forms would pattern with nominative clitics in being deleted whenever preceded by coordinating conjunction.

There is one last question I would like to answer before moving on: why are Kĩsêdjê's overtly agreeing conjunctions homophonous with nominative pronouns? I believe the answer to that question has nothing to do with the synchronic grammar of the language, but rather lies in the way anticipatory subject agreement must have developed in Kĩsêdjê. A commonly held view has agreement markers originate from the reanalysis of pronominal clitics (see Givón 1975 for a general discussion of this hypothesis and Donohue 2003 for a historical reconstruction of the agreement system of the Skou language family from Papua New Guinea based on that hypothesis). Given that view, it is not surprising that anticipatory agreement with 1st and 2nd person employs the same morphological index as the equivalent nominative clitic pronouns. As for the marker *nhy*, inserted for 3rd person agreement, it has arguably evolved from an anterior use of *nhy* as a listing conjunction, as seen in example (147) below.

(147) Another use of 'nhy'
I-pãm=**nhy**, i-nã=**nhy**, i-thõ=**nhy**, ithajê khôt=na =wa thẽ.
1_{abs}-father=and, 1_{abs}-mother=and, 1_{abs}-brother=and, these with=FACT $=1_{nom}$ go
'My father and my mother and my brother, I went with them.'

In characterizing the Kĩsêdjê anticipatory agreement system as I do, I am assuming that it is recent enough that the phonological realization of conjunctions agreeing with 1st and 2nd person nominative subjects haven't suffered any phonological changes that could make them different from the 1st and 2nd person nominative pronouns. The evidence available seems to support my assumption: the distinction between same- and different-subject coordination and, consequently, the phenomenon of anticipatory subject agreement, aren't found, for instance, in the closely related language Mebengokre (Andrés Salanova, p.c.).

4.3.2 Tolerated sequences of clitics

When assuming an optimality-theoretical framework, one expects there to be counterexamples to any given tendency displayed by a language. Unless a tendency constitutes the highest-ranked constraint in a language, there will be situations in which it is violated by an output that complies nonetheless with conflicting higher-ranked constraints. It is not surprising, therefore, that there are situations in which sequences of clitics are tolerated in Kĩsêdjê. Section 4.3.2.1 describes the tolerated sequence of clitics constituted by a clitic inflection and a nominative clitic pronoun and section 4.3.2.2 describes the tolerated sequence of clitics constituted by a nominative clitic and a clitic plural marker.

4.3.2.1 Inflection followed by nominative pronoun

As some readers might have noticed, a few of the examples used in this chapter include clitics within the same prosodic phrase none of which gets targeted by deletion. As a matter of fact, there have been three examples this far. You may go back and try to spot them for yourself but, for your comfort, I have repeated them below as (148), (149) and (150) —originally (147), (142) and (140). The relevant clitics are boldfaced.

(148) I-pãm=nhy, i-nã=nhy, i-thõ=nhy, ithajê khôt=**na** =**wa** thẽ.
1_{abs}-father=and, 1_{abs}-mother=and, 1_{abs}-brother=and, these with=FACT $=1_{nom}$ go
'My father and my mother and my brother, I went with them.'

(149) [Atha=**n** =**ka** khu-py] [=wa nhum=**na** =**wa** tho Ø-kande
[that=FACT $=2_{nom}$ 3_{acc}-get] [=AND.DS.1_{nom} who=FACT $=1_{nom}$ 3.with 3_{abs}-$treat_{emb}$
mã?]
PROSP]
'You got that and who will I treat with it for you?'

(150) [Canarana mã=**n** =**ka** pâj] [=ne wâtâ kapẽrẽ=**n** =**ka** s-arẽ?]
[Canarana to=FACT $=2_{nom}$ arrive] [=and.SS what language=FACT $=2_{nom}$ 3_{acc}-say]
'You went to Canarana and what language you spoke there?'

This tolerated sequence of clitics is constituted by an inflectional particle followed by a nominative pronoun. What makes this sequence different from the intolerable sequence formed by a coordinating conjunction followed by a nominative pronoun? Since the second clitic in both sequences is the same (the nominative pronoun) we can rest assured that the relevant difference between the two sequences has to lie with the first clitic, that is, the difference has to be between coordinating conjunctions and inflectional markers.

Phonological differences are not relevant here. There are even situations in which the tolerated and the intolerable sequences are homophonous —see (151) and (152) below. In spite of this homophony, deletion still only applies to the sequence conjunction+pronoun (151). Note that homophony in these examples stems from the deletion of the last vowel of same-subject conjunction *ne* and inflectional particle *na*. Such deletion obtains whenever those particles follow a vowel-final word.

(151) Hẽn =wa amu thẽ=**n** =~~**wa**~~ s-õmu.
FACT $=1_{nom}$ there go=and.SS $=\overline{1_{nom}}$ 3_{acc}-see
'I went there and saw it.'

(152) A-kamby=**n** =**wa** s-õmu.
2_{abs}-brother=FACT $=1_{nom}$ 3_{acc}-see
'It was your brother that I saw.'

There is a very clear difference between inflectional particles and coordinating conjunctions in terms of their featural constitution, though, which can be related to how clitic deletion works in each case. Whereas inflectional particles are composed only of interpretable lexical features, the conjunction's features are copies (obtained through agreement) of the features of the following nominative pronoun (plus whatever extra features the conjunction had before agreement). So, when a nominative pronoun following a conjunction suffers deletion, its features are still being realized in the conjunction, whereas if the nominative pronoun following an inflectional clitic were deleted, its features would be simply lost.

4.3.2.2 Nominative pronouns followed by plural markers

In section 4.3.1.1 I was careful not to employ any examples featuring a plural clitic marker adjacent to a nominative clitic pronoun. The examples I used then are repeated below as (153-a) and (153-b) —from original examples (129) and (130-a). If the adverb *kê*, which in (153-a) and (153-b) intervenes between the nominative clitic and the plural marker, is left out, as in (154), those clitics enter in contact. That, however, does not result in the deletion of either.

(153) Examples carefully crafted so as not to allow clitics to clash

a. Hẽn =wa kê =**aj** ∅-khãm =**aj** s-õmu.
FACT =1_{nom} also =PL 3_{abs}-in =PL 3_{acc}-see
'We also saw them there'

b. Hẽn =wa kê =**aj** s-õmu.
FACT =1_{nom} also =PL 3_{acc}-see
'We also saw them/We also saw him/I also saw them'

(154) Allowing clitics to clash in this case doesn't result in deletion

a. Hẽn =wa =**aj** s-õmu.
FACT =1_{nom} =PL 3_{acc}-see
'I saw them/We saw him/We saw them'

The same reason why the sequence Inflectional Clitic + Nominative Clitic was tolerated seems to be at play here. The nominative clitic and the plural clitic don't share features, and it would be impossible, after deletion of one of them, for the survivor's features to bear correspondence to both clitics' original features.

That doesn't mean the dispreference for sequences of unstressed syllables within a prosodic phrase isn't active in this context. When word dislocation is an option, the nominative pronoun can't ever be left adjacent to the plural marker. Take a situation where the dispreference for clitic sequences is not active, for instance, when the subject of the sentence is ergative (ergative pronouns aren't clitic). In that situation, the position of the plural clitic is at its freest. The plural clitic can sit on either side of the pronoun (155) or it can also be separated from it by an adverb such as *kê* 'also' (156).

(155) Ergative pronouns adjacent to the plural marker.

a. **Aj**=ire kê thep kuru mã.
PL=1_{erg} also fish eat_{emb} PROSP
'Also we will eat fish.'

b. Ire=**aj** kê thep kuru mã.
1_{erg}=PL also fish eat_{emb} PROSP
'Also we will eat fish.'

(156) Ergative pronoun separated from plural marker by adverb *kê*
Ire kê=**aj** thep kuru mã.
1_{erg} also=PL fish eat_{emb} PROSP
'We will eat also fish'

When the subject is nominative, only one of those three positions is ever instantiated (157). Remember that in principle the nominative pronoun *can* be adjacent to the plural marker, as it is in sentences where nor local dislocation nor deletion can break the undesirable sequence of clitics, as in (154). The same sequence becomes ungrammatical in sentences where local dislocation is a possible strategy to break the sequence of clitics (157). This is evidence that the dispreference for sequences of unstressed syllables is also active in situations where deletion isn't an acceptable outcome.

(157) Nominative pronouns have to be separated from plural markers whenever possible.

a. Hẽn =wa kê =**aj** twâ.
FACT =1_{nom} also =PL bathe
'We have already bathed.'

b. *Hẽn =wa =aj kê twâ.
FACT =1_{nom} =PL also bathe

I assume this kind of word order change is purely phonological (that is, I assume the different positions the plural marker can appear at in those sentences don't correspond to different positions in the input). Given this assumption, all of the locations instantiated in (155) and (156) are in principle available for plural markers under all circumstances. If only one of those positions is ever instantiated when the subject is nominative, as we have seen, it must be because that position is the one which better complies with Kĩsêdjê's dispreference for clitic sequences. The candidate that places the plural marker in that position is optimal with regards to the Kĩsêdjê dispreference for sequences of unstressed syllables, since deletion (which would generate a more optimal candidate) isn't possible in this case. If no adverb is available to intervene between a nominative and a plural clitic, and only in that case, will the clitics be left adjacent, as in (154).

4.4 Stress placement in Kĩsêdjê

The dispreference for adjacent clitics I have documented in the previous sections can be derived from a dispreference against sequences of unstressed syllables. The latter dispreference is independently attested in how stress is placed in Kĩsêdjê, as I show is this section.

Kĩsêdjê's lexicon contains stressed and unstressed items, the latter being the particles I have been calling *clitics*. Stress is iambic, with main stress falling on the last underlying syllable of stressed words (158). Clitics are phrased together with a neighboring stressed word but, as exemplified by (159), don't bear either primary or secondary stress.

(158) ˌamtôˈtxi
rat
'a/some/the rat(s)'

(159) ˌamtôˈtxi =thõ =ra
rat =a =NOM
'a rat (nom)'

The stress pattern of Kĩsêdjê can be accounted for as the interaction of the three constraints defined in (160) below. NoStress$_{\text{CLITICS}}$ is a constraint lexically indexed to words in the clitic class and militates against attributing any kind of stress to them. The class of the clitics receives therewith a straightforward if apparently circular definition: it is the class of the words lexically indexed to the NoStress$_{\text{CLITICS}}$ constraint. MainStressLast militates in favor of stressing the last syllable of all lexical items. Since clitics are never stressed, NoStress$_{\text{CLITICS}}$ must outrank MainStressLast. NoStress$_{\text{CLITICS}}$ must also outrank Lapse (Green and Kenstowicz, 1995), or we would expect clitics to be stressed whenever that would avoid a gap. Example (159) demonstrates that this is not the case. Finally, there doesn't seem to be any evidence for ranking MainStressLast and Lapse with respect to one another.

(160) Kĩsêdjê Stress-Assigning Constraints
- a. NoStress$_{\text{CLITICS}}$: Don't stress clitics.
- b. MainStressLast: Stress the last syllable of all lexical item.
- c. Lapse: Don't allow sequences of unstressed syllables.

Tableau (161) demonstrates stress assignment for (159). The winning candidate —(a)— entirely complies with NoStress$_{\text{CLITICS}}$, but in order to do so it must violate MainStressLast twice (once for each clitic, since their last syllable isn't stressed) and Lapse once (because the sequence of unstressed clitics creates a gap). The candidate that obeys MainStressLast —(b)— needs to stress both clitics in order to do so, which counts as two violations of higher-ranked NoStress$_{\text{CLITICS}}$ and, finally, the candidate that obeys Lapse —(c)— needs to stress the last clitic in order to do so, incurring in a violation to NoStress$_{\text{CLITICS}}$.

(161) Stress assignment for (159)

amtôtxi thõ_{clit} ra_{clit}		NoStr$_{\text{CLIT}}$	MnStrLast	Lapse
a.	☞ ˌamtôtxi thõ_{clit} ra_{clit}		**	*
b.	ˌamtôˈtxi ˈthõ_{clit} ˈra_{clit}	*!*		
c.	ˌamtôˈtxi thõ_{clit} ˈra_{clit}	*!	*	

Though there can be arguments to prefer a foot-based account of stress assignment in general, the perhaps more outdated account I use here has the advantage of requiring fewer constraints. On the other hand, I suppose it would be a straightforward matter to adapt to a foot-based account of stress the stress-based account of clitic deletion that I propose in the next section.

4.5 Deriving clitic deletion

Since the constraints listed in (160) are independently necessary to account for stress placement in Kĩsêdjê, it would be a welcome result if they could also be made responsible for Kĩsêdjê's dispreference for clitic sequences that I described in section 4.3. We can achieve this by properly ranking the stress-assigning constraints given in (160) with respect to the morphological insertion constraints Max-M(FS) and Max-M(F) defined by Wolf (2008). His definitions are copied in (162) and explained in what follows.

(162) Morphological faithfulness constraints

a. Max-M(F): For every instance ϕ of the feature F at the *morpheme level*, assign a violation-mark if there is not an instance ϕ' of F at the *morph level*, such that $\phi \mathfrak{R} \phi'$.

b. Max-M(FS): For every Feature Structure (FS) Φ at the *morpheme level*, assign a violation-mark if there is not an FS Φ' at the *morph level*, such that $\Phi \mathfrak{R} \Phi'$.

In Wolf's system, these constraints evaluate output representations consisting of morphs (a representation which he calls *morph level*) with respect to input representations consisting of morphemes (which he calls the *morpheme level*). The morphemes, which constitute the input representations, are bundles of morphosyntactic features ϕ, and contain no phonological features. Wolf calls these bundles feature structures, Φ. The morphs, which constitute the output representations, are pairings between feature structures and phonological forms. $\mathfrak{R}$ is the correspondence relation.

Since only morphs have phonological features, it isn't possible to compare morphs and morphemes in terms of phonological faithfulness. The only domain of application of phonological faithfulness constraints in Wolf's system are candidate chains. Since we don't need to have recourse to candidate chains to account for the phenomenon at hand, the only kind of phonological constraints discussed here will be markedness constraints.

Before we discuss how to derive Kĩsêdjê's dispreference for clitic sequences through the interaction of the morphological constraints proposed by Wolf (2008) with the stress-related constraints introduced in the last section, we need to find out exactly what morphosyntactic features are involved in the relevant derivations. That is the topic of section 4.5.1. In section 4.5.2 I will detail my proposal of how sentences formed by narrow syntax are chunked up into pieces the size of prosodic phrases which are then input to morphological derivation and, finally, sections 4.5.3 and 4.5.4 exemplify, respectively, the derivation of situations where clitic deletion obtains and the derivation of situations where sequences of clitics are tolerated.

4.5.1 The Features on Conjunctions

As described in section 4.3.1.2, different-subject coordinating conjunctions agree overtly with nominative subjects following them. For non-nominative subjects, default agreement, homophonous with 3rd person agreement, is inserted. I will illustrate how this agreement system works with some examples.

In order to make the exposition clearer, I will be employing only examples that *don't* feature deletion. Example (142), repeated below as (163), will illustrate the derivation of sentences with nominative participant subjects in the clause following the conjunction. The derivation of sentences with nominative 3rd person subjects in the clause following the conjunction will be illustrated with example (146), repeated below as (164). The derivation of sentences with non-nominative subjects in the clause following the pronoun will be illustrated with example (145-a-ii), repeated below as (165).

(163) Anticipatory agreement with participant nominative subjects
[Atha=n =ka khu-py] [=**wa** nhum=na =**wa** tho ∅-kande
[that=FACT =2_{nom} 3_{acc}-get] [=and.DS.1_{nom} who=FACT =1_{nom} 3.with 3_{acc}-$treat_{emb}$
mã?]
PROSP]
'You got that and who will I treat with it for you?'

(164) Anticipatory agreement with 3rd person nominative subjects
Hẽn [=wa pâj] [=**nhy** **∅** khu-ku.]
FACT [=1_{nom} arrive] [=and.DS.3_{nom} 3_{nom} 3_{acc}-eat]
'I arrived and (then) he ate it'

(165) Default exponent inserted for anticipatory agreement with non-nominative subjects
[[I-pôt] [=**nhy** **kare** ∅-khuru]] mã.
[[1_{abs}-$arrive_{emb}$] [=and.DS.2_{erg} 2_{erg} 3_{abs}-eat_{emb}]] PROSP
'I will arrive and (then) you will eat (it)'

Different-subject conjunctions enter the derivation unvalued for φ-features, as in (166), (167) and (168) below. For ease of exposition I am presenting the sentences in their final form, ignoring the fact that, if we assume that derivations proceeds by phases (Chomsky, 2001b), much of the upper structure has actually not been merged yet at the derivational step when anticipatory subject agreement happens.

(166) Derivation with participant nominative subjects
[Atha=n =ka khu-py] [=**?** nhum=na =**wa** tho ∅-kande
[that=FACT =2_{nom} 3_{acc}-get] [=and.DS.**u**φ who=FACT =1_{nom} 3.with 3_{acc}-$treat_{emb}$
mã?]
PROSP]
'You got that and who will I treat with it for you?'

(167) Derivation with 3rd person nominative subjects
Hẽn [=wa pâj] [=**?** **∅** khu-ku.]
FACT [=1_{nom} arrive] [=and.DS.**u**φ 3_{nom} 3_{acc}-eat]
'I arrived and (then) he ate it'

(168) Derivation with non-nominative subjects
[[I-pôt] [=**?** **kare** ∅-khuru]] mã.
[[1_{abs}-arrive] [=and.DS.**u**φ 2_{erg} 3_{abs}-eat]] PROSP
'I will arrive and (then) you will eat (it)'

The φ-probes in the conjunctions search the lower structure and match the φ-features in the following subject. As as result of matching, they copy the subject's φ-features, as in (169), (170) and (171) below.

(169) Valuing with participant nominative subjects
'You got that and who will I treat with it for you?'
[Atha=n =ka khu-py] [=**wa** nhum=na=**wa** tho ∅-kande
[that=FACT $=2_{nom}$ 3_{acc}-get] [=and.DS.1_{nom} who=FACT=1_{nom} 3.with 3_{acc}-$treat_{emb}$
mã?]
PROSP]

(170) Valuing with 3rd person nominative subjects
'I arrived and (then) he ate it'
Hẽn [=wa pâj] [=**nhy** **∅** khu-ku.]
FACT [$=1_{nom}$ arrive] [=and.DS.3_{nom} 3_{nom} 3_{acc}-eat]

When the following subject is not nominative, as in (168), a specific agreement exponent isn't available, and default agreement, homophonous with 3rd person nominative agreement, is inserted instead. Given the hypothesis that those agreement markers originate from the reinterpretation of clitic pronouns, we can derive the fact that there aren't specific exponents for agreement with non-nominative subjects from the fact that only nominative subjects have clitic forms.

(171) Default valuing with non-nominative subjects
'I will arrive and (then) you will eat (it)'
[[I-pôt] [=**nhy** **kare** ∅-khuru]] mã.
[[1_{abs}-$arrive_{emb}$] [=and.DS.2_{erg} 2_{erg} 3_{abs}-eat_{emb}]] PROSP

4.5.2 Domain of Evaluation

An important aspect of the derivations I am proposing next is exactly how big a chunk of sentence is sent to morphology for evaluation. From the description of the Kĩsêdjê clitic dispreference given in section 4.3, it is clear that such chunk is bigger than a word. Given the constraints I am about to propose, that chunk will have to be smaller than the whole sentence. In principle it would seem like the simplest choice would be to postulate a window that fits exactly one stressed word plus any following clitics, but in two circumstances the input to morphological constraints will actually contain more than one stressed word —those will be the derivations represented in the next section in tableaux (181) and (199).

The domain of evaluation of morphological constraints I will be assuming is a prosodic phrase (Selkirk, 1986). Selkirk proposes that prosodic phrase boundaries are defined in the narrow syntax, either as the left edges of maximal projections, or as their right edge. That parameter is language-specific. In Kĩsêdjê, prosodic phrase boundaries seem to be marked at the left edge of syntactic phrases with overt specifiers.

One way of diagnosing prosodic phrase boundaries is as the positions where pauses would be natural. Examples such as (172-a) and (172-b) constitute evidence that Kĩsêdjê marks prosodic phrase boundaries at least at the left edge of PPs and DPs. In (172-a) there can be a pause before the PP or between the PP and the DP. That is so because the PP isn't embedded in the NP, and therefore their left edges don't coincide, as in (172-b). In the latter, since now the PP *is* embedded in the NP, their left edges are superimposed, and consequently there is no prosodic phrase boundary between PP and head noun.

(172) Positions where pauses can be inserted

a. Mẽndjê=ra (#) [$_{PP}$ ajmẽn mã] (#) [$_{NP}$ ngere] jarẽ.
women=NOM each-other to song teach
'The women taught songs to each other.'

b. Mẽndjê=ra (#) [$_{NP}$ [$_{PP}$ ajmẽn ndo] (*#) ngere] jarẽ.
women=NOM each-other with song teach
'The women taught songs about each other.'

Pause evidence isn't conclusive, though. Supporting evidence that Kĩsêdjê prosodic phrase boundaries are mapped from the left edge of syntactic phrases with overt specifiers can be obtained from looking at the pitch tracks of these sentences. Comparing the pitch tracks of (172-a) and (172-b), we can notice an abrupt lowering of overall pitch between the PP and the noun in figure 4.1, pitch track of (172-a), but not in figure 4.2, pitch track of (172-b). If such pitch lowering marks a prosodic phrase boundary, this corroborates the theory that Kĩsêdjê maps the left edge of syntactic phrases to prosodic phrase boundaries.

Two more examples with a similar structure as (172-a) and (172-b) are supplied below —(173-a) and (173-b). Their pitch tracks, represented respectively in figure 4.3 and figure 4.4, also display the same pattern: there is an abrupt lowering in pitch between the PP and the noun in (173-a), but not between the PP and the noun in (173-b), that is, only in the position I claim correspond to prosodic phrase boundaries.

(173) Positions where pauses can be inserted

a. Mẽndjê nira=ra (#) [$_{PP}$ Ø-nã mã] (#) [$_{NP}$ ngere] jarẽ.
women that=NOM 3_{abs}-mother to song teach
'That woman taught songs to her mother.'

b. Mẽndjê nira=ra (#) [$_{NP}$ [$_{PP}$ Ø-nã ndo] (*#) ngere] jarẽ.
women that=NOM 3_{abs}-mother with song teach
'That woman taught songs about her mother.'

Figure 4.1: Pitch track of (172-a)

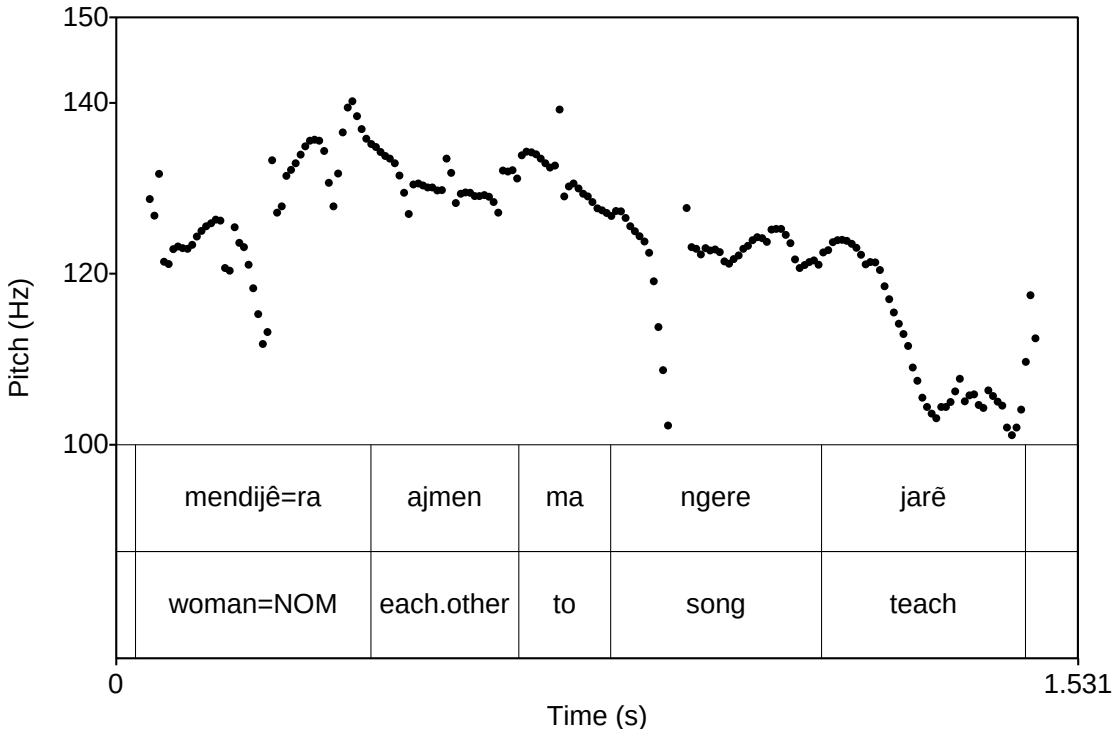


Figure 4.2: Pitch track of (172-b)

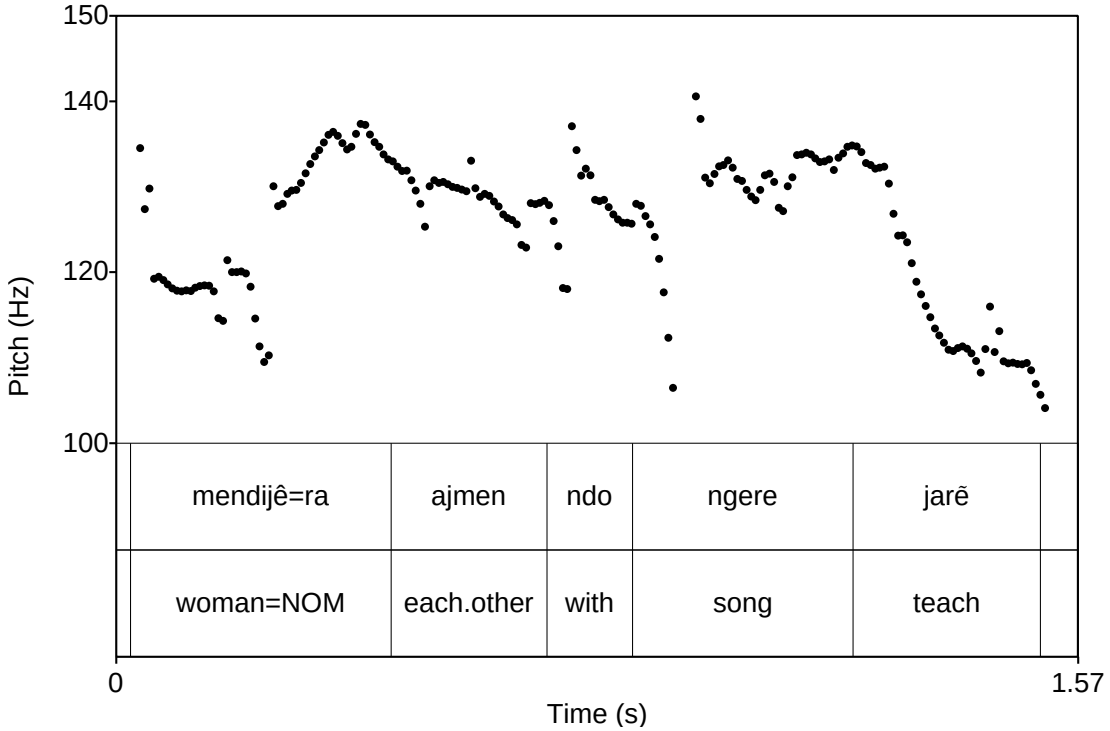


Figure 4.3: Pitch track of (173-a)

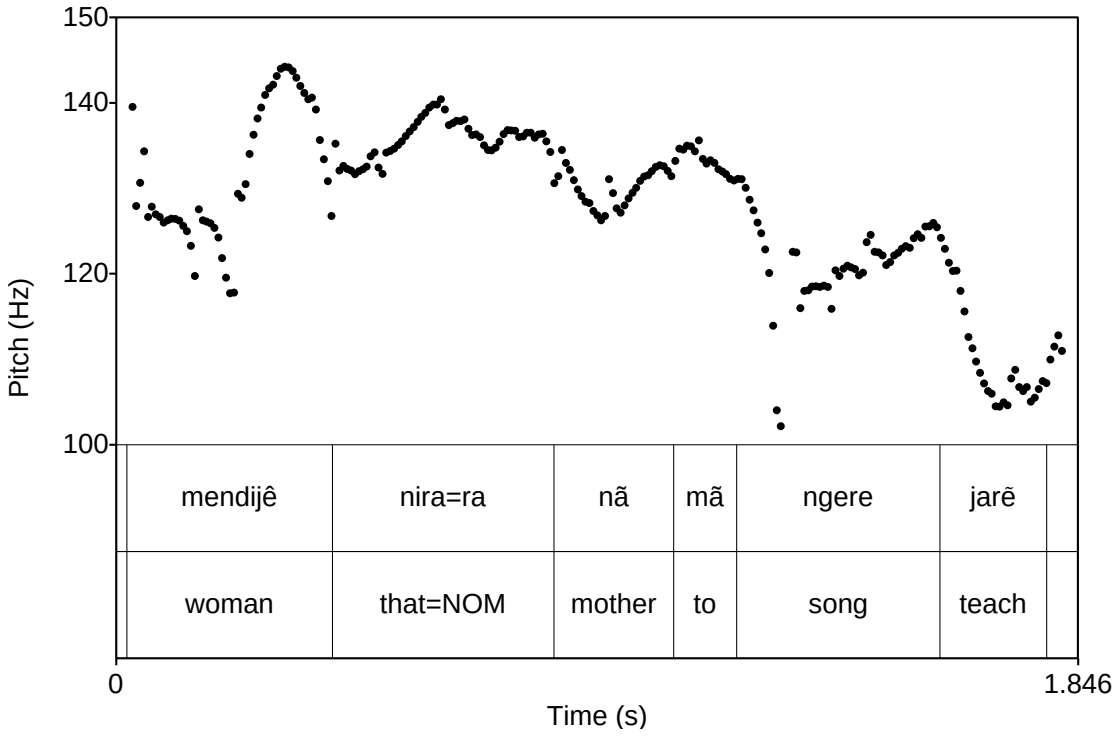
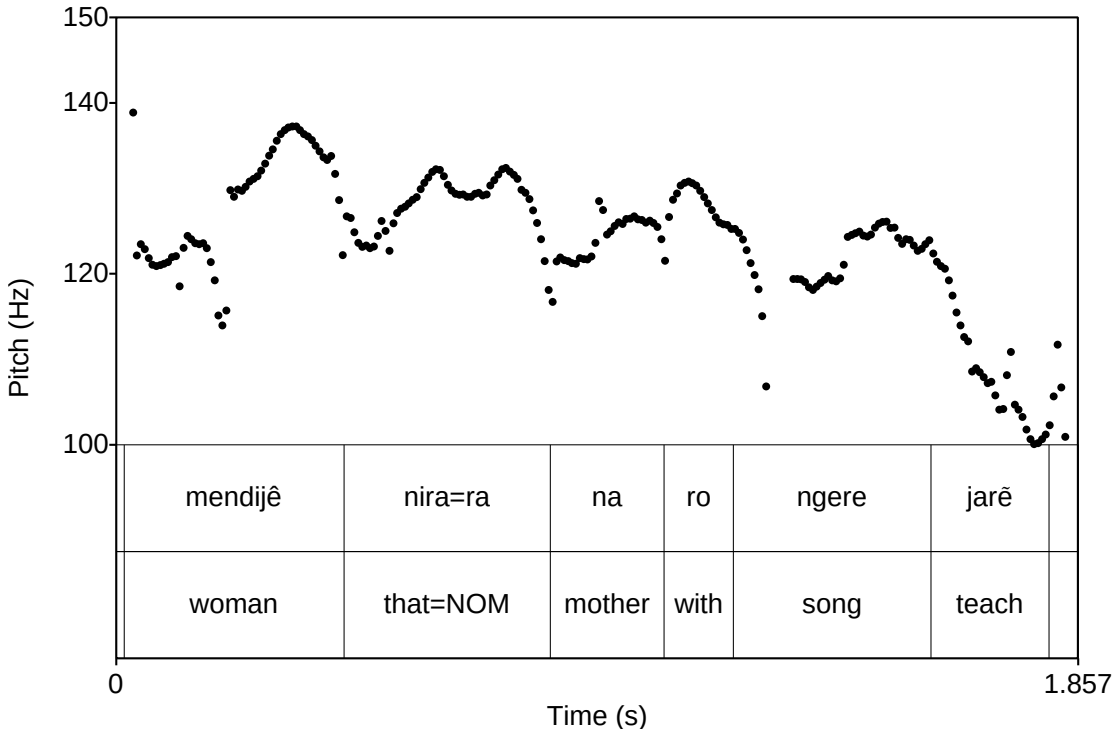


Figure 4.4: Pitch track of (173-b)



In section 4.3, I showed that clitics whose features were in a set-subset relation never surfaced adjacent, the clitic containing the fewest features suffering deletion. I also showed that when those clitics were separated by intervening material big enough, deletion didn't happen. The latter situations can now be understood as situations in which the feature-sharing clitics were separated in different prosodic phrases. The deletion-bleeding prosodic phrase boundary between the clitics was due to the left edge of a topic phrase or a PP inserted between the clitics.

This account predicts the existence of situations where adjacent feature-sharing clitics can actually not be targeted for deletion. That would happen if, though adjacent, those clitics were still separated by a prosodic phrase boundary. That prediction is borne out. In (174) the rightmost plural clitic in is contained in a PP. The left edge of this PP defines a prosodic phrase boundary, which separates this clitic from the leftmost plural clitic. Being in separate prosodic phrases, these clitics are submitted to morphological derivation in separate goes, and therefore the conditions for deletion don't obtain.

(174) Adjacent plural clitics in different prosodic phrases
Hẽn =ka =**aj** (#) [PP **aj**=i-ro] amba?
FACT =2_{nom} =PL PL=1_{abs}-with think
'Did you guys miss us?'

4.5.3 Deriving Deletion

The ranking that derives the Kĩsêdjê dispreference for sequences of clitics is MAX-M(F) ≫ NOSTRESS$_{CLITICS}$ ≫ MAINSTRESSLAST, LAPSE ≫ MAX-M(F). Let us observe how that ranking derives deletion in the situations where a plural marker is adjacent to another plural marker in the input (the situations described in section 4.3.1.1). I will illustrate that scenario with example (130-a), repeated below as (175-a). As discussed in section 4.3.1.1, such example is structurally ambiguous. Here I am restricting myself to the underlying structure where both arguments are plural. As I argued in that section, other possible underlying structures that also surface as (175-a) have a single plural marker in them. Since they don't feature deletion they aren't interesting.

(175) Intolerable sequence of PL + PL
a. Hẽn =wa kê =**aj** s-õmu.
FACT =1_{nom} also =PL 3_{acc}-see
'We also saw them'
b. *Hẽn =wa kê =**aj** =**aj** s-õmu.
FACT =1_{nom} also =PL =PL 3_{acc}-see

(176) Input representation of (175-a)
FACT {1_{nom}} 'also' {pl} {pl} {3_{acc}} 'see'
'We also saw them'

The input representation of (175-a) is (176) and the derivation of the relevant prosodic phrase is represented in tableau (177). Candidates (b) and (c), which strive to comply with LAPSE, are forced to violate higher-ranked constraint NOSTRESS$_{CLITICS}$, whereas the candidate that complies with NOSTRESS$_{CLITICS}$ —(a)— violates LAPSE. The latter would be a winning candidate, were it not possible to obey both LAPSE as well as NOSTRESS$_{CLITIC}$ by incurring in a violation to a constraint which is ranked lower than both, MAX-M(FS). That is the strategy candidate (d) adopts. This candidate maintains a single plural feature which bears correspondence to the two plural features in the input (correspondence relations are noted with subscript numbers). This is enough to satisfy higher-ranked constraint MAX-M(F). Note that the candidate that fares best with respect to stress related constraints —(e)— violates MAX-M(F) because it fails to represent the plural features present in the input at all.

(177) Derivation of (175-a)

		‘also’$_1$	{pl$_2$}	{pl$_3$}	MAX-M(F)	NOSTR$_{CLT}$	MNSTRLAST	LAPSE	MAX-M(FS)
a.		‘also’$_1$ ˈkê	{pl$_2$} aj$_{clit}$	{pl$_3$} aj$_{clit}$			**!	*	
b.		‘also’$_1$ ˈkê	{pl$_2$} aj$_{clit}$	{pl$_3$} ˈaj$_{clit}$		*!	*		
c.		‘also’$_1$ kê	{pl$_2$} ˈaj$_{clit}$	{pl$_3$} aj$_{clit}$		*!	**		
d.	☞	‘also’$_1$ ˈkê	{pl$_{2,3}$} aj$_{clit}$				*		*
e.		‘also’$_1$ ˈkê			*!*				**

Let us now look at the derivation of a sentence in which a subject clitic is deleted under adjacency to a different-subject coordinating conjunction (178). The stage of the derivation of (178) that is input to morphological computation is (179), in which syntactic agreement between the different-subject conjunction and the following subject has already happened.

(178) Example of the intolerable sequence conjunction clitic + nominative clitic
Hẽn [=wa pâj] [=**ka** =~~ka~~ khu-ku.]
FACT [=1$_{nom}$ arrive] [=and.DS.2$_{nom}$ =~~2$_{nom}$~~ 3$_{acc}$-eat]
‘I arrived and (then) you ate it.’

(179) Point of the derivation at which morphological constraints are evaluated
FACT [{1$_{nom}$} ‘arrive’] [{and.DS.2$_{nom}$ } {2$_{nom}$ } {3$_{rd}$} ‘eat’]

Tableau (180) gives the derivation of the prosodic phrase of (179) in which deletion occurs. Candidates (a), (b) and (c) are completely faithful to the morphological faithfulness constraints MAX-M(F) and MAX-M(FS). Stress assignment constraints only would dictate that the winner among them would be (a), since it complies with the higher-ranked stress-related constraint, NOSTRESS$_{CLITICS}$. This candidate, however, is in competition with (d), a candidate which manages to obey a further stress-related constraint, LAPSE, by violating the lowest ranked constraint in the tableau, MAX-M(FS). This candidate can afford to do so by deleting the feature structure of the clitic pronoun, whose individual features are nonetheless realized in a surviving feature structure of the coordinating conjunction. The winner doesn't incur in violations to higher-ranked MAX-M(F), since the features in the realized feature structure stand in perfect correspondence to the features of both feature structures present in the input. Only the candidate that over-deletes in order to be completely compliant with the stress-related constraints —(f)— violates higher-ranked MAX-M(F).

(180) Derivation of (179)

		‘arrive’$_1$	{‘and’.DS$_2$, 2$^{nom}{}_3$}	{2$^{nom}{}_4$}	Max-M(F)	NoStr$_{CLT}$	MnStrLast	Lapse	Max-M(FS)
a.		‘arrive’$_1$ ˈpâj	{‘and.ds’$_2$, 2$^{nd}{}_3$} ka$_{clit}$	{2$^{nd}{}_4$} ka$_{clit}$			*!*	*	
b.		‘arrive’$_1$ ˈpâj	{‘and.ds’$_2$, 2$^{nd}{}_3$} ka$_{clit}$	{2$^{nd}{}_4$} ˈka$_{clit}$		*!	*		
c.		‘arrive’$_1$ pâj	{‘and.ds’$_2$, 2$^{nd}{}_3$} ˈka$_{clit}$	{2$^{nd}{}_4$} ka$_{clit}$		*!	**		
d.	☞	‘arrive’$_1$ ˈpâj	{‘and.ds’$_2$, 2$^{nd}{}_{3,4}$} ka$_{clit}$				*!		*
e.		‘arrive’$_1$ ˈpâj		{2$^{nd}{}_{3,4}$} ka$_{clit}$	*!		*		*
f.		‘arrive’$_1$ ˈpâj			*!**				**

Note that, as we anticipated in section 4.3.1.2, theory internal-reasons lead us to posit that deletion targets the pronoun rather than the conjunction, even though they are homophones. Candidate (e), which deletes the conjunction instead, violates Max-M(F). This is due to the fact that by only realizing the features present in the pronoun, the conjunction-specific features lack correspondents in the output, in violation to Max-M(F).

For the sake of clarity, every tableau must gloss over a few candidates. For instance, in the tableau above I didn't consider a candidate that avoids violating stress-related constraints by moving one of the clitics across an adjacent non-clitic word. It could seem like in order to rule out such candidate I would have to include in my tableaux a constraint militating against dislocation. This is actually not necessary, though. Max-M(FS) is low-ranked enough that deletion is always an affordable option, as we can see in tableau (181) (W stands for a non-clitic word). Candidate (a) tries to be as faithful to the input as possible and in order to do so violates MainStressLast twice and Lapse once. Candidate (b) dislocates one of the violating clitics across an adjacent non-clitic word and fares a little better: it manages to comply with Lapse. However, the candidate that features deletion –(c)– ends up containing one fewer violation of MainStressLast besides also complying with Lapse. This candidate does so by deleting the clitic with fewer features. By doing so this candidate only violates the lowest-ranked constraint in the tableau, Max-M(FS).

(181) Discarding candidates that dislocate clitics

		‘arrive’$_1$	{‘and’.DS$_2$, 2$^{nom}{}_3$}	{2$^{nom}{}_4$}	‘w’$_5$	Max-M(F)	NoStr$_{CLT}$	MnStrLast	Lapse	Max-M(FS)
a.		‘arrive’$_1$ ˈpâj	{‘and.ds’$_2$, 2$^{nd}{}_3$} ka$_{clit}$	{2$^{nd}{}_4$} ka$_{clit}$	‘w’$_5$ ˈW			**!	*	
b.		‘arrive’$_1$ ˈpâj	{‘and.ds’$_2$, 2$^{nd}{}_3$} ka$_{clit}$	‘w’$_5$ ˈW	{2$^{nd}{}_4$} ka$_{clit}$			**!		
c.	☞	‘arrive’$_1$ ˈpâj	{‘and.ds’$_2$, 2$^{nd}{}_{3,4}$} ka$_{clit}$		‘w’$_5$ ˈW			*		*

A LinearOrder constraint can become relevant for computations involving clitics in languages where clitics actually move around. It might be useful, for instance, for an account of Romance clitic movement, though I don't intend to work out the details of such a proposal here.

In order to discuss deletion in same-subject contexts, I will first need to say something about the syntax of *switch-reference marking*. Jacobsen (1967), who coined the term "switch-reference", describes it as follows: "It consists simply in the fact that a switch in subject or agent (...) is obligatorily indicated in certain situations by a morpheme, usually suffixed". Kĩsêdjê coordinating conjunctions bear that role. A fuller discussion of the literature on switch-reference (which includes Finer 1984, Stirling 1993 and Keine 2010) is going to happen in the next chapter. For the current purposes, though, we don't need yet to fully understand how the mechanics of switch-reference operates. We only need to have an clear idea about what the final representation input to morphology is.

In (182), the conjunction *=ne* indicates co-indexation between the subjects of the conjuncts (one of which corresponds to a pronoun that gets deleted before the end of the day). Since the subjects themselves are pronouns, binding principle B states they can't be bound. No problem there: they are in different clauses, and therefore in different binding domains. The question is, how do they come to be coindexed?

(182) Same-subject coordination
Hẽn =wa pâj=ne =~~wa~~ s-õmu.
FACT =1_{nom} arrive=and.SS =~~1_{nom}~~ 3_{acc}-see
'I arrived and saw it.'

In chapter 5, I will adopt a version of Finer's (1985) theory, where switch-reference markers act as intermediates for coindexation. I will assume that, as part of that process, switch-reference markers come to agree with the subjects they relate. In Kĩsêdjê that agreement is overtly expressed on different-subject conjunctions agreeing with nominative subjects —as in (178)—, and I propose this kind of agreement also obtains, albeit covertly, between same-subject conjunction and following subject —as in (183), my regloss of (182).

(183) Hẽn =wa pâj=ne =~~wa~~ s-õmu.
FACT =1_{nom} arrive=and.SS.1_{nom} =~~1_{nom}~~ 3_{acc}-see
'I arrived and saw it.'

Agreement on same-subject markers, whose covert existence I am postulating for Kĩsêdjê, exists overtly in Kanite (Trans-New Guinea, Papua New Guinea, McCarthy 1965) and Shipibo (Panoan, Peru, Baker 2013) as can be seen in examples (184) —where the boldfaced agreeing same-subject markers could in principle be misidentified for subject agreement markers, if comparison with proper subject agreement suffixes (in italics), didn't rule that possibility out— and (185) —which overtly agrees in case with the subject of the following clause.

(184) Agreement between SS marker and coming subject in number in Kanite
[A-ke-**no**] [ne-to-**no**] [v-*i*-e.]
[3-see-**3s**] [eat-fist-**3s**] [go-*3s*-indicative]
'Having seen it and having eaten, he went.'

(185) Agreement in case between SS marker and coming subject in Shipibo
a. [Yapa payot-a pi-**xon**-ra,] [nokon shino-n e-a mawa-xon-ke.]
[fish spoil-PTPL eat-**SS.ERG**-PRT] [my.GEN monkey-ERG me-ABS die-APPL-PRF]
'Having eaten spoiled fish, my monkey died on me.'
b. [Saweti oin-**ax**-a,] [Rosa ja kee-nai.]
[Dress see-**SS.ABS**-PTL] [Rosa it want-IMPF]
'Her seeing the dress, Rosa wanted it.'

The stage of (182)/(183) that is input to morphology is (186). Tableau (187) contains the derivation of the prosodic phrase of (182)/(183) where deletion occurs.

(186) FACT {1st} 'arrive {'and.ss'.1st } {1st } {3rd} 'see' —structure of (182)/(183)

Candidates (a), (b) and (c) strive to comply with morphological faithfulness MAX-M(FS), that is to say, they don't feature deletion. Among them, (a) fares better, since it avoids violating the high-ranked stress-related constraint NOSTRESS$_{\text{CLITICS}}$. In order to do so it has to incur in three violations to other constraints: the sequence of unstressed clitics creates a gap, in violation of LAPSE, and leaving the clitics unstressed creates two violations to MAINSTRESSLAST. Candidates (b) and (c) strive to comply with LAPSE, but every way to do so involves accenting a clitic, in violation to higher-ranked NOSTRESS$_{\text{CLITICS}}$. Deletion of the clitic pronoun —as in candidate (d)— only violates the lowest ranked constraint in the tableau, MAX-M(FS), and results in one fewer violation to MAINSTRESSLAST, besides complete compliance with LAPSE. It also doesn't incur in violations to MAX-M(F), since the features in the deleted terminal (φ-features) have correspondents in the surviving terminal. If deletion proceeded the other way around —as in (e)—, MAX-M(F) would be violated. That is so because in candidate (e) some of the features of the deleted conjunction don't find correspondents in the surviving feature structure. Finally, deleting all clitics, though allowing maximal compliance with stress-related constraints, will violate MAX-M(FS) and MAX-M(F), the latter being the highest-ranked constraint in the tableau.

(187) Derivation of (182)

		'arrive'$_1$	{'and.ss'$_2$, 1$^{\text{nom}}{}_3$}	{1$^{\text{nom}}{}_4$}	MAX-M(F)	NOSTR$_{\text{CLT}}$	MNSTRLAST	LAPSE	MAX-M(FS)
a.		'arrive'$_1$ 'pâj	{'and.ss'$_2$, 1st$_3$} ne$_{\text{clit}}$	{1st$_4$} wa$_{\text{clit}}$			*!*	*	
b.		'arrive'$_1$ 'pâj	{'and.ss'$_2$, 1st$_3$} ne$_{\text{clit}}$	{1st$_4$} 'wa$_{\text{clit}}$		*!	*		
c.		'arrive'$_1$ pâj	{'and.ss'$_2$, 1st$_3$} 'ne$_{\text{clit}}$	{1st$_4$} wa$_{\text{clit}}$		*!	**		
d.	☞	'arrive'$_1$ 'pâj	{'and.ss'$_2$, 1st$_{3,4}$} ne$_{\text{clit}}$				*!		*
e.		'arrive'$_1$ 'pâj		{1st$_{3,4}$} wa$_{\text{clit}}$	*!		*		*
f.		'arrive'$_1$ 'pâj			*!**				**

4.5.4 Deriving Tolerance

Now observe how the same constraints interact differently when evaluating inputs containing the tolerated sequence of clitics *Inflection + Nominative Pronoun*. I illustrate that situation with example (188). The stage of (188) that is input to morphology is (189). The derivation of the relevant prosodic phrase is shown in tableau (190).

(188) Tolerated sequence of clitics
A-pãm=**na** =**wa** s-õmu.
2$_{\text{abs}}$-father=FACT =1$_{\text{nom}}$ 3$_{\text{acc}}$-see
'It was your father that I saw.'

(189) Structure of (188)
'your-father' FACT $\{1_{nom}\}$ $\{3_{acc}\}$ 'see'

Candidate (f), the only one that doesn't violate stress-related constraints, incurs in two violations to higher-ranked MAX-M(F). That candidate features radical deletion, which was never a successful strategy in previous tableaux. Candidates (d) and (e) adopt the same strategy as winning candidates from previous tableaux, which consists in deleting one of the two clitics. However, unlike previous derivations, where the same features were present in multiple positions, here each of the clitics contains a unique set of features. That makes it impossible to delete one feature structure while still realizing its features on remaining feature structures in the output, and this is why candidates that attempt deletion violate high-ranked constraint MAX-M(F). Among the candidates that don't violate MAX-M(F), the system picks as winner the one that complies better with stress-related constraints, namely, (a). Candidates (b) and (c) try different strategies in order to better comply with MAINSTRESSRIGHT and LAPSE, but either strategy forces them to violate $\text{NOSTRESS}_{\text{CLITICS}}$ and is therefore not viable.

(190) Derivation of (189)

		'your-father'$_1$	{FACT$_2$}	{1^{nom}$_3$}	MAX-M(F)	NOSTR$_{CLT}$	MINSTRLAST	LAPSE	MAX-M(FS)
a.	☞	'your-father'$_1$ a'pãm	{FACT$_2$} na$_{clit}$	{1^{nom}$_3$} wa$_{clit}$			*!*	*	
b.		'your-father'$_1$ a'pãm	{FACT$_2$} na$_{clit}$	{1^{nom}$_3$} 'wa$_{clit}$		*!	*		
c.		'your-father'$_1$ 'apãm	{FACT$_2$} 'na$_{clit}$	{1^{nom}$_3$} wa$_{clit}$		*!	**		
d.		'your-father'$_1$ a'pãm	{FACT$_2$} na$_{clit}$		*!		*		*
e.		'your-father'$_1$ a'pãm		{1^{nom}$_3$} wa$_{clit}$	*!		*		*
f.		'your-father'$_1$ a'pãm			*!*				**

In section 4.3.2.2 we learned about another sequence of clitics that isn't targeted by deletion: a nominative pronoun followed by a plural marker. In (191) below —copy of (154)— that situation obtains. Here I am not considering the third meaning that can be attributed to (191), namely, 'We saw them.' That meaning corresponds to an underlying structure with two plural markers, whereas, for the sake of simplicity, the structure I am interested in is the one containing only one plural marker, that is, one that doesn't involve deletion. That structure is (192).

(191) Copy of (154)
Hẽn =**wa** =**aj** s-õmu.
FACT =1$_{nom}$ =PL 3$_{acc}$-see
'I saw them/We saw him'

(192) Structure of (191)
FACT {1st} {pl} {3rd} 'see'

Tableau (193) shows the derivation of the relevant prosodic phrase of (192). Here any candidate that tries to better comply with the stress-related constraints by resorting to deletion will violate the highest-ranked constraint in the tableau, MAX-M(F). For candidate (f), this is simply due to the fact that both feature structures were deleted, and therefore their features don't find correspondents in the output. Candidates (d) and (e) delete only one of the clitics. Notwithstanding which clitic is

deleted, though, the features on the remaining one can't bear correspondence to the original features on both clitics. The only viable candidates are those that are completely faithful to morphology —(a), (b) and (c). Any attempt to comply with MainStressLeft or Lapse implies in violations to higher-ranked Max-M(F), and that is why candidates (b) and (c) are out. The winning candidate, (a), violates the constraints that (b) and (c) try to comply with, but in so doing it can comply with higher-ranked $\text{NoStress}_{\text{clitics}}$.

(193) Derivation of (191)

		FACT$_1$	{1$^{\text{nom}}{}_2$}	{pl$_3$}	Max-M(F)	$\text{NoStr}_{\text{clt}}$	MnStrLast	Lapse	Max-M(FS)
a.	☞	FACT$_1$ 'hẽn	{1$^{\text{nom}}{}_2$} wa$_{\text{clit}}$	{pl$_3$} aj$_{\text{clit}}$			*!*	*	
b.		FACT$_1$ 'hẽn	{1$^{\text{nom}}{}_2$} wa$_{\text{clit}}$	{pl$_3$} 'aj$_{\text{clit}}$		*!	*		
c.		FACT$_1$ hẽn	{1$^{\text{nom}}{}_2$} 'wa$_{\text{clit}}$	{pl$_3$} aj$_{\text{clit}}$		*!	**		
d.		FACT$_1$ 'hẽn	{1$^{\text{nom}}{}_2$} wa$_{\text{clit}}$		*!		*		*
e.		FACT$_1$ 'hẽn		{pl$_3$} aj$_{\text{clit}}$	*!		*		*
f.		FACT$_1$ 'hẽn			*!*				**

In spite of its function in stress assignment, the constraint Lapse hasn't played a decisive role in the derivation of clitic deletion. This is so because all violations to Lapse due to the retention of a clitic are invariably accompanied by violations to equally-ranked MainStressLast. Clitics are simply dispreferred and will be deleted whenever possible.

Though Lapse doesn't matter in situations of clitic deletion, it plays an active role in the situations described at the end of section 4.3.2.2. Those were situations where clitic deletion was already blocked —because it would imply in violations to Max-M(F)— but where, in order to better comply with Lapse, a specific word order could be imposed on the output. Let me remind you of those cases.

In sentences with ergative subjects, there are three possible positions for a plural particle linked to the subject: preceding the subject pronoun (194-a), following it (194-b) or across an adverb from the subject pronoun (195). In a similar sentence with a nominative subject, only the latter position is available, that is, the plural marker has to be non-adjacent to the pronoun (196), though when no adverb is available nominative pronoun and plural marker may stay adjacent (197). This order only becomes ungrammatical when a possible intervener is available, as in (196).

(194) Copy of (155)

a. **Aj**= ire kê thep kuru mã.
PL= 1$_{\text{erg}}$ also fish eat$_{\text{emb}}$ PROSP
'Also we will eat fish.'

b. Ire =**aj** kê thep kuru mã.
1$_{\text{erg}}$ =PL also fish eat$_{\text{emb}}$ PROSP
'Also we will eat fish.'

(195) Copy of (156)

Ire kê =**aj** thep kuru mã.
1$_{\text{erg}}$ also =PL fish eat$_{\text{emb}}$ PROSP
'We will eat also fish'

(196) Copy of (157)

a. Hẽn =**wa** kê =**aj** twâ.
FACT =1_{nom} also =PL bathe
'We have also bathed.'

b. *Hẽn =**wa** =**aj** kê twâ.
FACT =1_{nom} =PL also bathe

(197) Hẽn =**wa** =**aj** twâ.
FACT =1_{nom} =PL bathe
'We have bathed.'

This state of affairs is straightforwardly predicted by the constraint ranking I have employed to derive clitic deletion and retention. Except, now, LAPSE plays a decisive role. Some considerations are in order before we jump onto the tableau. If all the word-order possibilities instantiated in the previous sentences with ergative subjects are also available for sentences with nominative subjects, the input form of (196) can feature the same order as (194-b). Such representation to (196) is given below in (198).

(198) Structure of (196)
FACT {1_{nom}} {pl} 'also' 'bathe'

Tableau (199) contains the derivation of the relevant prosodic phrase of (198). The winner —(a)— manages to be more compliant with LAPSE by positioning the clitics in non-adjacent positions. The constraint violated by the winner, LINEARORDER, is ranked lower than LAPSE. That ranking is not ad-hoc. We have seen that when other considerations aren't at play (in particular, when no consideration of stress are at play), the plural marker can indeed be placed in multiple different positions —namely, the ones seen in examples (194-a), (194-b) and (195)— a fact that can be associated with a low-ranked LINEARORDER constraint.

(199) Derivation of the relevant part of (198)

		FACT$_1$	{$1^{nom}{}_2$}	{pl$_3$}	'also'$_4$	MAX-M(F)	NOSTR$_{CLT}$	MINSTRLAST	LAPSE	MAX-M(FS)	LINORD
a.	☞	FACT$_1$ 'hẽn	{$1^{nom}{}_2$} wa$_{clit}$	'also'$_4$ 'kê	{pl$_3$} aj$_{clit}$			**			*
b.		FACT$_1$ 'hẽn	{$1^{nom}{}_2$} wa$_{clit}$	{pl$_3$} aj$_{clit}$	'also'$_4$ 'kê			**	*!		

4.6 Conclusion

The Kĩsêdjê language displays a dispreference for stressless elements, and this results in deletion of stressless elements whenever possible. I modeled that phenomenon as the interaction of stress-assigning constraints and morphological faithfulness constraints. The same constraints that account for an iambic stress pattern in stress-bearing words account, in prosodic phrases, for deletion or, when the right conditions for deletion don't obtain, dislocation of the elements that can't bear stress.

As precondition for deletion, the morphosyntactic features of a deleted stressless element had to be a subset of the features of a surviving element in the same prosodic phrase. The insertion of a single morph, the one with the most features, made it possible, through the expediency of multiple indexation, to keep perfect feature-correspondence between output and input. Insofar as this account is on the right track, it provides independent evidence that switch-reference markers carry a copy of the φ-features of the subject in the following clause. This will be important for the switch-reference account that I develop in the next chapter.

The account I presented here constitutes empirical evidence for the application of the Optimal Interleaving theory (Wolf, 2008) to the derivation of larger-than-word morphological phenomena. In order to formulate my account, I formalized an aspect of that theory left unresolved in Wolf (2008), namely, the mechanism responsible for chunking up representations formed in narrow syntax into fragments that are input to morphophonological derivation.

Chapter 5

The syntax of switch-reference

Along the years, multiple theories of switch-reference have been proposed (Finer, 1984, 1985; Collins, 1988; Hale, 1992; Stirling, 1993; Keine, 2010; Camacho, 2010; Nichols, 2000; Georgi, 2012; Assmann, 2012). The proposals can be widely different. I believe a common issue to most of them is not properly addressing the question of which clause-combining structures are involved in the phenomenon.

The only proposal I believe properly approaches this issue is Hale (1992). Other accounts focus very narrowly on the core property of switch-reference marking, namely, the fact that a morpheme positioned between two clauses indicates whether the subjects of those clauses have the same or different reference. The precise structure(s) in which switch-reference is embedded end up being either tacitly assumed or postulated *ad hoc*.

The account of switch-reference I propose here is based on a foundation built in the previous chapters. In those chapters, I was worried about characterizing the clausal structure and the clause-combining structure which embed switch-reference marking, as well as about the precise featural composition of switch-reference markers. Part of that knowledge is specific about Kĩsêdjê, but where relevant I provided evidence from the literature on other languages that display similar patterns. This statement is specially true of my study of clause chaining (chapter 3), a structure in which switch-reference is often marked.

5.1 The two types of theory of switch-reference

A few theories of switch-reference reduce it to category-specific coordination (Keine, 2010; Georgi, 2012) while others identify some functional category as the locus of switch-reference morphology and link its specific instantiation to a syntactic process involving the subjects' reference (Finer, 1984, 1985; Collins, 1988; Hale, 1992; Nichols, 2000; Camacho, 2010; Assmann, 2012). According to the first kind of theory, switch-reference markers are coordinators that c-select for specific sizes of clauses. Same-subject markers are coordinating conjunctions that c-select for verb clauses that haven't combined with a subject yet (VPs), whereas different-subject markers are coordinating conjunctions that c-select for clauses that have already combined with a subject (vPs or maybe IPs). I will make an argument against this first kind of theory, and present my theory, which is of the second kind.

Theories that treat switch-reference as category-specific coordination are inspired by the observation that in same-subject coordination only the first clause tends to have an overt subject. This generalization, however, is not an absolute, and its exceptions are very hard for such theories to explain. Nor do these accounts demonstrate that in the languages they focus on such exceptions don't exist. Notice, for instance, how the subjects of both of the combined clauses in (200) are overt, though coordination is still marked as same-subject. As a matter of fact, the clauses in (200) are IPs (inflection encased in squares).

(200) Same-subject IP coordination
[IP Canarana mã=[n] **ka** pâj] =*ne* [IP wâtâ ka'põrõ=[n] **ka** s-arẽ?]
[Canarana to=FACT 2_{nom} arrive] =and.SS [what language=FACT 2_{nom} 3_{acc}-say]
'You went to Canarana and what language did you speak there?'

Another empirical fact this kind of theory would have a hard time explaining is the use of same-subject morphology to mark coordination of clauses whose subjects aren't strictly co-referent. I call these situations *non-trivial switches*. Many languages extend the use of same-subject morphology to cases where the subjects, though disjoint, still share a non-empty intersection. In Kĩsêdjê, for instance, same-subject morphology is extended to sentences with different subjects where the subject of the second clause includes the subject of the first clause (as long as both subjects are of the same grammatical person), as you can see in (201).

(201) Growing-subject switches (subjects of the same person): *same-subject marking*
Athe=n [wa khikhre nh-ihwêt] =$\{^{ne}/_{*wa}\}$ [aj i-hwêtri Ø-khãm aj
alone=FACT [$\mathbf{1}_{nom}$ house LNK-build] =$\{^{\&.SS}/_{*\&.DS.1nom}\}$ [PL $\mathbf{1}_{abs}$-all 3_{abs}-in PL
i-pa.]
1_{abs}-$live_{pl}$]
'I built the house by myself and all of us moved into it.' [$S_1 \subset S_2$ and $P_{S_1} = P_{S_2} = \mathbf{1}$]

There are three types of non-trivial switches, listed in (202). The type instantiated in (201) is the *growing-subject* type. Only non-trivial switches of this type are marked as same-subject in Kĩsêdjê, and only, as I have already mentioned, if the subjects compared are of the same grammatical person. In (201), for instance, since the subject of the first clause is of a different grammatical person than the subject of the second clause, different-subject morphology is the only choice, even though this is growing-subject switch. Keep in mind that first person plural corresponds to exclusive 'we' —*wa* '1_{nom}' + *aj* 'PL'—, whereas inclusive 'we' is categorized as a different grammatical person and isn't accompanied by a plural marker —*ku* '$1+2_{nom}$' (* + aj 'PL').

(202) Subtypes of non-trivial switch
a. **Growing-Subject**: $S_1 \subset S_2$ $(S_1 = \{i\}; S_2 = \{i, j\})$
[I_i] built the house by myself but [$we_i + j$] all live in it.
b. **Shrinking-Subject**: $S_1 \supset S_2$ $(S_1 = \{i, j\}; S_2 = \{i\})$
[$We_i + j$] built the house together but only [I_i] live in it.
c. **Strictly-Intersecting-Subjects**:
$S_1 \cap S_2 \neq \emptyset$, $S_1 \not\subset S_2$, $S_1 \not\supset S_2$ $(S_1 = \{i, j\}; S_2 = \{i, k\})$
[He_i and his father-in-law_j] built the house and [he_i and his wife $_k$] live in it.

(203) Growing-subject switches with subjects of different persons: *different-subject marking*
Akatxi khêt khãm na [wa a-thok] =$\{^{ku}/{}^{*ne}\}$ [(*aj) thẽ] =n
morning in FACT [$\mathbf{1}_{nom}$ 2_{acc}-wake.up] =$\{^{\&.DS.\mathbf{1+2}_{nom}}/{}^{*\&.SS}\}$ [(*PL) go_{sg}] =&.SS
[thep jariri.]
[fish look.for]
'In the morning I woke you up and $we_{incl.}$ went fishing.'
$[S_1 \subset S_2$ but $(P_{S_1} = \mathbf{1}) \neq (P_{S_2} = \mathbf{1+2})]$

Shrinking-subject switches and strictly-intersecting-subject switches are always marked in Kĩsêdjê with different subject morphology —see (204) and (205), respectively. Other switch-reference marking languages have different rules on what kinds of non-trivial switches are marked with same subject morphology and what kinds are marked with different subject morphology.

(204) Shrinking-subject switches ($S_1 \supset S_2$): *different-subject marking*
Hẽn [wa aj i-hwêtri khikhre nhihwêt] =$\{^{wa}/{}^{*ne}\}$ [pa-rit aj Ø-khãm
FACT [1_{nom} PL 1_{abs}-all house build] =$\{^{\&.DS.1_{nom}}/{}^{*\&.SS}\}$ [1-only PL 3_{abs}-in
Ø-mbra]
3_{abs}-$live_{sg}$]
'All of us build the house but only the two of us live there.'

(205) Strictly-intersecting-subject switch: *different-subject marking*
($S_1 \cap S_2 \neq \emptyset$, $S_1 \not\subset S_2$, $S_1 \not\supset S_2$)
[Rafael me s-umbrengêt=ta khikhre nhihwêt] =$\{^{nhy}/{}^{*ne}\}$ [Rafael me
[R. and 3_{abs}-father.in.law=NOM house build] =$\{^{\&.DS.3_{nom}}/{}^{*\&.SS}\}$ [Rafael and
Ø-hrõ wit Ø-khãm mbra.]
3_{abs}-wife only 3_{abs}-in live]
'Rafael and his father-in-law built a house and Rafael and his wife live in it.'

As listed in (202), there are three possible situations in which subjects aren't completely disjoint or completely coreferent, situations I call *non-trivial switches*. Situations when the subject of the previous clause is included in the subject of the succeeding clause (growing-subject switch: $1 \subset 2$); situations when the subject of the previous clause includes the subject of the succeeding clause (shrinking-subject switch: $1 \supset 2$); and situations when the subject of the preceding clause and the subject of the succeeding clause, though not in a set-subset relation, are nonetheless intersective (strictly-intersecting-subject switch: $1 \cap 2$).

On table 5.1 I compile data about languages that extend same-subject morphology to non-trivial switches. The symbols used on the table are: ✓, to indicate that a language allows same-subject marking in a specific situation; $*$, to indicate that a language disallows same-subject marking in a specific situation; and $=p$, to indicate that a language allows same-subject marking in a specific situation only in case the subjects under comparison are of the same grammatical person. Cells left empty indicate that no information was found in the literature about how a language behaves in certain situation.

Language	Family	SS			Reference
		$1 \subset 2$	$1 \supset 2$	$1 \cap 2$	
Mojave	Yuman	✓	✓		Munro (1980)
Huichol	Uzo-Aztecan	✓	✓	✓	Comrie (1983)
Kobon	Trans New-Guinea	p=	✓	p=	Comrie (1983)
Gokana	Niger-Congo	✓	*	*	Comrie (1983)
Lenakel	Austronesian	✓	*	*	Lynch (1978); Lynch (1983)
Washo	Hokan	✓	✓	*	Finer (1984, p. 85)
Kĩsêdjê	Jê	p=	*	*	*my fieldwork data*
Kashaya	Pomoan	✓	✓		Oswalt (1961)
Zuni	Isolate	*	✓		Nichols (2000)
all	Yuman	✓	✓		Langdon and Munro (1979)
Diyari	Pama–Nyungan	✓	*		Finer (1984)
Jamul	Yuman	✓	*		Miller (2001)
Udihe	Altaic	✓	✓		Nikolaeva and Tolskaya (2001)
Mian	Ok (Trans New-Guinea)	✓	✓		Fedden (2011)
Tauya	Trans New-Guinea		✓		MacDonald (1990)
Usan	Numugenan	p=	✓		Reesnik (1983)
Telefol	Ok (Trans New-Guinea)		✓		Healey (1966)
Savosavo	Papuan	✓			Wegener (2012)

Table 5.1: Languages that use same-subject marking for non strictly co-referent subjects

Though reducing switch-reference to category specific coordination would give us a very elegant and minimal account of switch-reference, this kind of theory suffers from too serious empirical inadequacies. In particular, here I discussed two phenomena that can't be explained if same-subject marks are coordinating conjunctions that c-select for VP's: same-subject markers can be used to combine IP's and clauses with non-coreferent subjects. Theories of switch-reference as category-specific coordination predict that these well-attested phenomena shouldn't exist. Another problem with this kind of theory is the fact that it can't account for situations where switch-reference obtains between the main clause and an embedded clause. I will discuss this use of switch-reference in the next section, as I turn to the second type of theories, theories that locate the locus of switch-reference morphology on some functional category and relate its instantiation (as same- or as different-subject) to syntactic processes that involve the subjects' references.

5.2 Switch-reference in complement clauses

Many switch-reference theories assume that switch-reference constructions are adverbial clauses (Finer, 1984, 1985; Camacho, 2010). These theories are too restrictive. Besides adverbial clauses, switch-reference can also appear in asymmetric coordination —as I discussed at length in chapter 3 and in the previous section— and in complement clauses. Hale (1992) discusses these various contexts, and much of the following discussion borrows from him. Since the syntax of complement clauses is clearer than the syntax of coordination, I will base my theory of switch-reference on its instantiation in complement clauses. In section 5.3 I will extend my theory to coordination. Proceeding this way will allow me to take a stance on the structure of asymmetric coordination. Since in Kĩsêdjê switch-reference is restricted to asymmetric coordination, I will turn to Hopi for examples of complement clauses that mark switch-reference (206).

(206) Switch-reference markers on clauses embedded as objects in Hopi (Hale, 1992, exs. 1 & 5)

a. Nu' 'as [EC kweewa-t tu'i-ni-qa-**y**] naawakna.
I PRT [belt-ACC buy-FUT-NC-**ACC:SS**] want
'I want to buy a belt.'

b. Nu' ['i pava 'inu-ngam kweewa-t yuku-ni-qa-**t**] naawakna.
I [my bro me-for belt-ACC make-FUT-NC-**ACC:DS**] want
'I want my brother to make me a belt.'

Hale (1992) sketches an extension of Finer's (1984) theory to the domains of coordination as well as complementation. The common idea behind theories that descend from Finer (1984) (Collins, 1988; Hale, 1992) is that the functional heads that host switch-reference morphology are subject to binding theory. Same-subject markers are *anaphors*, and are thus subject to binding principle A. Different-subject markers are *pronouns*, and are thus subject to binding principle B.

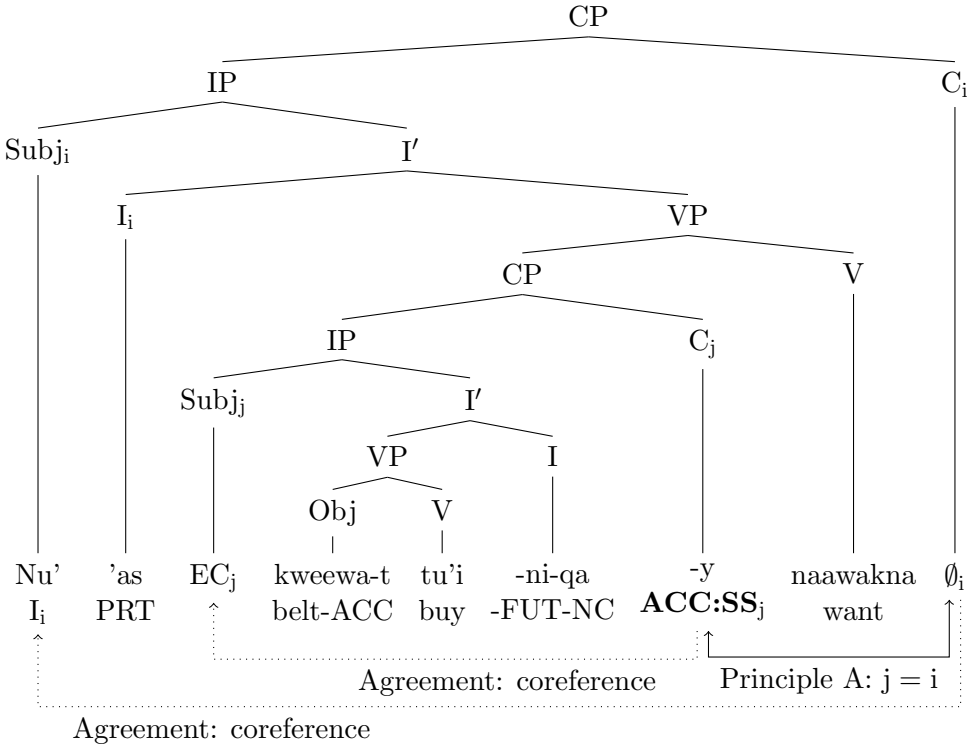
Let me correct something. Functional heads that host switch-reference are actually subject to A′-binding theory (Aoun, 1981). A′-binding is an extension of the standard binding theory to A′-positions. A′-binding is necessary in this case because the relevant functional heads are located in A′-positions rather than A-positions. This puts them outside the reach of standard binding theory.

The binding domain of a switch-reference marking head extends up to the immediately superordinate switch-reference marking head or to the complementizer that c-commands the whole structure. Binding principle A forces same-subject marker and immediately superordinate head to be co-referent, whereas binding principle B forces different-subject marker and immediately superordinate head to have disjoint reference. Since the superordinate heads are also coindexed with their clause's subject, coreference between those functional heads indirectly forces coreference between subjects.

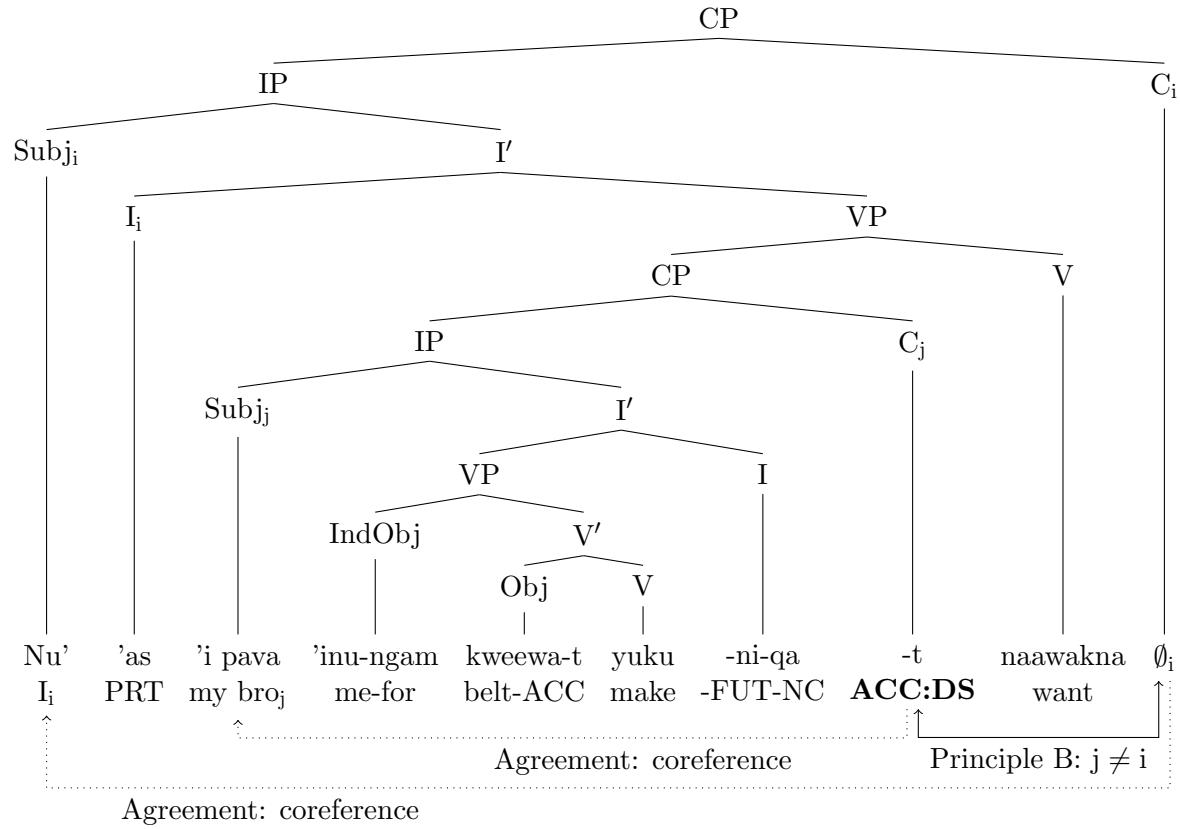
Let me exemplify how such a system generates the obligatory reference relations featured in sentences (206-a) and (206-b). I assume the structure of (206-a) is roughly as in (207) and the structure of (206-b) is roughly as in (208). You will notice I took a few simplifying decisions. They shouldn't interfere with the main workings of switch reference computation.

The two most relevant features of these structures are **(i)** C_i (the complementizer of the main clause) c-commands C_j (the complementizer of the embedded clause); and **(ii)** complementizers are coindexed with the subjects of their clauses. Finer (1984) proposed that coindexation between C and the c-commanded subject is obtained indirectly, mediated on the one side by the relation between C and Infl and on the other side by the relation between Infl and the subject. C and Infl co-head the clause and therefore share the same index. Infl and the subject agree and therefore share the same index (prior to Chomsky's (2001) Agree operation, subject-Infl agreement was assumed to happen via coindexation). Hale (1992) dispensed with this indirect relation by moving the locus of switch-reference morphology to Infl. Hale could do so without losing the necessary structural relation between switch-reference loci due to an important change in sentence structure that had become standard after Finer wrote his thesis in 1984: the generalization of the $\bar{X}$ structure to the sentence level. I will assume Finer's version, though, given the unambiguous evidence from SVO languages reviewed in section 3.2.2 that shows that switch-reference morphology is hosted by complementizers.

(207) Computation of *same-subject* marking



(208) Computation of *different-subject* marking



Principle A requires anaphors such as the same-subject marker in (207) to be coindexed with a c-commanding antecedent in their binding domain. That enforces that the indexes i and j are the same in (207). The subject of the main clause, *nu'*$_{\text{i}}$ 'I' and that of the embedded clause EC_{j} must, therefore, be coreferent.

The computation of different subject marking is only minimally different. The structural configuration is exactly the same, but now, since different-subject markers are pronouns rather than anaphors, reference relations are regulated by binding principle B. That principle states that pronouns must not be c-commanded by a coindexed antecedent in their binding domain. For the different-subject marker in (208), that means that the complementizer that c-commands it must not be coindexed with it. Hence, i and j must be different. That means that the reference of the subject of the main clause, *nu'*$_{\text{i}}$ 'I' and that of the subject of the embedded clause *'i pava*$_{\text{j}}$ 'my brother' must be disjoint in reference. This example displays a hallmark trait of switch-reference: its marking isn't triggered by functional needs. Even when it isn't necessary for resolving ambiguity (such as in this example), switch-reference is still marked.

This account of switch-reference marking between embedded complement clause and main clause is parasitic on the existence of a c-command relation between the embedded clause's complementizer (the host of switch-reference morphology) and the main-clause's complementizer. All else being equal, the same mechanism should underlie switch-reference between conjuncts. But before I proceed to extend the theory just outlined to coordination, let me substantiate two fundamental empirical claims I am assuming throughout: **(a)** switch-reference marking is borne by conjunctions (I discuss that claim in section 5.2.1), and **(b)** switch-reference markers agree with subjects (I discuss that claim in section 5.2.2).

5.2.1 Switch-reference marking is borne by complementizers

Some theories propose that the locus of switch-reference is Infl (Assmann, 2012; Hale, 1992; Nichols, 2000; Camacho, 2010), while others locate it in C (Finer 1984, 1985, mine). Evidence for choosing one over the other proposal is indeed scant in the verb-last languages which make up the vast majority of the switch-reference marking languages. Once we turn our attention to non verb-last languages, though, we notice that switch-reference markers consistently appear between clauses, in the exact position where we would expect coordinating conjunctions to show up. This point was extensively argued for in section 3.2.2. The sentences in (209) were among those used in that section to exemplify this claim. Given this evidence from non-verb-last languages plus the default hypothesis that switch-reference in coordination and subordination is the same phenomenon, I will also assume that the locus of switch-reference morphology in subordination is C. Better than just assuming this would be to actually show that the position of switch-reference in complement clauses in non-verb-final languages is compatible with its being in C, but unfortunately I haven't been able to find non-verb-final languages that mark switch-reference in complement clauses. Non-verb last languages that mark switch-reference are rare, as well as switch-reference marking in complement clauses.

(209) Switch-reference is born by conjunctions (Gungbe, SVO, Niger-Congo, Aboh 2009)

a. [Sésínú ɖà lésì] bɔ̀ [Súrù ɖù nǔsɔ́nú.]
[Sesinou cook rice] and.DS [Suru eat soup]
'Sesinou cooked the rice and Suru ate the soup.'

b. [Sésínú ɖà lésì] bò [pro$_{\text{i}}$ ɖù nǔsɔ́nú.]
[Sesinou cook rice] and.SS [eat soup]
'Sesinou cooked the rice and ate the soup.'

5.2.2 Switch-reference marking conjunctions agree with subjects

Chapter 4 showed evidence from a deletion phenomenon pointing that switch-reference markers agree with the subject of the coming clause in Kĩsêdjê. Examples of the same kind of agreement in Kanite and Shipibo were given in that chapter and are repeated below as (210) and (211) (examples, respectively, from McCarthy 1965 and Baker 2013).

(210) Agreement in number between SS marker and coming subject in Kanite
[a-ke-**no**] [ne-to-**no**] [v-i-e]
[3-see-**3s**] [eat-fist-**3s**] [go-3s-indicative]
'Having seen it and having eaten, he went.'

(211) Agreement in case between SS marker and coming subject in Shipibo

a. [Yapa payot-a pi-**xon**-ra,] [nokon shino-n e-a mawa-xon-ke.]
[fish spoil-PTPL eat-**SS.ERG**-PRT] [my.GEN monkey-**ERG** me-ABS die-APPL-PRF]
'Having eaten spoiled fish, my monkey died on me.'

b. [Saweti oin-**ax**-a,] [Rosa ja kee-nai.]
[Dress see-**SS.ABS**-PTL] [Rosa.**ABS** it want-IMPF]
'Her seeing the dress, Rosa wanted it.'

In particular, (211) is evidence against an empirical claim Camacho (2010) bases his account of switch-reference on. Camacho proposes that switch-reference markers, rather than agreeing with the subject of the coming clause, agree with the TENSE head of the coming clause. He glosses *-xon* —which I glossed above as SS.ERG— as SS.TRANS, and glosses *-ax* —which I glossed above as SS.ABS— as SS.INTRANS. The examples in (211) show, however, that agreement is actually in case and with the *the subject* rather than in transitivity with T. Observe how in (211-a) the switch-reference marker agrees with the *derived* ergative subject of a following *intransitive* verb and how in (211-b) the switch-reference marker agrees with the *absolutive* subject of a following *transitive* verb. Independent evidence that the verb in the second clause of (211-a) is intransitive and that the verb in the second clause of (211-b) is transitive is given by Baker (2013).

Agreeing switch-reference markers are very ubiquitous. Table 5.2 lists some languages with switch-reference markers that display overt subject agreement. In some of these languages agreement only shows on same-subject markers, and in some only on different-subject markers.

On this table I further noted whether agreement was with the subject of a preceding clause —S_1— or the subject of a coming clause —S_2. It could seem like such distinction would be opaque in same-subject situations, but that is not true. The co-referential subjects of the combined clauses can be marked with different cases, as in the case of the Panoan languages.

For languages where verbs normally agree with their subjects, there is the extra complication of determining whether the agreement that we see is verbal agreement or agreement on the switch-reference markers. Languages of this kind were only added to the table below if they employed different sets for each case. In some languages of this type, same-subject situations are marked by the deletion of all verbal agreement. I notated this strategy below as ~~AGR~~. Agreement only in case is marked as K and agreement only in number as #.

I believe the evidence is sufficient to assume that agreement between switch-reference markers and subjects occurs in every language that features switch-reference, even if it is not overt, as is the case, for instance, in same-subject marking in Kĩsêdjê.

Language	Family	Agreement on SS	Agreement on DS	References
Amele	Papuan	S_1	S_1	Roberts (1988)
Lenakel	Austronesian	~~AGR~~		Comrie (1983); Lynch (1983)
Kĩsêdjê	Jê		S_2	*chapter 4 of this thesis*
Apinayé	Jê		S_2	Waller (1974); Oliveira (2005)
Kashibo	Panoan	K_2		Zariquiey (2011)
Shipibo	Panoan	K_2		Camacho (2010); Baker (2013)
Yawanawa	Panoan	K_2		*Souza, p.c.*
Tairora	Trans New Guinea		S_2	Jacobsen (1967); Vincent and Vincent (1962)
Kanite	Trans New Guinea		S_2	McCarthy (1965)
Kobon	Trans New Guinea	S_1	S_1	Comrie (1983)
Mian	Trans New Guinea	S_1	S_1	Fedden (2011)
Tauya	Trans New Guinea	~~AGR~~		MacDonald (1990)
	Misumalpan	~~AGR~~	S_1	Hale (1992)
Kwaza	Isolate	S_1		van der Voort (2004)
Udihe	Altaic	#	S_1	Nikolaeva and Tolskaya (2001)
Usan	Numugenan	~~AGR~~		Reesnik (1983)
Hua	East New Guinea		S_2	Reesnik (1983)
Fore	East New Guinea		S_2	Reesnik (1983)

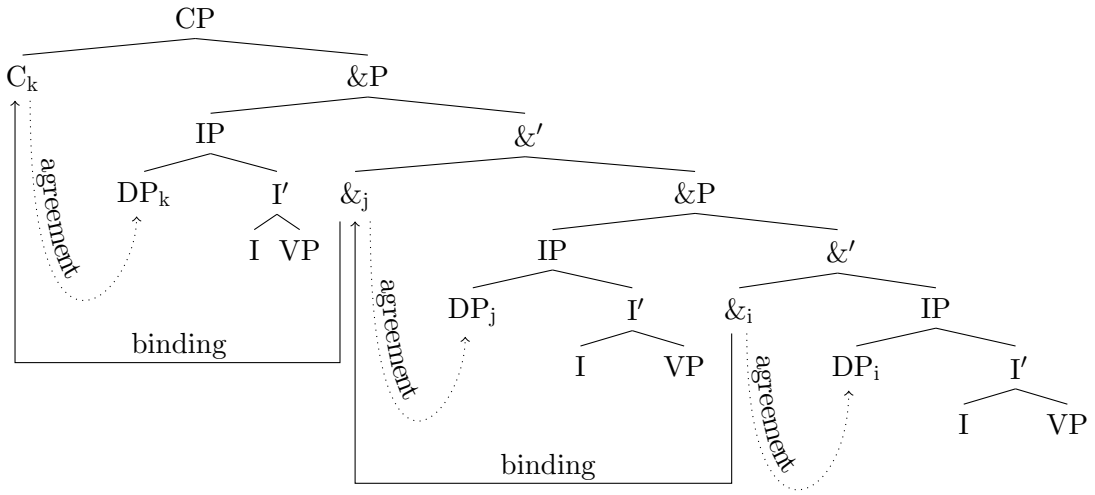
Table 5.2: Languages that have agreement on SR

5.3 Switch-reference between coordinated clauses

Given my assumption that switch-reference is the same syntactic phenomenon whether embedded in complementation or coordination, a single system must be responsible for the computation of switch-reference between complement and main clauses and among conjuncts in coordinate structures. I detailed above a system for computing switch-reference between complement and main clauses. The structural relationship between complement and main clauses is better understood than that between conjuncts in coordinate structures, that being the reason why I first developed this system in the context of complementation. In extending the same system to coordinate structures, I will be forced to make some specific assumptions with regards to the structure of coordination. That is a welcome result: the study of switch-reference will shed light on the structure of coordination.

The same structural relation that obtained between embedded- and main-clause conjunctions must also obtain between coordinating conjunctions. Coordinating conjunctions must, furthermore, also agree with the subject of their complement clause. A structure that satisfies these requirements is shown in (212). This structure is similar to the one Zoerner (1995) proposes for coordination. Note that though this particular tree instantiates IP coordination, the same system is capable of computing switch-reference among vPs (this is actually what I do in a few paragraphs). However, this system predicts that switch-reference can't be computed between CP conjuncts. This prediction is borne out. As I detail in the next chapter, there is no asymmetric coordination of CPs (Bjorkman, 2011) and switch-reference is only marked in asymmetric coordination.

(212) Computation of switch-reference in coordination

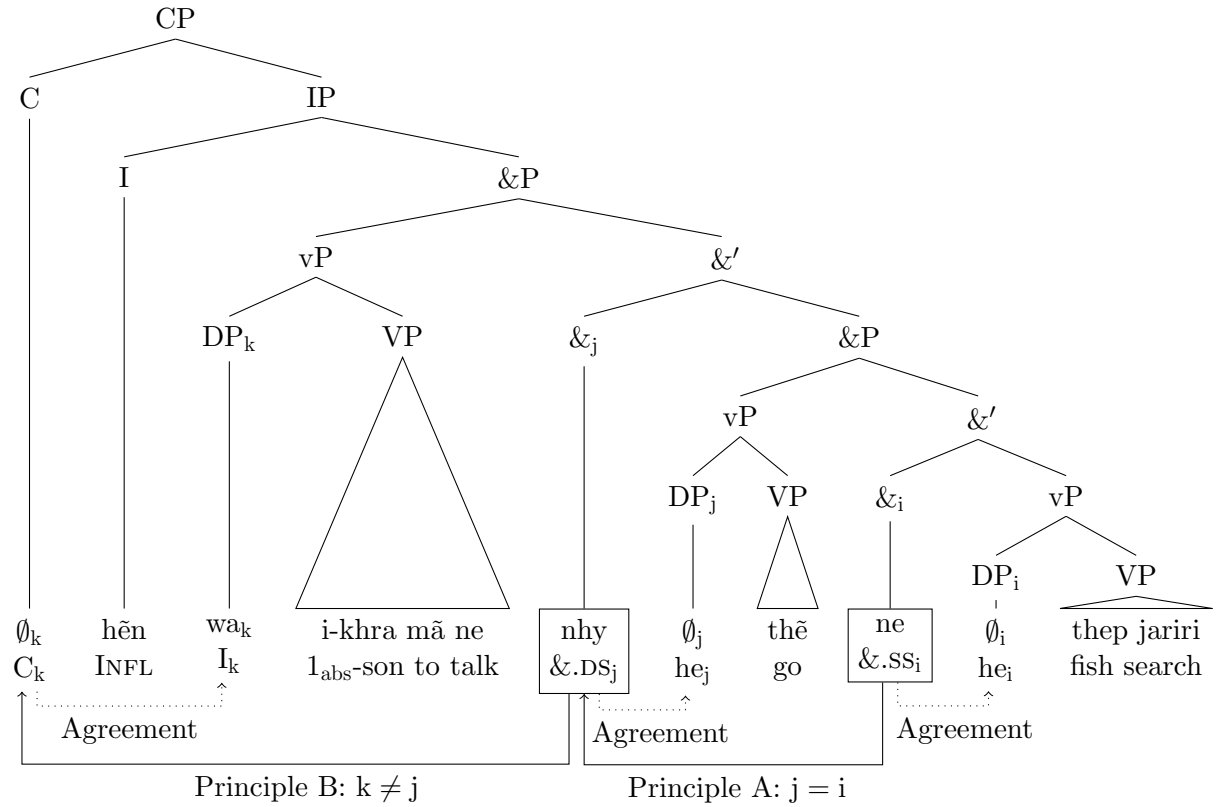


The Kĩsêdjê sentence (213) has a structure like that represented in (212). The only difference between (212) and the structure of (213) is the fact that (213) is vP- rather than IP-coordination (see chapter 2). This difference is orthogonal to the structural relations holding between conjunctions, and therefore there is no difference between the computation of switch-reference in IP coordination and in vP coordination. There are also situations in Kĩsêdjê where switch-reference is calculated between IPs, as in sentence (200), which would instantiate the structure in (212).

(213) Three-clause coordination in Kĩsêdjê
hẽn [wa i-khra mã ne] [=nhy thẽ] [=n thep jariri]
FACT [1_{nom} 1_{abs}-son to talk] [=and.DS.3_{nom} go] [=and.SS fish search]
'I talked with my son and he went and looked for fish.'

The structure of (213) is represented in (214). Each complementizer (main clause complementizer as well as coordinating conjunctions) agrees with the closest c-commanded subject, thereby acquiring its index. The coordinating conjunctions —inside the boxes in (214)— host switch-reference morphology, and therefore can be either pronominal *(different-subject markers)* or anaphoric *(same-subject markers)*.

(214) Structure of (213)



Since the first coordinating conjunction, *nhy*, is pronominal, Binding Principle B requires it to have a different index than the conjunction that c-commands it within its domain. That indirectly ensures that the higher subject —*wa* 'I'— and the intermediary subjects —∅ 'he'— aren't coindexed. The second coordinating conjunction, *ne*, is anaphoric, and by Binding Principle A needs to be coindexed with a conjunction that c-commands it within its binding domain. That conjunction is *nhy*. Coreference between the conjunctions indirectly ensures that the intermediary and the lower subjects are also coreferent.

5.4 A lingering problem

Given the recent developments in the binding theory (see, for instance, Reuland, 2011; Rooryck and Wyngaerd, 2011), it might seem surprising that I should build a model based on classical binding theory. I did so in part because, though we can talk about one "classical binding theory", I don't think there is yet such a thing as the "modern binding theory". The debate is still open. On the other hand, I am not sure whether a more modern approach would help cover more empirical ground. In particular, I don't think it would help solving the lingering problem of the non-trivial switches (discussed in section 5.1).

Finer (1984, ch. 3) proposes a solution for the problem of non-trivial switches by parameterizing binding principles A and B. His parametrization is such that it allows languages to employ same-subject marking and different-subject marking in situations where the subjects aren't completely co-referent nor completely disjoint. I think his is a good, if inelegant, solution and I don't have anything new to add to it, specially because this problem doesn't exclusively concern switch-reference marking, but constitutes part of a larger problem for binding theory: *inclusive reference*.

Inclusive reference has most famously been studied in control structures, within which it is called partial control (Landau, 2001). In some languages, anaphors also seem to treat some situations of inclusive reference the same way as coreference (den Dikken, Liptak, and Zvolenszky, 2001; Madigan and Yamada, 2006). Example (215) features an incompletely co-referent anaphor in Hungarian. The fact that regular anaphors can vary this way across languages constitutes independent evidence for believing that same-subject markers, subject to the same kind of variation, are anaphors as well.

(215) Incompletely co-referent anaphor in Hungarian
En magunkat laton.
I ourselves see.1SG.DEF
'I see ourselves.' (den Dikken, Liptak, and Zvolenszky, 2001)

5.5 Conclusion

In this chapter I substantiated an account of switch-reference based on Finer (1985) and Hale (1992). I made two important contributions to the system: **(a)** located switch-reference morphology on the clause-combining conjunctions, and **(b)** showed evidence that switch-reference markers agree directly with subjects. These contributions were based on the knowledge about clause chaining developed in chapter 3 and the knowledge about agreement on switch-reference markers in Kĩsêdjê developed in chapter 4, complemented with data from other switch-reference marking languages.

I believe this account of switch-reference was based on a firm empirical understanding of the relevant languages. This is a reassuring belief, since I will rely on this system in the next chapter to make claims about the structure of symmetric and asymmetric clausal coordination.

Chapter 6

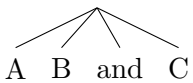
The structure of clausal coordination

In this chapter I exploit the fact that in Kĩsêdjê switch-reference is marked in asymmetric coordination but never in symmetric coordination (introduced in chapter 3, section 3.5) to substantiate a claim that symmetric and asymmetric coordination have different syntactic structures. Then I proceed to show that their different structures help us explain other morphosyntactic differences between symmetric and asymmetric coordination.

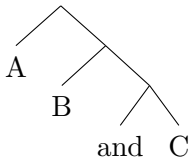
6.1 Introduction

Proposals for the structure of coordination in Generative Grammar can be divided into two families: flat multi-branching structures as in (216), and hierarchical binary-branching structures as in (217) —I am not labeling the nodes of (216) and (217) because their labeling is a point of variation between proposals in the same family. The debate traces back at least to *Aspects of the Theory of Syntax* (1965), where Chomsky (pp. 12-13, p. 196 fn. 7) defends the multi-branching structure against the binary-branching structure proposed 5 years earlier by Yngve (1960, p. 456).

(216) Flat multi-branching structure



(217) Hierarchical binary-branching structure



Since then, many people have defended the flat structure (see Dik, 1968; Goodall, 1987; Muadz, 1991), and though full-fledged defenses of it have recently become less numerous, there is still plenty of contemporary work that assumes flat coordination (see Phillips, 2003; Takano, 2004; Peterson, 2004; Wurmbrand, 2008; Johnson, 2008; Roeper, 2011). Flat structures are appealing because, among other things, they reflect the evidence that conjuncts have a parallel status (e.g. the possibility of swapping them around without changing the meaning of the coordinate complex), as well as parallelism requirements affecting syntactic operations applied to coordinate structures (e.g. the Coordinate Structure Constraint, Ross 1967).

Defenses of the binary-branching structure seem to have become more numerous after the advent of the $\bar{\text{X}}$-theory (whose birth is usually ascribed to Chomsky, 1970) —see, for instance, Schachter (1977); Thiersch (1985); Munn (1987, 1993); Kayne (1994); Zoerner (1995). More recently, the hypothesis that binary *merge* is the only structure building operation (Chomsky, 1995) seems to

have further strengthened this side of the turf —see Johannessen (1998); Camacho (1997); Munn (2001); Zhang (2006, 2010). From an ontological point of view, it would be desirable that binary *merge* (or the $\bar{X}$-structure) should be the only way to build syntactic structure, and therefore that all structures were binary-branching. That is not to say there aren't empirical arguments for a binary-branching structure for coordination. Attributing a hierarchical structure to coordination helps explain the evidence that conjuncts are asymmetric (e.g. single-conjunct agreement —see Aoun, Benmamoun, and Sportiche 1994, 1999; Bošković 2009; Munn 1999— and inter-conjunct binding relations —see Munn 1993).

There seem to be empirical arguments in favor and also against each of the two types of accounts (see Progovac, 1998a,b). In this chapter I focus on clausal coordination and argue that both the flat as well as the branching structures are instantiated, with symmetric coordination instancing a flat structure and asymmetric coordination instancing a binary-branching structure. I build my argument around the fact that switch-reference can be marked in asymmetric coordination but not in symmetric coordination and then proceed to show that the different structures also help explain other morphosyntactic differences between symmetric and asymmetric coordination.

This chapter is organized in the following fashion: in section 6.2 I review the semantic and morphosyntactic differences between symmetric and asymmetric coordination. In section 6.3 I exploit the sensitivity of switch-reference marking to coordination type to build my proposal that the different types of coordination have different structures. In section 6.4 I provide a semantic treatment for the two types of coordination and in section 6.5 I show how the different structures can explain other morphosyntactic differences between symmetric and asymmetric coordination.

6.2 Typology – two kinds of clausal coordination

In this section I don't limit myself to presenting only the differences between asymmetric and symmetric coordination which can be explained from my proposal. I have a good reason for proceeding thus. The distinction between symmetric and asymmetric coordination is sometimes thought to be pragmatic rather than syntactic. If here I present all the morphosyntactic differences between symmetric and asymmetric coordination that I know of, it is in order to show that the distinction *has* to be syntactic.

Before diving into the typology, it is worth reviewing the distinction between symmetric and asymmetric clausal coordination introduced in chapter 3. Clausal coordination is symmetric if conjuncts can be swapped without affecting the semantics of the coordinate complex, an in (218-a). It is asymmetric if swapping conjuncts results in a different meaning, as in (218-b) (see Ross, 1967; Postal, 1998).

(218) *Symmetric* vs. *asymmetric* clausal coordination

a. Symmetric Coordination (SC)
   (i) Matthew dates a veterinarian and hopes to date a surgeon.
   (ii) = Matthew hopes to date a veterinarian and dates a surgeon.

b. Asymmetric Coordination (AC)
   (i) You can use this magic herb and get cured of cancer.
   (ii) ≠ You can get cured of cancer and use this magic herb.

In the example of asymmetric clausal coordination in (218-b), clauses are related in a causative way (i.e. the first clause is interpreted as a cause and the second clause as an result). Lakoff (1986) presents three different ways in which clauses can be related in asymmetric coordination: *in order to* coordination (219-a), *despite* coordination (219-b) and *cause-result* coordination (219-c) (this

terminology is mine). To these types could be added the *conditional* type (219-d) discussed in Culicover and Jackendoff (1997).

(219) Different semantics of asymmetric coordination

a. *In order to* coordination
John went to the store and bought three bottles of wine.
≈ John went to the store in order to buy three bottles of wine.

b. *Despite* coordination
No student can take this many courses and still hope to defend in time.
≈ No student can hope to defend in time despite taking this many courses.

c. *Cause-result* coordination
You can use this magic herb and get cured of cancer.
≈ Using this magic herb can cause you to get cured of cancer.

d. *Conditional* coordination
You just need to point out the thief and we arrest them on the spot.
≈ If you point out the thief we arrest them on the spot.

There are accounts of the difference between symmetric and asymmetric coordination that take it to be a matter of pragmatic inferences (Grice 1975, Schmerling 1975, Posner 1980, Carston 1993, 2002). I believe, however, that the body of morphosyntactic differences between symmetric and asymmetric clausal coordination that I present in this chapter precludes the possibility of a purely pragmatic account. Below I show how symmetric and asymmetric coordination contrast with respect to the coordinate structure constraint (section 6.2.1), sloppy reconstruction from across-the-board extraction (section 6.2.2), categories that can undergo extraction (section 6.2.3), gapping and contrastive focus (section 6.2.4), german verb-last (section 6.2.5), constituent size (section 6.2.6), and switch-reference marking (section 6.2.7).

6.2.1 The coordinate structure constraint

The Coordinate Structure Constraint (CSC) (Ross, 1967) is a twofold constraint. Its first half is the Conjunct Constraint (CC), a constraint that militates against extracting a conjunct from a coordinate complex (220-a). We are interested in the second half of the CSC, the Element Constraint (EC). The EC militates against extracting an element from *within* a conjunct without also extracting simultaneously from all other conjuncts (across-the-board extraction). When he proposed the EC, Ross (1967) already noted that it could be violated in some types of *asymmetric* coordination in English (220-b). I have talked about this phenomenon and its cross-linguistic expression in chapter 3 (section 3.3.2).

(220) The Coordinate Structure Constraint (CSC) (Ross, 1967)

a. The Conjunct Constraint (CS)
*Who did you meet John and t ?

b. The Element Constraint (EC)

(i) The CSC can be violated in **asymmetric** coordination
I wonder [$_{DP}$ what kind of herb] you can use t and get cured of cancer.

(ii) The CSC can't be violated in **symmetric** coordination
*I wonder who Matthew dates t and hopes to date a surgeon

6.2.2 Sloppy reconstruction from across-the-board extraction

Across-the-board (ATB) extraction is possible out of symmetric as well as asymmetric coordination, but it has different properties in each case. For one, ATB extraction allows *sloppy reconstruction* in symmetric, but not in asymmetric coordination. I believe this hasn't been observed before.

The paradigm in (221) demonstrates this point: the interrogative DP in (221-a-i) can reconstruct to both extraction positions, with the reconstructed reflexive bound by the different c-commanding subject in each conjunct. That is to say, (221-a-i) can be about two different pictures, one of Peter and one of John. That is the reason why (221-a-i) can be naturally followed by a clarification remark of the form (221-a-ii). (221-a) is an illustration of the fact that in *symmetric* coordination it is possible to reconstruct an ATB-extracted constituent to multiple gaps (that is, sloppily).

The interrogative DP in (221-b-i), on the other hand, can only reconstruct to the first extraction position. As opposed to (221-a-i), (221-b-i) can't be about two pictures. That is the reason why a clarification remark like (221-b-ii) wouldn't sound natural. This example illustrates the fact that in *asymmetric* coordination, as opposed to symmetric coordination, an ATB-extracted constituent can only reconstruct to the first gap.

(221) Sloppy Reconstruction of Across-The-Board extraction (ATB)

a. ATB extraction out of **symmetric** coordination licenses sloppy reconstruction

(i) I wonder [which picture of himself] Peter likes t and John hates t

(ii) Peter likes THIS picture of himself and John hates THAT picture of himself. (Haïk, 1985, p. 286)

b. ATB extraction out of **asymmetric** coordination doesn't license sloppy reconstruction

(i) I wonder [which picture of himself] Bill showed John t and John destroyed t

(ii) *Bill showed a picture of himself in high school and, reminded of his shameful past, John destroyed a picture of himself taken the same year.

6.2.3 Categories that can undergo extraction

Symmetric and asymmetric clausal coordination also differ as to the circumstances that license extraction in each case. Extraction from asymmetric coordination is restricted to only a subset of the environments which license extraction from symmetric coordination. Whereas extraction from *symmetric* coordination can apply to any phrase (as long as they aren't locked inside syntactic islands), extraction from *asymmetric* coordination (ATB and non-ATB from non-initial conjuncts) can only target NPs. There are, moreover, certain contexts which don't license extraction even of NPs from asymmetric coordination. These facts have been observed by Postal (1998) for non-ATB extraction and I don't think they have been observed before for ATB extraction.

As you can see in (222-a), ATB extraction of AdvPs from *symmetric* coordination is grammatical. The same is not true of *asymmetric* coordination (222-b). Non-ATB extraction, which is only licensed in *asymmetric* coordination, is limited in a similar fashion. Example (222-c) shows that non-ATB extraction of an NP from a non-initial conjunct in asymmetric coordination is grammatical. Examples (222-d) and (222-e) show that under the same circumstances PP-extraction and AdvP-extraction are ungrammatical.

(222) Restrictions to extraction from asymmetric coordination:
Extraction from **asymmetric** coordination is restricted to NPs (whether ATB or not)

a. ATB AdvP extraction from **symmetric** coordination
Tell me [$_{\text{AdvP}}$ how sick] John was t yesterday and Peter was t last month?

b. ATB AdvP extraction from **asymmetric** coordination
Tell me [$_{\text{AdvP}}$ how sick] John arrived home t (* and his wife immediately got t).

c. Non-ATB NP extraction from **asymmetric** coordination (Postal, 1998, ex. 50a)
[$_{\text{NP}}$ Which student] did Nora (go to the drugstore, come home and) talk to t for one hour?

d. Non-ATB PP extraction from **asymmetric** coordination (Postal, 1998, ex. 50b)
[$_{\text{NP}}$ To which student] did Nora (*go to the drugstore, come home and) talk t for one hour?

e. Non-ATB AdvP extraction from **asymmetric** coordination (Postal, 1998, ex. 50c)
[$_{\text{AdvP}}$ How long] did Nora (*go there, come home and) talk to that student t ?

Anti-pronominal contexts likewise only license extraction in *symmetric* coordination. Anti-pronominal contexts are various different contexts that don't license the presence of weak pronouns. An example of anti-pronominal context is the complement position of "panting" verbs (223-a).

Symmetric coordination licenses extraction out of anti-pronominal contexts (223-b). *Asymmetric* coordination, on the other hand, doesn't license extraction out of anti-pronominal contexts, notwithstanding whether it is ATB extraction (223-c) or non-ATB extraction (223-d).

(223) Restrictions to extraction from asymmetric coordination:
Extraction from **asymmetric** coordination can't proceed from anti-pronominal contexts

a. Anti-pronominal context
He dyed his beard green/that color/*it.

b. ATB extraction from anti-pronominal context in *symmetric* coordination
[the red] that the Germans paint their houses t and the French paint their furniture t

c. *ATB extraction from anti-pronominal context in *asymmetric* coordination
[the red] that the sailors (*saw t in Brazil and) told their kings to dye their coats t

d. *Non-ATB extraction from anti-pronominal context (Postal, 1998, ex. 55b)
[Which color] did she (*fly to Vancouver and) dye her hair t?

6.2.4 Gapping and contrastive focus

Zhang (2010) notes, citing Levin and Prince (1986), that gapping can only be applied to *symmetric* coordination. Whenever gapping is applied to a sentence that is ambiguous between asymmetric and

symmetric coordination (224-a), the resulting sentence has only the symmetric meaning (224-b).

(224) Gapping (Zhang 2010, p. 134, citing Levin and Prince 1986)

a. Ambiguous sentence
Sue became upset and Nan became downright angry (as a result). [AC possible]

b. Only **symmetric** coordination licenses gapping
Sue became upset and Nan _ downright angry (*as a result). [*AC]

Zhang (2010) also notes, citing Hendriks (2004), that contrastive focus can only be applied to *symmetric* coordination. If we take a sentence that is in principle ambiguous between a symmetric and an asymmetric structure (225-a) and apply contrastively focus equivalent elements in the conjuncts, only the *symmetric* structure remains available (225-b).

(225) Contrastive focus (Zhang 2010, p. 134, citing Hendriks 2004)

a. Ambiguous sentence
Sue became upset and Nan became downright angry (as a result). [AC possible]

b. Only **symmetric** coordination licenses contrastive accent
SUE became UPSET and NAN became DOWNRIGHT ANGRY (*as a result). [*AC]

6.2.5 German verb-last

A phenomenon that has been noted to occur in *asymmetric* but never is *symmetric* coordination is "German Asymmetric Coordination" (Reich, 2008). The term "asymmetric coordination" as used in the rich literature Reich (2008) converses with doesn't have the same denotation it does here. Whereas the term is used here to indicate a *semantic* asymmetry between conjuncts, in the literature on German AC it stands for a *word-order* asymmetry. Namely, in *semantically asymmetric* coordination in German, the verb of the non-initial clause can violate the verb-last requirement that holds of embedded clauses in German (226-a). That asymmetry between the position of the verb in the first clause (in final position, as expected) and the position of the verb in the non-initial clauses (in initial position, which is unexpected) is what Reich (2008) and works cited therein name "German Asymmetric Coordination". Reich (2008) notes that this phenomenon isn't licensed in *symmetric* coordination —compare (226-b) and (226-c).

(226) German AC (Reich, 2008)

a. The second clause in **asymmetric** coordination can violate verb-last
Wenn er in Buchhandlungen geht und liest Neuerscheinungen ...
if he in bookstores goes and reads new publications

b. The second clause in **symmetric** coordination must obey verb-last
*Wenn er Neuerscheinungen liest und geht in Buchhandlungen ...
if he new publications reads and goes in bookstores

c. The second clause in **symmetric** coordination must obey verb-last
Wenn er Neuerscheiningen liest und in Buchhandlungen geht ...
if he new publications reads and in Bookstores goes

6.2.6 Constituent size

Bjorkman (2011) notes that CP coordination is always unambiguously *symmetric*. In the scenario portrayed below, where the newschapter is reporting two unrelated stories, there is a preference for

reporting it as CP coordination rather than IP coordination (In English, that contrast can only be demonstrated in embedded clauses, since main-clause complementizers aren't overt).

(227) CP coordination is always symmetric (Bjorkman 2011)
Scenario: the newschapter ran two unrelated stories yesterday. In the 1st it reported that the incumbent mayor was defeated in yesterday's election; in the 2nd it reported on a riot that occurred in the wake of last night's hockey game.

a. TP coordination
The newschapter reported that a new mayor was elected and there was a riot.

b. CP coordination
The newschapter reported that a new mayor was elected and that there was a riot.

6.2.7 Switch-reference marking

I mentioned in chapter 3 (section 3.5) that switch-reference isn't contrastively marked in *symmetric* coordination in Kĩsêdjê (a statement which seems true of switch-reference marking languages in general, at least as far as the available data informs us). Contrastive marking of switch-reference only obtains in *asymmetric* coordination. In (228-a) you can see the form *ne* of the conjunction, which is used to asymmetrically conjoin clauses with identical subjects, and in (228-b) you can see the form *nhy*, used to asymmetrically conjoin clauses with different subjects.

(228) Kĩsêdjê marks switch-reference in asymmetric coordination.

a. Same-subject "and"
Hẽn [∅ ˈpâj] =ne [∅ khu-ku]
FACT [3_{nom} arrive] =and.SS [3_{nom} 3_{acc}-eat]
'He_i arrived and (then) he_i ate it'

b. Different-subject "and"
Hẽn [∅ ˈpâj] =nhy [∅ khu-ku]
FACT [3_{nom} arrive] =and.DS.3 [3_{nom} 3_{acc}-eat]
'He_i arrived and (then) $he_{j,*i}$ ate it'

In Kĩsêdjê when two clauses are coordinated *symmetrically* the coordinating conjunction doesn't inflect for switch-reference, notwithstanding whether the subjects of the conjoined clauses are identical or different. Consider example (229). The first and second clauses of (229) are symmetrically coordinated. The resulting coordinate phrase is, by its turn, asymmetrically coordinated with a third clause (I will soon clarify why I didn't employ a simpler example). Notice how the conjunction linking clauses 1 and 2 has the shape *ne*, even though the subjects of these clauses are different (i.e. *hwysysôm* 'mosquito' in clause 1 and *ikhá* 'my shirt' in clause 2). Recall that in asymmetric coordination the form *ne* is only used when the clausal conjuncts have the same subjects, as in (228-a).

(229) In Kĩsêdjê (Jê, Brazil), switch-reference isn't marked in *symmetric* coordination
[Hwĩsôsôk tá khãm hwysysôm=nda khêt]$_1$ =ne [kê i-khá=ra thyktxi]$_2$
[school in mosquito=NOM be.not] =and.SS [also 1_{abs}-shirt=NOM be.dirty]
=wa [s-atárá khêrê]$_3$
=and.DS.1_{NOM} [3_{abs}-put_{emb} be.not]
'At the school there are no mosquitoes and my shirt was dirty and then I didn't put it on.'

The example above features embedded symmetric coordination rather than simpler main-clause symmetric coordination (clauses 1 and 2 are symmetrically coordinated and the resulting &P is, by its turn, asymmetrically coordinated with clause 3). The reason I didn't employ a simpler example to illustrate my claim that switch-reference isn't marked in symmetric coordination is the fact that it is not clear whether Kĩsêdjê licenses main-clause symmetric coordination at all. Attempts at eliciting main clause symmetric coordination get responses like (230).

(230) How Kĩsêdjê conveys the equivalent of main-clause symmetric coordination
[Hwĩsôsôk tá khãm hwysysôm=nda khêrê,]$_1$ nenhy [i-khá=ra thyktxi.]$_2$
[school in mosquito=NOM be.not] and [1$_{abs}$-shirt=NOM be.dirty]
'There are no mosquitoes at the school and my shirt is dirty.'

Maybe (230) is indeed main-clause symmetric coordination, and *nenhy* should be characterized as the conjunction used to symmetrically conjoin CPs (with *ne* as in (229) being the conjunction used to symmetrically conjoin *IPs*). However, the pause that obligatorily follows clause 1 in (230) plus the fact that the negation verb *khêrê* is in its sentence final form (its mid-sentence form is *khêt*) sheds some doubt on that idea. The sentences featuring embedded symmetric coordination seem to provide less contestable examples of symmetric coordination, and they clearly show that switch-reference isn't marked in this kind of coordination. If we wanted to hold, in spite of the problems raised above, that (230) also instantiates symmetric coordination, then the contrast between (230) and (231) constitutes further evidence that switch-reference isn't marked in symmetric coordination: though the subjects of the conjuncts of (231) have identical reference, the same conjunction is used as in (230), whose conjuncts have different subjects.

(231) If the following is symmetric coordination, it clearly doesn't mark switch-reference.
[Khrat wit =na wa ku-mba,] nenhy [s-indo=n wa ∅-mbaj
[Beginning only FACT 1$_{nom}$ 3$_{acc}$-know] and [3$_{abs}$-end=FACT 1$_{nom}$ 3$_{abs}$-know$_{emb}$
khêrê.]
be.not.]
'I only understood the beginning and I didn't understand the end of it.'

If we try to force switch-reference marking in symmetric coordination, we obligatorily switch to *asymmetric* coordination. That switch is forced no matter how implausible the meaning of the resulting sentence. As an example, observe a version of the embedded &P from (229) where contrastive switch-reference marking is attempted, (232) below. In this example, the lack of mosquitoes at school is being portrayed as a reason for a dirty shirt.

(232) Forced asymmetric coordination in Kĩsêdjê
[Hwĩsôsôk tá khãm hwysysôm nda khêt] =nhy [i-khá ra thyktxi.]
[school in mosquito NOM not] =and.DS [1$_{abs}$-shirt NOM be.dirty]
'At the school there are no mosquitoes and therefore my shirt was dirty.'

Though I haven't been able to locate other studies that correlate switch-reference marking and the symmetric/asymmetric distinction, virtually every example sentence used in the literature on switch-reference seems to feature asymmetric coordination. As I already mentioned in chapter 3, I have only spotted one sentence in the literature on switch-reference that seems to feature *symmetric* coordination, from Tauya (Trans New Guinea, Papua New Guinea, MacDonald 1990), who gives this data point, actually calls it a *listing*. In this example the language indistinctly employs, like Kĩsêdjê, *same-subject* markers, even though the clauses thus coordinated have different subjects:

(233) Symmetric Coordination in Tauya doesn't mark SR
[Aresa fofe-] pa [Towe fofe-] pa [Maʾarafa fofe-] pa [Nowe fofe-]
[A. come] SS [T. come] SS [M. come] SS [N. come]
pa [Boriye fofe-] pa [ʾai-i-ʾa.]
SS [B. come] SS [do-3P-IND]
'Aresa came, Towe came, Makarafa came, Nowe came and Boriye came.'

6.2.8 Section Summary

Table 6.1 below summarizes the morphosyntactic differences between symmetric and asymmetric coordination discussed in this section.

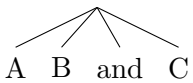
	symmetric clausal coordination	asymmetric clausal coordination
Violations to the CSC	*	✓
Sloppy reconstruction of ATB	✓	*
Restrictions to extraction	*	✓
Gapping	✓	*
Contrastive Focus	✓	*
German AC	*	✓
Combines CPs	✓	*
Switch-reference marking	*	✓

Table 6.1: Symmetric and asymmetric coordination: morphosyntactic differences

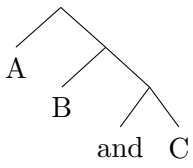
6.3 Two types and two structures

As advanced in the introduction, I propose that symmetric and asymmetric coordination have different structures. The flat structure in (234) is the structure of symmetric coordination and the hierarchical structure in (235) is the structure of asymmetric coordination. I exploit the fact discussed in section 6.2.7 that switch-reference is marked in asymmetric coordination but not in symmetric coordination to substantiate that hypothesis.

(234) Symmetric Coordination
Flat multi-branching structure



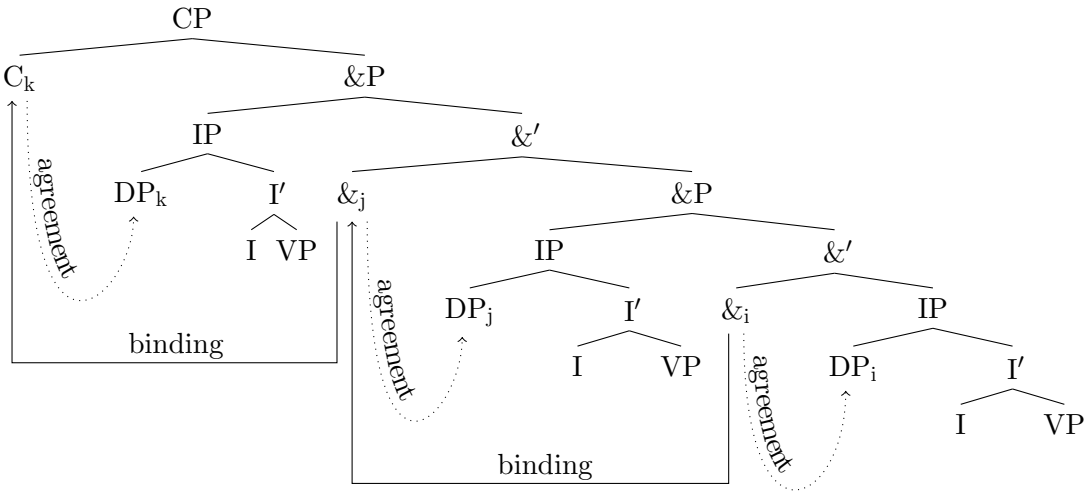
(235) Asymmetric coordination
Hierarchical binary-branching structure



In order for switch-reference to be computed as proposed in chapter 5, the structure of asymmetric coordination must be as in (212), repeated below as (236).[1] Essentially, this is a structure in which coordinating conjunctions take a conjunct for complement and another conjunct for specifier. Coordination of more than two clauses consists of embedding a coordinate phrase as the complement of another coordinate phrase, as represented in (236).

[1] As discussed in that chapter, Kĩsêdjê can asymmetrically coordinate IPs, as represented in (236), and also vPs.

(236) The structure of asymmetric coordination

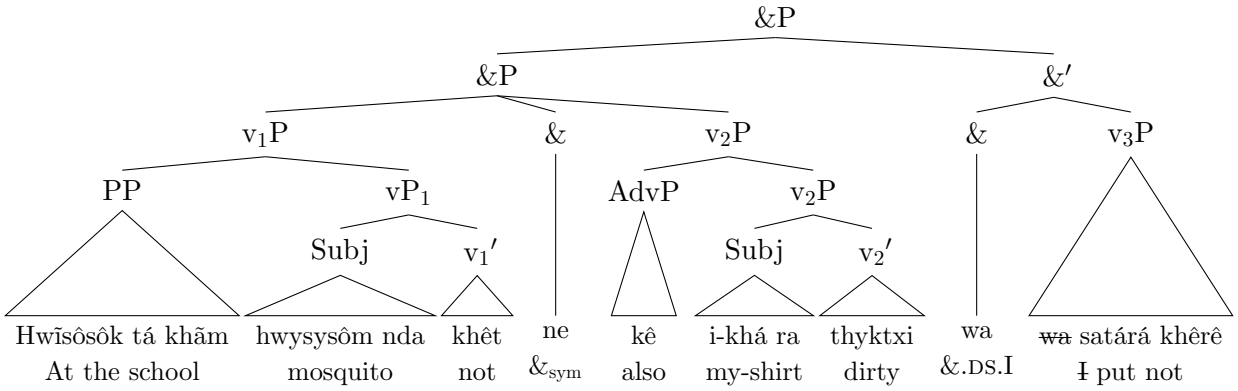


This structure allows a switch-reference marking conjunction to c-command the subject of one of its conjuncts and to have the subject of its other conjunct and itself c-commanded by a higher switch-reference marking complementizer or the complementizer of the main clause. These are the relations exploited in the switch-reference theory proposed in chapter 5. I propose that such syntactic relations don't obtain in symmetric coordination, this being the reason why symmetric coordination doesn't license switch-reference marking. If those syntactic relations don't obtain in symmetric coordination, it must have a flat structure.

The structure of the relevant part of example (229), repeated below as (237), would be as in (238). Given that the structural relations necessary for marking switch-reference between clauses 1 and 2 don't obtain, the conjunction combining these clauses just can't mark switch-reference.

(237) In Kĩsêdjê (Jê, Brazil), switch-reference isn't marked in *symmetric* coordination
[Hwĩsôsôk tá khãm hwysysôm=nda khêt]$_1$ =ne [kê i-khá=ra thyktxi]$_2$
[school in mosquito=NOM be.not] =and.SS [also 1$_{abs}$-shirt=NOM be.dirty]
=wa [s-atárá khêrê]$_3$
=and.DS.1$_{NOM}$ [3$_{abs}$-put$_{emb}$ be.not]
'At the school there are no mosquitoes and my shirt was dirty, and then I didn't put it on.'

(238) Structure of (229)/(237)



6.4 The semantics of coordination

In this section I formalize the denotations of symmetric and asymmetric coordination. The semantics I develop here is articulated with my proposal that asymmetric coordination has an $\bar{X}$ structure whereas symmetric coordination has a flat structure, in the sense that the denotation of asymmetric coordination requires that conjuncts be structurally ordered, whereas the denotation of symmetric coordination doesn't.

6.4.1 The semantics of asymmetric coordination

Asymmetric coordination can establish an *in order to* relation between conjuncts, a *despite* relation, a *cause-result* relation or a *conditional* relation —I gave examples of each of these cases in (219). I repeat the example of *cause-result* asymmetric coordination as (239) below. Note that this coordinator is not specific to clauses, but rather to constituents that denote sets of situations. For instance, (240) illustrates asymmetric coordination of situation-denoting nominals.

(239) You can use this magic herb and get cured of cancer. [causal relation]

(240) Asymmetric coordination of nominals (Bjorkman, 2011, exs. 25-a and -b)

a. Someone's fall and death was the cause of improved safety regulations.

b. ≠ Someone's death and fall was the cause of improved safety regulations.

The denotation of the asymmetric causal conjunction used in (239) and (240) is given in (241). According to (241), asymmetric coordination of constituents that denote sets of situations also denotes a set of situations, namely, the set of *causation* situations that have for *setting* a situation in the set denoted by the higher conjunct (Q) and for *consequence* a situation in the set denoted by the lower conjunct (P).

(241) $[\![\&_{\mathbf{asym}}]\!]_{\langle st,\langle st,\langle s,t\rangle\rangle\rangle} = \lambda P_{\langle s,t\rangle}.\lambda Q_{\langle s,t\rangle}.\lambda e_{\langle s\rangle}.\exists e',e''$
$\text{causation}(e) \wedge \text{setting}(e,e') \wedge \text{consequence}(e,e'') \wedge Q(e') \wedge P(e'')$

The entry in (241) might seem more complicated than it needs to be. For instance, couldn't it be simplified by assuming that asymmetric coordination, rather than denoting a set of situations, denotes a truth value? The entry below (which mimics the semantics Pylkkänen (2008) attributes to causative applicatives) is build on top of that assumption.

(242) $[\![\&_{\mathbf{asym}}]\!]_{\langle st,\langle st,t\rangle\rangle} = \lambda P_{\langle s,t\rangle}.\lambda Q_{\langle s,t\rangle}.\exists e,e' \wedge \text{CAUSE}(e,e') \wedge Q(e) \wedge P(e')$

The problem with this entry is that it fails to derive embedded asymmetric coordination. The fact that embedded asymmetric coordination exists makes it evident that the denotation of asymmetric coordination must be a set of situations rather than a truth value. Otherwise, the asymmetric coordination of two clauses wouldn't be of the right semantic type to be asymmetrically coordinated with a third clause.

Example (243) features asymmetric coordination between *"John used this magic herb and cured from cancer"* and *"I told my neighbor to give it a try"*. It would be hard to derive this example with the simpler denotation given for coordination in (243). With the entry given in (241), on the other hand, recursion in coordination becomes possible.

(243) [John used this magic herb and cured from cancer] and I told my neighbor to give it a try.

So far I haven't presented any evidence that the different semantic relations that can hold between clausal conjuncts in English require the existence of multiple entries for the word *'and'* in its lexicon (e.g. a causative *'and'*, as in (241), a scenario-setting *'and'*, a condition-setting *'and'* and so on). Theory-wise, it would be possible to postulate a single lexical entry which derived all those different meanings in context. Consider the denotation in (244), for instance.

(244) $[\![\&_{\mathbf{asym}}]\!]_{\langle st,\langle st,\langle s,t\rangle\rangle\rangle} = \lambda P_{\langle s,t\rangle}.\ \lambda Q_{\langle s,t\rangle}.\ \lambda e.\ \exists e',e''$
$\text{setting}(e,e') \wedge \text{consequence}(e,e'') \wedge Q(e') \wedge P(e'')$

The difference between the first denotation I have, in (241), and this last one is that the latter doesn't specify the semantics of situation *e*. It could be a *causation* situation, a *scenario-setting* situation, a *condition-setting* situation, and so on. At the very least, though, we need to recognize the possibility that a language's lexicon *could* contain specialized entries for each of these *and*'s, since such possibility is instantiated in languages like Eastern Pomo (245).

(245) Affixal coordinators in Eastern Pomo (Pomoan, USA, Finer 1985, p. 47)

	Same Subject	*Different Subject*
Action of suffixed verb precedes in time that of main verb	-ly	-qan
Action of suffixed verb (i) explains, justifies that of main verb; (ii) is simultaneous with that of main verb	-in	-sa —only (i)—
Action of suffixed verb is prior to and a prerequisite for the realization of the action expressed by the main verb.	-p^{h}i	-p^{h}ila
Action of main verb continues over same period or begins with time specified by suffixed verb.	-baya	-iday

Actually, there is some evidence that the lexicon of English may also contain multiple entries for the word 'and', with different syntactic properties. According to Postal (1998), the grammaticality of non-ATB extraction from asymmetric VP coordination depends on the semantic relation that exists between the conjuncts. Whereas *in order to* coordination wouldn't license extraction from the 1st clause (246), *cause-effect* coordination would (247).[2]

(246) No extraction from the initial clause in *in order to* coordination
a. ?*[Which store]$_1$ did he go to t_1 and buy groceries? (Postal, 1998, ex. 48a)
b. [What]$_1$ did he go to the store and buy t_1?
c. *[What]$_1$ did he pick t_1 up and call me? (Postal, 1998, ex. 48b)

(247) Extraction from the initial clause in *cause-effect* coordination (Postal, 1998, ex. 146a/b)
a. The guys in the Caucasus drink that stuff and live to be 100.
b. the stuff [which]$_1$ the guys in the Caucasus drink t_1 and live to be 100.

The semantics I proposed for asymmetric coordination in (241) is dependent on there being an asymmetry between conjuncts. It wouldn't function if asymmetric coordination didn't have an $\bar{X}$ structure, since, standardly, semantics doesn't have access to linear order. That is a welcome result, since this is precisely the structure from which I derive the morphosyntactic differences between symmetric and asymmetric coordination in section 6.3.

[2]Some English speakers I consulted actually found (246-a) grammatical.

6.4.2 The semantics of symmetric coordination

I assume that the denotation of symmetric coordination is as proposed by Partee and Rooth (1983). The denotation they attribute to the coordination of two conjuncts of type ⟨s,t⟩, is (248). Though Partee and Rooth only discuss two-conjunct coordinate complexes, it is trivial to extend their denotations to multi-conjunct coordination. I do that in (249).[3]

(248) $\left[\!\left[\varphi_1 \quad \&_{\text{sym}} \quad \varphi_2 \right]\!\right]_{\langle s,t\rangle} = \lambda e.[\![\varphi_1]\!](e) \wedge [\![\varphi_2]\!](e)$ where $[\![\varphi_1]\!]$ and $[\![\varphi_2]\!]$ are of type ⟨s,t⟩

(249) $\left[\!\left[\varphi_1 \quad \varphi_2 \quad \cdots \quad \&_{\text{sym}} \quad \varphi_n \right]\!\right]_{\langle s,t\rangle} = \lambda e.[\![\varphi_1]\!](e) \wedge [\![\varphi_2]\!](e) \wedge \cdots \wedge [\![\varphi_n]\!](e)$

where $[\![\varphi_1]\!]$, $[\![\varphi_2]\!]$ ... $[\![\varphi_n]\!]$ are of type ⟨s,t⟩

Note that they define the denotation of coordination syncategorematically, following Montague (1973). That is to say, they define the denotation of a subtree, the entire coordinate complex, rather than making it follow from the denotation of its terminals.

Standard semantic compositional rules don't take multi-branching nodes as input —all of the rules in (250) begin with "If α is a branching node". Since I want to keep the result that symmetric coordination has a flat structure, the only way to define the denotation of symmetric coordination without proposing major changes to the basic semantic compositional rules is syncategorematically, as in (249).

(250) Composition rules (Heim and Kratzer, 1998)

a. Functional Application
If α is a branching node and $\{\beta, \gamma\}$ the set of its daughters, then for any assignment a, if $[\![\beta]\!]^a$ is a function whose domain contains $[\![\gamma]\!]^a$, then $[\![\alpha]\!]^a = [\![\beta]\!]^a([\![\gamma]\!]^a)$.

b. Predicate Modification
If α is a branching node and $\{\beta, \gamma\}$ the set of its daughters, then, for any assignment a, if $[\![\beta]\!]^a$ and $[\![\gamma]\!]^a$ are both functions of type $\langle e, t\rangle$, then $[\![\alpha]\!]^a = \lambda x \in D.[\![\beta]\!]^a = [\![\gamma]\!]^a = 1$

c. Predicate Abstraction
If α is a branching node with daughters β and γ, where β dominates only a numerical index i, then, for any variable assignment a, $[\![\alpha]\!]^a = \lambda x \in D.[\![\gamma]\!]^{a^{x/i}}$

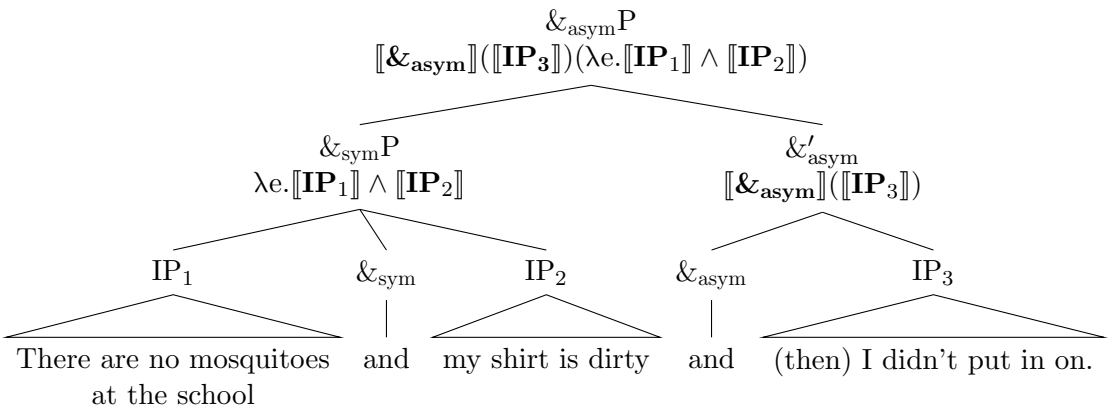
6.4.3 Semantic computation of sentences featuring coordination

In order to exemplify the computation of symmetric and asymmetric coordination, we are going to walk through the computation of example (251) (which you might note is based on a Kĩsêdjê sentence from section 6.2). This example features the *symmetric* coordination of IP_1 and IP_2. The coordination of those two clauses is in asymmetric coordination with IP_3 —the coordination of IP_1 and IP_2 is portrayed as an explanation for the situation described in IP_3. These relations are laid out on the tree in (252).

(251) [There are no mosquitoes at the school]$_1$ and$_{\text{sym}}$ [my shirt is dirty]$_2$, and$_{\text{asym}}$ [(then) I didn't put my shirt on.]$_3$

[3] I am glossing over the language-specific rules that determine the positions where conjunctions are to be inserted. In Kĩsêdjê there must be a conjunction between every pair of conjuncts.

(252) Computation of (251)



Clause 3 (IP_3) denotes the property of *not-putting-on* situations that have for theme *my shirt* and for agent *I* (253). This denotation is shortened to λe.S(e). Given the denotation of asymmetric causative 'and' given in (241) and repeated below as (254), the denotation of $\&'_{asym}$ is (255).

(253) $[\![\mathbf{IP_3}]\!] = \lambda e.$ not-putting-on(e) ∧ theme(e,'My shirt') ∧ agent(e,'I') = $\boxed{\lambda e.S(e)}$

(254) $[\![\mathbf{\&_{asym}}]\!]_{\langle st,\langle st,\langle s,t\rangle\rangle\rangle} = \lambda P_{\langle s,t\rangle}.\lambda Q_{\langle s,t\rangle}.\lambda e_{\langle s\rangle}.\exists e',e''$
causation(e) ∧ setting(e,e′) ∧ consequence(e,e″) ∧ Q(e′) ∧ P(e″)

(255) $[\![\mathbf{\&'_{asym}}]\!] = [\![\mathbf{\&_{asym}}]\!]([\![\mathbf{IP_3}]\!]) = [\![\mathbf{\&_{asym}}]\!](\lambda e.S(e)) =$
$\lambda Q.\lambda e.\ \exists e',e''$ causation(e) ∧ setting(e,e′) ∧ consequence(e,e″) ∧ Q(e′) ∧ S(e″)

The denotation of the symmetric coordination of IP_1 and IP_2 —$\&_{sym}P$— is calculated via (249). IP_1 denotes the property of *nonexistence* situations that have for location *the school* and for theme *mosquitoes* (256), and IP_2 denotes the property of *being-dirty* situations that have for theme *my shirt* (257). Abbreviating those denotations as λe.N(e) and λe.D(e), the denotation of IP_4 is (258).

(256) $[\![\mathbf{IP_1}]\!] = \lambda e.$ nonexistence(e) ∧ theme(e,'Mosquitoes') ∧ location(e,'The school')
= $\boxed{\lambda e.N(e)}$

(257) $[\![\mathbf{IP_2}]\!] = \lambda e.$ being-dirty(e) ∧ theme(e,'My shirt') ∧ = $\boxed{\lambda e.D(e)}$

(258) $[\![\mathbf{\&_{sym}P}]\!] = \lambda e.[\![\mathbf{IP_1}]\!] \wedge [\![\mathbf{IP_2}]\!] = \lambda e.N(e) \wedge D(e)$

The denotation of the final branching node, $\&_{sym}P$, can be calculated via functional application. Its left-hand daughter of type ⟨s,t⟩ and its right-hand daughter is of type ⟨⟨s,t⟩,⟨s,t⟩⟩. Through functional application, we get (259).

(259) $[\![\mathbf{\&_{asym}P}]\!] = [\![\mathbf{\&'_{asym}}]\!]([\![\mathbf{\&_{sym}P}]\!]) \overset{(255)}{=}$
$[\lambda Q.\lambda e.\ \exists e',e''$ causation(e) ∧ setting(e,e′) ∧ consequence(e,e″) ∧ Q(e′) ∧ S(e″)$]([\![\mathbf{\&_{sym}P}]\!])$
$\overset{(258)}{=} \lambda e.\ \exists e',e''$ causation(e) ∧ setting(e,e′) ∧ consequence(e,e″) ∧ N(e′) ∧ D(e′) ∧ S(e″)

The sentence denotes a set of *causation* situations E. These situations must have for setting a situation e′ that satisfies the conditions of being a *nonexistence* situation with the theme 'mosquitoes' and the location 'school' *and* a *being-dirty* situation with the theme 'my shirt'. The situations in E have for consequence a *not-putting-on* situation with the theme 'my shirt' and the agent 'I'.

6.5 Explaining other morphosyntactic differences

In section 6.3, I exploited the fact that switch-reference isn't marked in symmetric coordination to propose that symmetric coordination has a flat structure. More specifically, I argued that by attributing to symmetric coordination a flat structure we can straightforwardly account for the fact that switch-reference marking isn't licensed in this type of coordination.

A flat structure disallows agreement between the coordinating conjunction and the subject of one of the conjuncts. Since the conjunction c-commands *all* of its conjuncts, it is impossible for it to "pick" a single conjunct to agree with the subject of. According to the model laid out in chapter 5, switch-reference computation is parasitic on that agreement relation. If it can't be established, switch-reference can't be computed.

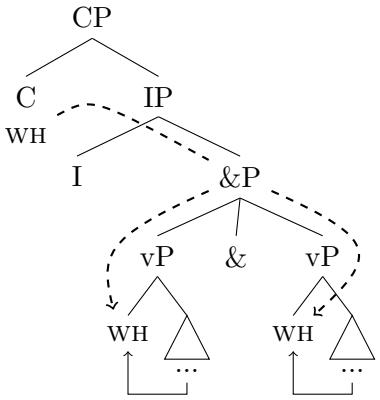
Essentially, I am saying that conjuncts in symmetric coordination are unordered. Since a coordinating conjunction can't single out one of its conjunct to the exclusion of the others, no agreement can obtain. The fact that conjuncts in flat coordination are unordered can also explain why the only way to extract a constituent from within symmetric coordination is across-the-board.

6.5.1 Across-the-board extraction from symmetric coordination

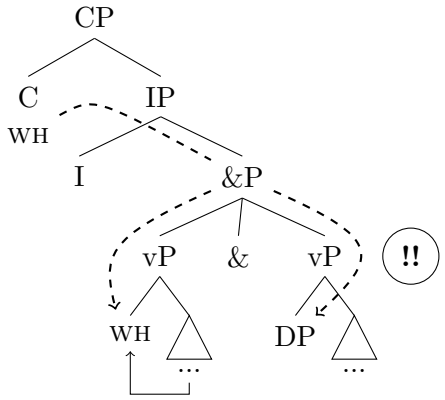
I assume that a probe can only match into a symmetric coordinate complex if it matches at the same position in all of the conjuncts, as in (260-a). If it matches only in some conjuncts but not in others,[4] as in (260-b), the match fails. The reason for this behavior is the following: there are actually no branching paths in the syntax of (260-a) and (260-b). In both cases, all the syntax sees is a single path going from the probe in C to the specifier of vP.

(260) Probing into symmetric coordination

a. Successful attempt



b. Failed attempt

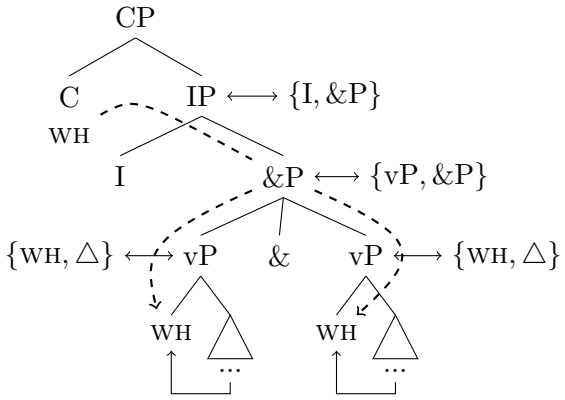


To understand how syntax sees a non-branching path, we need to follow the movement of the probe. In both (260-a) and (260-b), the probe is the WH feature under C. Below I repeated (261-a) and (261-b), adding beside each relevant node its set representation. The WH probe goes into C's sister, IP, which consists of the set {I, &P}. It probes the atom I and, since it doesn't match, it goes into &P. &P is the set {vP, &}. The item vP in that set corresponds to both the right-hand side vP as well as the left-hand side vP in tree (261-a). This is so because we are representing branching nodes as sets, and {a, b, b, b, a} = {a, b}. The WH probe tries to match & and fails, trying vP next. I am assuming that probes first check the atomic members and only then the non-atomic members of a set.

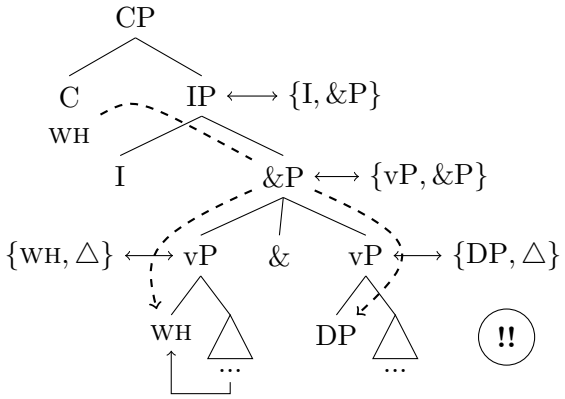
[4] or, trivially, if it doesn't match in any conjunct

(261) Probing into symmetric coordination

a. Successful attempt



b. Failed attempt



At this point, the derivation proceeds differently in each case. For (261-a), vP is the set {WH, △}. The probe matches WH. For (261-b), vP is not uniquely identifiable, and so the operation fails.

6.5.2 Extraction from asymmetric coordination

Non-ATB extraction is only possible from asymmetric coordination, as illustrated by (220-a), repeated below as (262). This is usually taken to be surprising, since the Coordinate Structure Constraint seems to be obeyed in symmetric coordination even in languages that don't display other kinds of island.

(262) Extraction in violation of the Coordinate Structure Constraint (CSC) (Ross, 1967)

a. The CSC can be violated in **asymmetric** coordination
I wonder [DP what kind of herb] you can use *t* and get cured of cancer.

b. The CSC can't be violated in **symmetric** coordination
* I wonder who Matthew dates *t* and hopes to date a surgeon

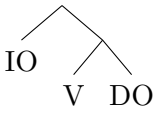
The reason why the CSC is obeyed in symmetric coordination was explained above —the flat structure of symmetric coordination doesn't permit probes to distinguish between conjuncts. In the case of asymmetric coordination, its $\bar{\text{X}}$ structure doesn't block extraction from a single conjunct. Indeed, what is surprising in the case of asymmetric coordination is the fact that it is possible to

extract across-the-board from it!

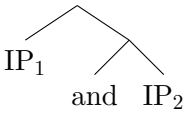
Let me explain: since asymmetric coordination has the same $\bar{X}$ structure as ditransitive VPs (263), the possibility of extracting from a conjunct but not from another conjunct of asymmetric coordination is as natural as the possibility of extracting from an object but not on another object of a ditransitive VP (264).

(263) Asymmetric coordination has the same structure as ditransitive VPs

a. Ditransitive VP



b. Asymmetric coordination



(264) Extraction from a single object of a ditransitive verb

What did he tell [you] [the pirate hid t in the castle] ?

Though I don't have an explanation for why ATB extraction from asymmetric coordination is possible, I would like to show that it is not the same phenomenon as ATB extraction from *symmetric* coordination. The latter is due to the structural restriction I detailed above, wheres ATB extraction from asymmetric coordination has the same properties as parasitic extraction. The next section develops this statement.

6.5.3 Parasitic gap extraction and ATB extraction

I showed in section 6.2 that ATB extraction from symmetric coordination allows sloppy reconstruction, whereas ATB extraction from asymmetric coordination doesn't. We will see that parasitic gap extraction patterns with asymmetric coordination in not allowing sloppy reconstruction. Let me first remind you of the relevant data

When a constituent is extracted simultaneously from two conjuncts that stand in symmetric coordination, as in (265-a-i), it can be reconstructed to both extractions positions, resulting, in the case at hand, in a reading where two different pictures are under discussion —a picture of Peter and a picture of John. Given that reading, a clarification remark of the form (265-a-ii) sounds natural.

If, on the other hand, a constituent is extracted simultaneously from two conjuncts that stand in asymmetric coordination, as in (265-b), it can be reconstructed only to gap in the first conjunct. In this case, it can't be true that there are two pictures under discussion, and that is why a clarification remark of the form (265-b-ii) sounds out of place.

(265) Sloppy Reconstruction of Across-The-Board extraction (ATB)

a. ATB extraction out of **symmetric** coordination licenses sloppy reconstruction

(i) I wonder [which picture of himself] Peter likes t and John hates t

(ii) Peter likes THIS picture of himself and John hates THAT picture of himself. (Haïk, 1985, p. 286)

b. ATB extraction out of **asymmetric** coordination doesn't license sloppy reconstruction

(i) I wonder [which picture of himself] Bill showed John t and John destroyed t

(ii) *Bill showed a picture of himself in high school and, reminded of his shameful past, John destroyed a picture of himself taken the same year.

As you can see in (266), parasitic extraction patterns with ATB extraction from asymmetric coordination in also not licensing reconstruction to both gaps. Reconstruction must be only to the real gap, that being the reason why a clarification remark like (266-b) sound odd.

(266) **Parasitic** extraction doesn't license sloppy reconstruction (Haïk, 1985, p. 286)

a. I wonder [which picture of himself] Bill showed to John t before John destroyed t .

b. *John looked at THIS picture of himself before Peter destroyed THAT picture of himself.

ATB extraction from asymmetric coordination also patterns with parasitic extraction in only licensing extraction under certain conditions. In particular, in section 6.2 I showed that asymmetric coordination doesn't license extraction of non-NPs or extraction from anti-pronominal contexts. This is also true of parasitic extraction (as noted by Postal, 1993) —in (267) and (268) below I repeat the data shown in section 6.2 with complementary examples involving parasitic extraction.

(267) Restrictions to extraction from asymmetric coordination:
Extraction from **asymmetric** coordination is restricted to NPs (whether ATB or not)

a. ATB AdvP extraction from *symmetric* coordination
Tell me [$_{\text{AdvP}}$ how sick] John was t yesterday and Peter was t last month?

b. *ATB AdvP extraction from *asymmetric* coordination
Tell me [$_{\text{AdvP}}$ how sick] John arrived home t (* and his wife immediately got t).

c. *AdvP extraction from *parasitic gap*
Tell me [$_{\text{AdvP}}$ how sick] John arrived home t (* before his wife immediately got t).

(268) Restrictions to extraction from asymmetric coordination:
Extraction from **asymmetric** coordination can't proceed from anti-pronominal contexts

a. Anti-pronominal context
He dyed his beard green/that color/*it.

b. ATB extraction from anti-pronominal context in *symmetric* coordination
[the red] that the Germans paint their houses t and the French paint their furniture t

c. *ATB extraction from anti-pronominal context in *asymmetric* coordination
[the red] that the sailors (*saw t in Brazil and) told their kings to dye their coats t

d. *Extraction from anti-pronominal context in *parasitic gap*
[the red] that the sailors saw t in Brazil before telling their kings to dye their coats t

The observation that parasitic gap extraction patterns with ATB extraction from asymmetric coordination but not with ATB extraction from symmetric coordination sheds new light on a debate from the early nineties. Williams (1990), among others, argued that parasitic gap extraction was the same phenomenon as ATB extraction. Postal (1993) showed, however, that the constructions had different properties. Though he didn't make it explicit, Postal was only looking at ATB extraction from symmetric coordination. Once we control for coordination type, we see that he was only partly right.

6.6 Conclusion

This chapter built on the argument made in chapter 3 that clause chaining is asymmetric coordination and on the fact that switch-reference is only marked in asymmetric coordination, but never in symmetric coordination, to support the hypothesis that symmetric and asymmetric coordination have different structures. I proposed that symmetric coordination has a flat multi-branching structure and asymmetric coordination has a hierarchical binary-branching structure.

Besides explaining the sensitivity of switch-reference marking to coordination type, this structural difference also allowed me to explain why extraction from symmetric coordination must always be across-the-board and predicted that ATB extraction from asymmetric coordination should be a different phenomenon than ATB extraction from symmetric coordination, a prediction which was borne out.

Appendix A

Sketch of a grammar

A.1 Phonology

The Kĩsêdjê language has 17 vowels —10 oral vowels and 7 nasal vowels— and 14 consontant. They are described, respectively, in session A.1.1 and A.1.2. The way these segments are organized in syllables is described in session A.1.3 and in the session A.1.4 the phonological processes these segments are involved in are described. Session A.1.5 describe the lexical accent of the languge and session A.1.6 describe the ortography currently used by the speakers of the language.

A.1.1 Vowels

Table A.1 classify the oral vowels of the language and table A.2 lists its nasal vowels.

	front	central	back
high	i	ɨ	u
mid-high	e	ɘ	o
mid-low	ɛ	ɜ	ɔ
low		a	

Table A.1: Oral Vowels

	front	central	back
high	ĩ	ɨ̃	ũ
middle	ɛ̃	ɘ̃	ɔ̃
low		ã	

Table A.2: Nasal Vowels

A.1.2 Consonants

Table A.3 below lists the consonantal segments of the Kĩsêdjê language. I could be proposing a different consonantal inventory, along with a different set of allophonic rules than the ones I propose in section A.1.4. I don't claim this system is more real in any way. It is only the simplest and most symmetric way I could think of to expound the Kĩsêdjê phonology.

	labial	alveolar	palatal	velar	glottal
voiceless	p	t	tʃ	k	
aspirated		tʰ		kʰ	
nasals	m	n	ɲ	ŋ	
approximant	w	ɹ			
fricative		s			h

Table A.3: Consonants

A.1.3 Syllable

Scheme (269) represents the syllabic structure of Kĩsêdjê: a simple vocalic nucleus chosen from any one of the 17 vocalic segments of the language, an onset of at most 3 consonantal segments, and a simple coda.

(269) Syllabic Structure
(C)(C)(C)V(C)

Word-initially, the onset can be left empty —examples in (270).

(270) Words with an empty onset
/ama/ *'pay attention'*; /itʰa/ *'this'*

Except word-initially, every syllable must have an onset. A simple onset can be chosen from any of the 15 consonantal segments of the language –examples on table A.4.

	labial	alveolar	palatal	velar	glottal
voiceless	/pa/ *'to stay'*	/ta/ *'to put'*	/tʃi/ *'big'*	/kot/ (modal)	
aspirated		/tʰa/ *'to fell'*		/kʰot/ *'with'*	
nasal	/ma/ *'liver'*	/nũki/ (proper name)	/ɲɔt/ *'potato'*	/ŋo/ *'water'*	
approximant	/wa/ *'I'*	/ɹɨ/ *'long'*			
fricative		/sɨ/ *'seed'*			/haɹɛ/ *'let's go!'*

Table A.4: Words containing a simple onset

Examples of the possible biconsonantal onsets are classified on table A.5 and examples of the possible triconsonantal onsets are classified on table A.6. Examples of the attested coda consonants are classified according to its articulatory features on table A.7.

	labial	alveolar	palatal	velar	glottal
voiceless					
aspirated		/tʰwɔ/ *'to bathe'*		/kʰɹa/ *'son'* /kʰwɔɹ/ *'manioc'*	
nasal	/mɹɨ/ *'animal'* /mɲen/ *'husband'*	/ntɛk/ *'weak'*		/ŋɹɨk/ *'mad'* /ŋwɔɲ/ *'pot'* /ŋɲe/ *'insert'*	
approximant		/ɹwɔ/ *'to lower'*			
fricative		/swakɔ̃/ *'coati'*			/hwa/ *'arm'*

Table A.5: Words containing biconsonantal onsets

	labial	alveolar	palatal	velar	glottal
voiceless					
aspirated				/kʰɹwa/ *'arrow'*	
nasal				/ŋɹwa/ *'buriti'*	
approximant					
fricative					

Table A.6: Words containing triconsonantal onsets

	labial	alveolar	palatal	velar	glottal
voiceless	/kʰpɜp/ *'nail'*	/mɨt/ *'sun'*		/tʰik/ *'belly'*	
aspirated					
nasal	/pɜ̃m/ *'father'*	/kukʰen/ *'agouti'*	/pɔɲ/ *'to arrive'*	/katɔ̃ŋ/ *'to explode'*	
approximant		/mɔɹ/ *'to cry'*			
fricative					

Table A.7: Words with codas

A.1.4 Phonological Processes

Kĩsêdjê doesn't display vowel allophony. I would expect that to be generally true of languages that like Kĩsêdjê have large vowel inventories. If one believes that deep form distictions have to be deducible from surface form distictions (how would an infant acquire such contransts otherwise?), only languages that have small vowel inventories can afford vowel allophony: such allophones can be picked so that different phonemes have non-intersective sets of phones. For a language with such a large vocalic inventory as Kĩsêdjê, is impossible to display vowel allophony without creating neutralization contexts, that is, without reducing the vowel inventory. There is simply no vowel space left. In contrast to the stability displayed by its vowels, Kĩsêdjê's consonantal phonemes (a much more modest set) can be realized as different phones depending on their position in the syllable and the surrounding vocalic context, as described below.

A.1.4.1 Consonant Allophony

Nasal stops become post-oralized when followed by oral vowels.

(271) $\left\{\begin{matrix} \text{m} \\ \text{n} \\ \text{ɲ} \\ \text{ŋ} \end{matrix}\right\} \rightarrow \left\{\begin{matrix} \text{mb} \\ \text{nd} \\ \text{ɲj} \\ \text{ŋg} \end{matrix}\right\} /\_\_ [-\text{nasal}]$

a. /mɨ/ → [mbɨ] (*tail*)
b. /na/ → [nda] (*rain*)
c. /ɲɜt/ → [njɜt] (*potato*)

When followed by an oral vowel, the palatal nasal stop can be completely denasalized and even, especially among younger speakers, affricated.

(272) ɲj → dʒ /__V

a. /ɲensetʃi/ → [ɲjensetʃi] → [jensetʃi]/[dʒensetʃi] (*sting ray*)
b. /ɲɔ/ → → [ɲjɔ] → [jɔ]/[dʒɔ] (*there*)

The palatal nasal is completely oralized in coda position:

(273) ɲ → j /__#

a. /pəɲ/ → [pəj] *'to arrive'*

The alveolar appoximant is substituted by a tap in intervocalic positions or word-initially:

(274) ɹ → ɾ / $\left(\left\{\begin{array}{c}\text{V}\\ \#\end{array}\right\}\right)$__V

a. /aɹə/ → [aɾə] (*'already'*)
b. /saɹɛ̃/ → [saɾɛ̃] (*'to say'*)

The alveolar stop is substituted by a flap[1] in derived intervocalic contexts, that is to say, when the alveolar stop which didn't use to be in an intervocalic position in the underlying form ends up, through the agency of some phonological process, in an intervocalic position.

There is only one phenomenon that creates intervocalic contexts: word final vowel epenthesis, described below, in section A.1.4.2.

(275) t → ɾ / V__V_{epent}

a. /ɲɜt/ → [ɲjɜrɜ]/[dʒɜrɜ] (*potato*)
b. /mɨt/ → [mbɨrɨ] (*sun*)

The bilabial stop is substituted by a bilabial approximant when it finds itself in a derived intervocalic context:

(276) p → w / V__V_{epent}

a. /t^{h}ɛp/ → [t^{h}ɛwɛ] (*fish*)
b. /ɹɔp/ → [ɾɔwɔ] (*jaguar*)

A.1.4.2 Epenthesis

Every Kĩsêdjê sentence must end in a vowel, that is to say: the last word of every sentence must end in a vowel. Some words end in a consonant, though, and if one of those turns out to be the last word of a sentence, it must be made vowel-final. The way that is accomplished is through the addition of a final epenthetic vowel. The quality of this vowel depends on the last two segments of the word being fixed (last vowel plus consonantal coda). I am listing below a set of rules that describes the quality of such epenthetic vowel. Whenever the context would allow for the application of more than one rule, the one I listed first below is applied.

(277) If the underlying coda consonant is /ɲ/ the epenthetic vowel is [i]: ∅ → [i] /ɲ__ ##

a. /pəɲ/ → [pəji] (*to arrive*)
b. /nihaɲ/ → [nihaji] (*there*)

[1] I can be wrong about the articulatory characterization of this segment. What I am sure of is that this segment is distinct from the one previously described as an intervocalic rhotic. I think I can hear the distinction, and the speakers of the language also hear it, to the point of feeling uncomfortable at the fact that the writing system represents both segments as <r>.

(278) If the last vowel is /a/, the epenthetic vowel will be high and will agree in frontness with the underlying coda consonant ([i] if the coda consonant is /t/ and [ɨ] if the coda consonant is /k/).

$$\emptyset \rightarrow \begin{bmatrix} +\text{ high} \\ \alpha\text{ front} \end{bmatrix} / \text{a} \begin{bmatrix} +\text{ consonant} \\ \alpha\text{ front} \end{bmatrix} \_\_ \#\#$$

a. /kʰrat/ → [kʰɹaɾi] (*beginning*)
b. /tʰak/ → [tʰakɨ] (*to open*)

(279) If the underlying coda consonant is nasal and the last vowel is oral, the epenthetic vowel will be high and will agree in frontness with the underlying coda consonant ([i] if the coda consonant is /n/ and [ɨ] if the coda consonant is /m/).

$$\emptyset \rightarrow \begin{bmatrix} +\text{ high} \\ \alpha\text{ front} \end{bmatrix} / \begin{bmatrix} +\text{ vowel} \\ -\text{ nasal} \end{bmatrix} \begin{bmatrix} +\text{ consonant} \\ +\text{ nasal} \\ \alpha\text{ front} \end{bmatrix} \_\_ \#\#$$

a. /mɜn/ → [mbɜni] (*red arara*)
b. /mɛn/ → [mbɛni] (*honey*)
c. /mɲen/ → [mjeni]/[mdʒeni] (*husband*)
d. /nton/ → [ntoni] (*a proper name*)
e. /ɲun/ → [ɲjuni] (*hummingbird*)
f. /kʰrɜm/ → [kʰɹɜmɨ] (*friend*)
g. /hʷɨsɨsom/ → [hʷɨsɨsomɨ] (*mosquito*)

(280) Elsewhere, the epenthetic vowel is a copy of the last vowel.

$$\emptyset \rightarrow \text{V}_\text{i} / \text{V}_\text{i}\text{C} \_\_ \#\#$$

a. /ŋɹot/ → [ŋgɹoɾo] (*the Pleiads*)
b. /tʰɛp/ → [tʰɛwɛ] (*fish*)
c. /məɹ/ → [mbəɾə] (*to cry*)
d. /hrɔ̃n/ → [hrɔ̃nɔ̃] (*to run*)
e. /sumkʰrɛŋkʷɘ̃n/ → [sumkʰrɛŋkʷɘ̃nɘ̃] (*ear*)
f. /kʰɔ̃n/ → [kʰɔ̃nɔ̃] (*knee*)
g. /kʰɛ̃n/ → [kʰɛ̃nɛ̃] (*rock*)
h. /tũn/ → [tũnu] (*argue*)
i. /tʰɔ̃n/ → [tʰɔ̃nɔ̃] (*sister*)

There are a few words that seem to be lexically marked to receive a high front epenthetic vowel instead of an epenthetic vowel copied from a preceding vowel. They are all words that end in /ɛ̃n/. I would normally expect a word ending in /ɛ̃n/ to receive a copied epenthetic vowel, as does /kʰɛ̃n/, above (280-g).

(281) Words lexically marked to receive a high front epenthetic vowel.

a. /kʰumɛ̃n/ → [kʰumɛ̃ñi] (*much*)
b. /rɛ̃n/ → [rɛ̃ñi] (*to throw repeatedly*)
c. /mɛ̃n/ → [mɛ̃ñi] (*to throw once*)
d. /ajpɛ̃n/ → [ajpɛ̃ñi] (*to fit*)
e. /suɲarɛ̃n/ → [sujarɛ̃ñi] (*narrative*)

Finally, there are certain words that always receive an epenthetic vowel, even when they are not sentence-final: they are the words ending in /r/ and the words ending in /iɲ/. That makes it effectively so that the underlying coda /r/ and the underlying rhyme /iɲ/ never surface as such. There are two reasons to state that the final vowel on those surface words is nonetheless epenthetic: the fact, at least for words with underlying coda /r/, that its quality is determined in the same fashion as the other epenthetic vowels (as a copy of the last underlying vowel), plus the fact that those vowels are treated as epenthetic for the purposes of stress assignment (that is to say, stress never falls on them, see section A.1.5).

(282) Words with coda /r/ always receive a copied epenthetic vowel.
$\emptyset \rightarrow V_i / V_i ɹ \_\_ \#$
a. /mər/ → [mbərə] (*to cry*)
b. /ŋɔ̃r/ → [ŋɔ̃rɔ̃] (*to sleep*)

(283) Words with rhyme /iŋ/ always receive the epenthetic vowel [a].
a. /sariŋ/ → [sarija] (*to hang [plural]*)
b. /akʰiŋ/ → [akʰija] (*to shout*)
c. /kukʰiŋ/ → [kukʰija] (*to ask*)

A.1.5 Stress

Main stress falls on the last syllable of the underlying form of a stressable words. Besides stressable words, the Kĩsêdjê lexicon also includes unstressable words (clitics). The latter will be phonologically annexed to a neighboring word. This cliticization process happens after stress assignment and doesn't alter it. The epenthesis process discussed in section A.1.4.2 also only happens after stress assignment though it changes the surface number of syllables of a word, it doesn't alter stress placement.

(284) Stress is assigned to the last syllable of the underlying form of a word.
a. /ˈpəŋ/ → [ˈpəji] (*to arrive*)
b. /kʰuˈmɛ̃n/ → [kʰuˈmɛ̃ni] (*very much*)
c. /ˈŋɹot/ → [ˈŋgɹoɾo] (*the Pleiads*)
d. /ˈtʰɛp/ → [ˈtʰɛwɛ] (*fish*)

Secondary stress is assigned to alternating syllables from the main stress:

(285) Secondary stress is iambic.
a. [akaˈmbɜt] → /ˌakaˈmbɜɾɜ/ (*to dawn*)
b. [ɲĩŋnãtɨ] → /ˌɲĩŋnãˈtɨ/ (*deer*)

A.1.6 Orthographic Representation

The examples used in the next section A.2 have been transcribed orthographically. The vocalic graphemes used are indicated on table A.8 and A.9 and the consonantal graphemes are indicated on table A.10.

Table A.8: Graphemes used for the oral vowels

	front	central	back
high	i	y	u
mid-high	ê	â	ê
mid-low	é	á	ó
low		a	

	front	central	back
high	ĩ	ỹ	ũ
middle	ẽ	ã	õ
low		ã	

Table A.9: Graphemes used for the nasal vowels

The correspondence between the graphemes and the phonemes of the language is not perfect. Both the middle and the low central nasal vowels are represented by the grapheme <ã>. That is not a big issue, since the low central nasal vowel occurs in very few words.

	labial	alveolar	palatal	velar	glottal
voiceless	p	t	tx	k	
aspirated	hw	th		kh	
nasal	m(b)	n(d)	nh/j	ng	
approximant	w	r			
fricative		s			h

Table A.10: Graphemes used for the consonants

When it comes to the orthographic representation of the consonants, the predictable post-oralization of the bilabial, alveolar and palatal nasals is explicitly marked in the orthography. The nasality of the following nasal vowel, environment that conditions such post-oralization, is not represented, though —(286-a)/(286-b) and (286-c)/(286-d). On the other hand, the post-oralization of the velar nasal is not marked in the orthography, and the nasalization of the following vowel is —(286-e)/(286-f).

(286) Representation of nasality

a. /mɔ̃/ → [mɔ̃] → <mo> (*to go (plural event)*)
b. /mɔk/ → [mbɔk] → <mbok> (*to fall*)
c. /ɲɨ̃/ → [ɲɨ̃] → <nhy> (*to sit*)
d. /ɲɜt/ → [ɲjɜrɜ]/[dʒɜrɜ] → <járá> (*potato*)
e. /ŋo/ → [ŋgo] → <ngô> (*water*)
f. /ŋɔ̃/ → [ŋɔ̃] → <ngõ> (*yours*)

When following a bilabial, alveolar or palatal nasal, the tilde over <a> is used to indicate the distinction between the central middle and central low nasal vowels —(287-b)/(287-a). The tilde is also used as a differential accent to orthographically mark the homophones <mẽ> 'people' and <me> 'and' —(287-c)/(287-d).

(287) Other uses of the tilde

a. /nã/ → [nã] → <na> (modal particle)
b. /nə̃/ → [nə̃] → <nã> (*mother*)
c. /mɛ̃/ → [mɛ̃] → <mẽ> (*people*)
d. /mɛ̃/ → [mɛ̃] → <me> (*e*)

Finally, the orthography of the language also marks the final epenthetic vowels, and the mutations /p/ → [w] and /t/ → [ɾ] described in session A.1.4 —examples in (288).

(288) Phonetic representation in the writing system

a. /ɲɜt/ → [ɲjɜrɜ]/[dʒɜrɜ] → <járá> (*potato*)
b. /mɨt/ → [mbɨrɨ] → <mbyry> (*sun*)
c. /tʰɛp/ → [tʰɛwɛ] → <thewe> (*fish*)
d. /ɹɔp/ → [ɾɔwɔ] → <rowo> (*jaguar*)

A.2 Morpho-syntax

A.2.1 Parts of speech

The words of the Kĩsêdjê language can be classified among verbs, nouns, adverbs, postpositions and determinants. All of those except the adverbs are involved in case phenomena. And all of them are involved with order phenomena. Therefore, before we investigate each class in its specific characteristics, let us talk about what they have in common.

A.2.2 Word Order

Kĩsêdjê is a head-last language: postpositions follow their arguments, nouns follow their owners, determinants follow nouns and verbs come last in a clause, after adjuncts and their direct object. (schemes (289) and (290)).

(289) subject [argument P]$_{PP}$ (object) verb
Mẽ kande kandê ra kh-wã sukande me.
physician NOM 3-to medicine thow
'The doctor gave medicine to the child.'

(290) [owner N Det]$_{DP}$
khupẽkhátxi patá itha
non-indigenous village this
'this town'

A.2.3 Case

Verbal arguments are marked as ergative-absolutive in embedded clauses and nominative-accusative in main clauses; postpositions, excepting two, mark their arguments with absolutive morphology; nouns mark their possessors with absolutive morphology.

Pronouns distinguish four cases: nominative, ergative, absolutive and accusative, and four grammatical persons, as indicated on table A.11 below. Pronouns don't distinguish number, which is marked by another morpheme, described in session A.2.3.1. Nominative and ergative pronouns are free forms, whereas accusative and absolutive pronouns are prefixes. The morphological distinction between absolutive and accusative is very tenuous among pronouns. Only *khu-* is exclusive for accusative case, all other pronouns being ambiguous between absolutive and accusative.

person	nominative	ergative	absolutive	accusative
1	wa	ˈire	i-	
2	ka	ˈkare	a-	
1+2	ku	ˈkware	wa-	
3	∅	ˈkôre	s-/∅$^{(h)}$-	khu-/s-/∅$^{(h)}$-

Table A.11: Pronouns

The use of the pronouns *khu-* is restricted to two postpositions and to verbs with a certain morphophonological profile. The two postpositions which take the third person pronoun *khu-* are *mã* 'benefactive' (289) and *wê* 'malefactive' (291). Note that the pronoun *khu-* is truncated into *kh-* and that the postposition *mã* suffers consonantal mutation (m → w).

(291) ngátyrejê ra kh-wê s-á
child NOM 3_{acc}-malefactive 3_{abs}-sick
'The child got sick to his own disadvantage.'

In the verbal domain, use of the third person accusative pronoun *khu-* is restricted to verbs with a certain morphophonological profile, namely, verbs whose main form has the shape of a single open syllable with filled onset. Furthermore, those verbs must have distinct nominal and main forms —compare (292) and (293) (more details on the verb form in section A.2.6).

(292) Monosyllabic verbs with distinct forms

a. Wa khu-khrẽ.
1_{nom} 3_{acc}-devour$_{main}$
'I devoured it.'

b. Ire ∅-khrẽn mã.
1_{erg} 3_{abs}-devour$_{emb}$ FUT
'I will devour it.'

(293) Monosyllabic verb with identical forms

a. Wa ∅-khre.
1_{nom} 3_{acc}-plant$_{main}$
'I plant.'

b. Ire ∅-khre mã.
1_{erg} 3_{abs}-plant$_{emb}$ FUT
'I wil plant.'

All other heads take the pronouns *s-* or $\emptyset^{(h)}$indistinctly as either third person accusative or absolutive arguments. The pronoun *s-* is taken by vowel-initial heads —example in (294)— and by most of the heads that begin with /t/ or /wy/. The latter lose their initial consonants when they are combined with the pronoun *s-* (/t/ → ∅ and /wy/ → /u/) —example in (295)

(294) Vowel initial heads take the third person pronoun *s- s-*
Hẽn s-arẽ.
FACT.NF 3-tell
'He/she told (someone) about him/her.'

(295) Heads that begin with /t/ or /wy/ take the third person pronoun *s-*

a. Hẽn ka i-wyndu.
FACT.NF 2_{nom} 1_{acc}-hurt
'You hurt me.'

b. /wy/ → /u/ /s-__
Hẽn ka s-undu.
hẽn ka s- wyndu
FAT.NF 2_{nom} 3_{acc}- hurt
'You hurt him/her.'

c. wa-tutê
$1+2_{abs}$-weapon
'Our (inclusive) weapon'

d. /t/ → ∅ /s-__
s-utê
s- tutê
3_{abs}- weapon
'His weapon'

All other heads take the pronoun $\emptyset^{(h)}$-. This pronoun has the effect of making the immediately following consonant aspirated in case it is a consonant that contrasts for that feature, that is, if the following consonant is either /k/ (296-a)/(296-b) or /t/ (296-c)/(296-d) (the postposition *to* is the only case of a head begun in /t/ that selects for the pronoun $\emptyset^{(h)}$-, since all other roots beginning with /t/ select for the pronoun *s-*, as detailed above). In case the head selecting for $\emptyset^{(h)}$- doesn't begin with a consonant that contrasts for aspiration, the aspiration feature isn't realized (296-e)/(296-f).

(296) The pronoun $\emptyset^{(h)}$- is compatible with consonant initial roots

a. i-kapẽrẽ
1_{abs}-language
'my language'

b. khapẽrẽ
$\emptyset^{(h)}$- kapẽrẽ
3_{abs}- language
'his language'

c. Khukhryt to thẽ!
tapir with bring
'Bring the tapir'

d. Tho thẽ.
s- to thẽ
3- with bring
'Bring it!'

e. i-pãmã
$1_{acc/abs}$-father
'my father'

f. pãmã
$\emptyset^{(h)}$-pãmã
3_{abs}-father
'my father'

The case of non-pronominal arguments is marked by enclitics. No marks indicates non-pronominal accusative or absolutive arguments (297). The enclitic *re* marks non-pronominal ergative arguments, in free (and maybe also generational) variation with the enclitic *ra* (298). The latter also marks non-pronominal nominative arguments (299).

(297) [DP=**∅**]$_{abs/acc}$

a. Hẽn ∅ i-nã=**{∅**/*re/*ra} mu.
FACT 3_{nom} 1_{abs}-mother=ACC see
'He/she saw my mother.'

b. Hẽn ∅ [i-nã=**{∅**/*re/*ra} thẽm] khãm s-õmu.
FACT 3_{nom} [1_{abs}-mother=ABS go_{sub}] in 3_{abs}-see
'He/she saw my mother going.'

(298) [DP=**re/ra**]$_{erg}$
Hẽn ∅ [i-nã=**{re/ra**/*∅} ∅-khuru] khãm s-õmu.
FACT 3_{nom} [1_{abs}-mother=ERG 3_{abs}-eat_{sub}] in 3_{abs}-see
'He/she saw my mother eating.'

(299) [DP=**ra**]$_{nom}$

a. ∅ I-nã=**{ra**/*re/*∅} mbârâ
FACT 1_{abs}-mother=NOM cry.
'My mother cried.'

b. ∅ I-nã=**{ra**/*re/*∅} khu-ku.
FACT 1_{abs}-mother=NOM 3_{acc}-eat
'My mother ate it.'

Pronouns in the ergative series the formant 're', possibly the same formant that marks nominal phrases as ergative. There is a causative postposition with the same shape (300). The relation between that postposition and ergative marking must be diachronic, though, since synchronically the postposition 're' only takes clausal complements (301).

(300) ∅ i-nã=ra i-kahrĩ=re mbârâ
FACT 1_{abs}-mother=NOM 1_{abs}-pity=out.of cry
'My mother is crying out of pity for me'

(301) *∅ i-nã=ra i-re mbârâ
FACT 1_{abs}-mother=NOM 1_{abs}-out.of cry
'My mother is crying out of me'

The nominative and ergative enclitics suffer phonological mutations depending on the word that precedes them, as detailed in the following examples. The same kind of mutation happens with two postpositions (one of them being the 're' postposition I mention above –see section A.2.8).

(302) Phonological mutation of the case enclitic

a. /r/ → [nd] /C$_{[+nasal]}$=—

(i) Hẽn ∅ [i-pãm=**nde/nda**/ ∅-khuru] khãm s-õmu
FACT 3$_{nom}$ [1$_{abs}$-father=ERG 3$_{abs}$-eat$_{sub}$] in 3$_{abs}$-see
'He/she saw my father eating.'

(ii) ∅ I-pãm=**nda** mbârâ.
FACT 1$_{abs}$-father=NOM cry
'My father cried.'

b. /r/ → [t] /C$_{[-nasal]}$=—

(i) Hẽn ∅ [ropkasák=**te/ta** ∅-khuru] khãm s-õmu.
FACT 3$_{nom}$ [dog=ERG 3$_{abs}$-eat$_{sub}$] in 3$_{abs}$-see
'He/she saw the dog eating.'

(ii) ∅ Ropkasák=**ta** mbârâ.
FACT dog=NOM cry
'The dog cried.'

We saw above that vowel initial select the pronoun *s-* as their absolutive/accusative pronominal argument. When those heads take as absolutive/accusative arguments pronouns of other persons or non-pronominal arguments, between those arguments and the head goes the linking consonant /ɲ/. The linking consonant is oralized in front of oral vowels (303), which is a regular phonologic process described in session A.1.4.1, and otherwise keeps its nasality in front of nasal vowels (304). In the examples in (304) the nasality of the vowels that initiate the heads is being marked, contrary to the orthographic norms described is A.1.6.

(303) Linking consonant /ɲ/ in front of oral vowel

a. Kh-wã i-j-arẽ.
3$_{acc}$-for 1$_{acc}$-LINK-count$_{main}$
'Tell him/her about me.'

b. Kh-wã thep j-arẽ.
3$_{acc}$-for fish LINK-count$_{main}$
'Count him/her about the fish (the fishing).'

(304) Linking consonant /ɲ/ in front of nasal vowel

a. I-nh-õn khêrê.
1$_{abs}$-LINK-sleep$_{emb}$ not
'I didn't sleep.'

b. Mẽ nh-ỹrỹ tá.
people LINK-sit$_{emb}$ thing/place
'Place for people sitting (chair)'

When the linking consonant /ɲ/ is preceded by the third person pronoun *a-*, they amalgamate into [ŋ-].

(305) a-ɲ- → ŋ-
Ire kh-wã **ng**-arẽn mã.
1$_{erg}$ 3$_{acc}$-for **2$_{abs/acc}$.LINK**-say$_{emb}$ FUT
'I will tell him/her about you.'

A.2.3.1 Number

Kĩsêdjê pronouns don't carry number distinctions, as indicated in table A.11. The plurality of pronominal arguments is marked by the plural marking particle *aj*. Plural marking particles occur to the right of nominative pronouns (306) and to the left of accusative and absolutive pronouns (307). They can occur to either side of ergative pronouns (308).

(306) Nominative plural pronominal subject + accusative singular pronominal object
Hẽn wa **aj** ∅-khãm s-õmu.
FACT.NF 1_{nom} PL 3_{acc}-in 3_{acc}-see_{main}
'We saw him/her there.'

(307) Nominative singular pronominal subject + accusative plural pronominal object
Hẽn wa ∅-khãm **aj** sõmu
FACT.NF 1_{nom} 3_{abs}-in PL 3_{acc}-see_{main}
'I saw them there.'

(308) Ergative plural subject

a. **Aj** ire thep kuru mã.
PL 1_{erg} fish eat_{emb} FUT
'We are going to eat fish.'

b. Ire **aj** thep kuru mã.
1_{erg} PL fish eat FUT
'We are going to eat fish.'

When the particle *aj* is linked to absolutive or accusative pronouns, it must be directly adjacent to them. On the other hand, when the particle is linked to nominative or ergative pronouns, it can be separated from them by certain abverbial phrases. In (309) and (310), for instance, between the pronoun and the plural marking particle there is the adverb *kê* 'also'.

(309) Nominative plural pronominal subject + adverb + accusative singular object
Hẽn wa kê **aj** ∅-khãm sõmu.
FACT.NF 1_{nom} also PL 3_{abs}-in 3_{acc}-see_{main}
'We also saw him/her there.'

(310) Ergative plural pronominal subject separated from the plural marker by the adverb *kê*
Ire kê **aj** thep kuru mã.
1_{erg} also PL fish eat_{emb} FUT
'We are also going to eat fish.'

There is a difference between the nominative pronoun and the ergative pronoun as for the necessity of being separated from a linked plural marker by an adverbial. When a possible interventor such as *kê* is present, a nominative pronoun and its linked plural marker must *always* be on opposite sides of it, whereas the ergative pronoun can be either separated from its linked plural marker, or adjacent to it, notwithstanding the existence of a possible interventor (312).

(311) When possible interventors are available, nominative pronouns must be separated a linked plural marker.

a. Hẽn wa kê **aj** twâ.
FACT.NF 1_{nom} also PL $bathe_{main}$
'We have already bathed.'

b. *hẽn wa aj kê twâ

(312) Even if a possible interventor is available, ergative pronouns can be adjacent to a linked plural marker.
Ire **aj** kê thep kuru mã.
1_{erg} PL also fish eat_{emb} FUT
'We are also going to eat fish.'

In (313) you can observe two plural markers, one of which is linked to the nominative subject pronoun, the other being linked to the accusative object pronoun. For both marks to be instantiated in this sentence, it was essential for there to exist overt material intervening between them. In the example at hand, it is a postpositional phrase. If the sentence lacked a possible interventor, only one plural marker would surface, and the resulting sentence would be three-way ambiguous (314).

(313) Plural subject + interventor + plural object
Hẽn[2]wa kê **aj** ∅-khãm **aj** sõmu.
FACT.NF 1_{nom} also PL 3_{abs}-in PL 3_{acc}-see_{main}
'We also saw them there.'

(314) No interventor: ambiguity

a. *Hẽn wa kê **aj** **aj** sõmu.
FACT.NF 1_{nom} also PL PL 3_{acc}-see_{main}

b. Hẽn wa kê **aj** sõmu.
FACT.NF 1_{nom} also PL 3_{acc}-see_{main}
(i) 'We also saw them.'
(ii) 'We also sam him/her.'
(iii) 'I also saw them.'

The ambiguity between meanings (314-b-ii) and (314-b-iii) is due to the fact that it isn't possible to determine which of the pronouns the plural marker is linked to (314-b). Note that when a postpositional phrase intervenes between the subject and the object, as in examples (306) and (307), the pronoun the plural marking particle is linked to becomes obvious.

The third possible meaning, (314-b-i) results from deletion rule (315). Since both arguments are plural, there would normally be two plural markers, as in example (313). When two particles are adjacent, however, rule (315) reduce them to a single one.

(315) Deletion of plural marking particles
$aj_{pl} \rightarrow \emptyset / \_\_ (*\#)\ aj_{pl}$

This rule only applies to particles in strongly adjacent positions, that is to say, positions between which it isn't possible to insert a pause. When the particles are in positions that are only *weakly* adjacent, that is, in positions between which it **is** possible to insert a pause, the deletion rule doesn't apply, as exemplified in (316).

(316) Plural markers in weakly adjacent positions
Hẽn ka aj (#) [PP aj i-ro] amba?
FACT.NF 2_{nom} PL PL 1_{abs}-with $think_{main}$
'Did you miss us?'

A.2.4 Nouns

In Kĩsêdjê nouns belong to one of three classes: inalienable, alienable and unpossessable. Inalienable nouns take an obligatory grammatical possessor, which can be a pronoun or a noun phrase.

Inalienable nouns normally refer to parts of a whole (317). The possessor is absolutive. Alienable nouns can take a possessor, but it is optional. (318).

(317) i-nh-ikra
1-LINK-hand
'my hand'

(318) i-kikre, kikre
1-house, house
'my house, house'

Unpossessable nouns can't take an absolutive possessor. In order to express semantic possession over an unpossessable noun (most word loans, for instance, enter the language in this class), it is necessary to do so through the agency of one of two nouns: *kiri* 'domestic animal' (319) or *nho* 'thing/food' (320). As the examples demonstrate, the choice isn't lexically determined, and can imply substantive changes to the semantics of the noun the process is being applied to.

(319) i-kit mbrytxi
1-domestic cow
'my (domestic) cow'

(320) i-nho mbrytxi
1-food/thing cow
'my beef'

A.2.5 Inflection

Kĩsêdjê main clauses aren't inflected for tense. Instead, they are obligatorily marked for modality (table A.12 lists the values of the modal inflection). Modal marking is what characterizes clauses' finitude. Embedded clauses, which are non-finite nominalizations, don't receive modal marking. Modal particles occur sentence-initially, and some of them can take a nominal specifier. Below follow some examples of use of each of those particles.

form	meaning	specifier
man	witnessed	*no specifier*
hẽn/=n(a)/∅	factual non-future	subject/topic/focus
waj	inferential non-future	*no specifier*
arân	counterfactual	restriction
kê/∅	factual future	*no specifier*
kôt	inferential future	focus

Table A.12: Modal particles

(321) The modal particles

a. man 'witnessed'
Man ngô thyk=ta ta.
WIT coffee=NOM stand
'There is coffee (in the thermos).'

b. hẽn/=(n)a 'factual non-future'
Ngaj=na ngô thyk nhihwêrê.
N.=FACT coffee make
'It is N. who makes/made the coffee.'

c. waj 'inferential non-future'
Waj ngô thyk=ta ta.
INF coffee=NOM stand
'There must be coffee (left).'

d. arân 'counterfactual'
Ngô thyk=arân wa Ø-tho.ikhõ.
coffee=COUNT 1_{nom} 3_{abs}-drink
'If there were coffee I would drink it.'

e. kê 'factual future'
Kê ngô thyk=ta ta.
FACT.FUT coffee=NOM stand
'There will be coffee.'

f. kôt 'inferential future'
Nhũm=kôt ngô thyk nhihwêrê?
who=INF.FUT coffee make
'Who would make the coffee?'

The particles *hẽn/n(a)* 'factual non-future' has three allomorphs. The allomorph *hẽn* is used when the particle doesn't take a nominal specifier —example (322)—, whereas the form N(A) is used when there is a nominal specifier —example (321-b) above. When such specifier ends in a closed syllable, as in (321-b), the form *na* is used. When the specifier ends in an open syllable, the form *-n* is used —example (323).

(322) hẽn wa hwĩkhá itha wyrák ta py
fact.nf 1_{nom} vehicle this $seem_{emb}$ DEF $get(sg)_{nom}$
'I got a car like this.' (pointing)

(323) hwĩkhá itha wyrák ta-n wa khupy
vehicle this $seem_{emb}$ DEF-FACT.NF 1_{nom} 3_{acc}-$get(sg)_{main}$
'It was a car like this I got.' (pointing)

A.2.6 Verbs

The verbs come in two categories: transitive and intransitive. All verbs have a main form, employed when it is the main verb in a sentence (that is to say, when it is not embedded under other verb), and a nominal form, used when it is in an embedded clause. Some verbs have, furthermore, two suppletive forms: one used to depict singular events, and another used to depict plural events. Each of these suppletive forms can by itself have a main and a nominal form. Table A.13 below shows the different forms for the verbs 'stand' and 'put in a standing position', and examples (324) and (331) demonstrate the use of the different forms.

	intransitive		transitive	
	main form	nominal form	main form	nominal form
singular	ta	tã	ta	taj
plural	kusê	kusê	wyntwâ	wyntwârâ

Table A.13: Multiple verbal forms of the verb stand/put standing

(324) hẽn hwĩsôsôk ta ta
FACT.NF paper NOM $stand(sg)_{pr}$
'The book is standing.'

(325) hẽn hwĩsôsõk ta kusê
FACT.NF paper NOM $stand(pl)_{pr}$
'The books are standing.'

(326) hẽn wa hwĩsôsõk ta
FACT.NF 1_{nom} paper $put.standing(sg)_{pr}$
'I put the book in a standing position.'

(327) hẽn wa hwĩsôsôk wyntwâ
FACT.NF 1_{nom} paper put.standing(pl)$_{pr}$
'I put the book in a standing position.'

(328) hẽn [hwĩsôsôk tã] ra mu
FACT.NF [paper put.standing(sg)$_{sub}$] that see
'He/she saw that the book was standing.'

(329) hẽn [hwĩsôsôk kusê] ra mu
FACT.NF [paper stand(pl)$_{sub}$] that see
'He/she saw that the books were standing.'

(330) hẽn [ire hwĩsôsôk taj] khãm i-mu
FACT.NF [1_{erg} paper put.standing(sg)$_{sub}$] in 1_{acc}-see
'He/she saw me putting the book in a standing position.'

(331) hẽn [ire hwĩsôsôk wyntwârâ] khãm i-mu
FACT.NF [1_{erg} paper put.standing(pl)$_{sub}$] in 1_{acc}-see
'He/she saw me putting the books in a standing position.'

A.2.6.1 Nominal forms

As explained above, a verb heading an embedded clause must be in the nominal form. A verb's nominal form can't be fully predicted from its main form. Actually, relating the forms seems to be easier the other way around, namely, by deriving the *main* form of a verb from its nominal form. The main form can be derived from the nominal form through deletion of the final consonant of the nominal form (As proposed by Salanova, 2007, for closely related language Mebengokre).

Worrying about the direction of change is less important than understanding the relationship between the two forms: For verbs whose main forms are vowel-final, the nominal form is identical to its main plus a final consonant. That final consonant can be [t], [k], [n], [ɾ] or [j]. The t-class is the smallest, followed by the j- and k- classes. The n- and r-classes are the most numerous (note in the examples below that any [ɾ] codas have to be followed by an epenthetic vowel —section A.1.4.2).

(332) Classes verbs according to their nominal forms:

a. $\emptyset \rightarrow$ [t] /__#
angjê$_{main}$ $\rightarrow$ ngjêt$_{emb}$ *'to enter(pl)'*

b. $\emptyset \rightarrow$ [k] /__#
amba$_{main}$ $\rightarrow$ ambak$_{emb}$ *'to pay attention'*
ihwê$_{main}$ $\rightarrow$ hwêk$_{emb}$ *'to fart'*

c. $\emptyset \rightarrow$ [j] /__#
mba$_{main}$ $\rightarrow$ mbaj$_{emb}$ *'to know'*
kapa$_{main}$ $\rightarrow$ kapaj$_{emb}$ *'to extract'*

d. $\emptyset \rightarrow$ [n] /__#
ru$_{main}$ $\rightarrow$ run$_{emb}$ *'to spill'*
ahwê$_{main}$ $\rightarrow$ áhwên$_{emb}$ *'to work'*
mbâ$_{main}$ $\rightarrow$ mbân$_{emb}$ *'to grab'*

e. $\emptyset \rightarrow$ [ɾ] /__#
ando$_{main}$ $\rightarrow$ andoro$_{emb}$ *'too send'*
ku$_{main}$ $\rightarrow$ kuru$_{emb}$ *'to eat'*
anti$_{main}$ $\rightarrow$ antiri$_{emb}$ *'to get'*

There is a somewhat regular relation between the final vowel of a verb's main form and the final consonant of its nominal form. Considering the verbs collected up until the time of writing, the following tendencies have been observed: the j-class is made up exclusively by verbs whose main forms ends in [a], though there are also verbs whose main form ends in [a] in the k-class. The k-class doesn't include any verbs whose main form ends in a back vowel. Verbs with main form ending in any vowel other than [a] can enter the n- and r- classes. The t-class contains a single verb.

Verbs whose main form ends in a consonant tend to have non-distinct nominal forms, save in case of an irregular verb.

(333) Irregular verb with main form ending in consonant
pâj$_{\text{main}}$ → pôt$_{\text{emb}}$ *'to arrive'*

A.2.6.2 Verbs of movement

The tables below describe the paradigms of the movement verbs in the language, followed by some examples. The system of movement verbs constitute a very clear example of the degree of complexity which the Kĩsêdjê verbal system can reach.

	singular		plural	
	main form	nominal form	main form	nominal form
live	mbra	-mbraj	-pa	-pa
stand	ta	s-tãm	khusê	-khusê
sit	nhy	s-ỹrỹ	khrĩ	-khrĩ
lie	no	-norõ	khrĩ	-khrĩ
hang	jêrê	-jêt	sarija	s-arija

Table A.14: Static Intransitive Verbs

(334) hwĩ ro-n wa jêrê
tree with-FACT.NF 1$_{\text{nom}}$ hang$_{\text{main}}$
'I am hanging from a tree.'

(335) hwĩ ro-n aj i-jaria mã
tree with-FACT.NF PL 1$_{\text{abs}}$-hang$_{\text{emb}}$ FUT
'Let's hang from a tree!'

(336) ngô khãm na wa hwĩ ro jêrê
water in FACT.NF 1$_{\text{nom}}$ tree with hang$_{\text{main}}$
'I was floating in the water hanging from a tree (branch).'

	singular		plural	
	main form	nominal form	main form	nominal form
put standing	khu-ta	s-taj	s-wyntwâ	s-wyntwârâ
sit (sth.)	-nhy	s-ỹrỹ	-krĩ	-krĩ
lay	khu-ti	s-tiri	-atwâ	-atwârâ
hang (sth.)	khu-ntô	-ntôrô	-antô	-antôrô

Table A.15: Static Transitive Verbs

	singular		plural	
	main form	nominal form	main form	nominal form
enter	atá	s-tátá	angjê	-ngjêt
leave	-katho	-kathoro	-katho	-kathoro
come/go	thẽ	-thẽm	mo	-morõ
cross	rê	-rêrê	rê	-rêrê

Table A.16: Dinamic Intransitive Verbs

(337) khikhre rum na wa i-katho
house from FACT.NF 1_{nom} 1_{abs}-$leave_{main}$
'I left the house.'

(338) khikhre mã-n wa atá
house to-FAT.NF 1_{nom} $enter_{main}$
'I entered the house.'

(339) mẽ ra khikhre mã angrê
people NOM house to $enter(pl)_{main}$
'The people entered the house.'

(340) hẽn i-ndo ra arâ i-ndo khre khãm jêrê
FACT.NF 1_{abs}-eye NOM already 1_{abs}-eye cavity in $hang_{main}$
'My eye is already in its orbit.' (from a narrative)

	singular		plural	
	main form	nominal form	main form	nominal form
put inside	khu-tá	-tárá	khu-ngrê	-ngrên
insert	-atá	-atárá	-angrê	-angrên
extract	-kapa	-kapaj	-ro hwâji	-ro hôt
remove	khu-tha	-syry	khu-rê	-rên
grab	khu-mbâ	-mbân	-ambâ	-ambân

Table A.17: Dinamic Transitive Verbs

(341) ire Ø-ndo ro hôt mã
1_{erg} 3_{abs}-eye $extract_{emb}$ FUT
'I will extract his eye.'

A.2.7 Clause Embedding

Embedded clauses are formed via nominalization. Embedded clauses have a verb in the nominal form, mark their arguments as ergative-absolutive and can be used as an argument to a determiner (scheme (342)). They behave exactly like noun phrases, in the sense that they can occur in any position that accepts noun phrases.

(342) [arguments $verb_{emb}$] Det

As established in section A.2.5, embedded clauses can't receive modal inflection (343).

(343) Modally inflected main clause and uninflectable embedded clause
*(Hẽn) **wa** [hwĩkhá(*n) khãm **a**-pôt] jarẽ.
*(FACT) 1_{nom} [car(*FACT.NF) in 2_{abs}-ir_{emb}] say
'I said you had arrived by car.'

Relative clauses in Kĩsêdjê are likewise built via nominalization. These are internally headed relative clauses, by which I mean to say the noun being predicated by them is in the clause-internal argumental position it is associated with, instead of being dislocated to the edge of the relative clause. Given that fact, relative clauses are ambiguous: *almost* any argument could be being

predicated of, with only context being able to resolve the ambiguity. Observe how this works in example (344) before I qualify the italicized *'almost'* I used in the last period.

(344) Observe how internally-headed relative clauses with multiple arguments can be ambiguous
Hẽn wa [rop ta k-wã ropkásák wymba] atha pĩ
FACT.NF 1_{nom} [jaguar ERG 3_{acc}-to dog fear] that kill
'I killed { that jaguar that feared dogs / that dog the jaguar feared },

Either argument in (344) could be the head of the relative clause, that is, the noun being predicated by it. That is so because all of the arguments of (344)'s are indefinite. Only indefinite arguments can be heads of relative clauses. An example of a relative clause with definite arguments, which could not, therefore, be its head, is given below in (345). The position for a definite determiner modifying the head of a relative clause would be outsite the relative clause (346). On the other hand, a definite determiner could go either inside (347) or outside (348) the relative clause.

(345) Unambiguous relative clause (only one indefinite argument)
[kôt thep itha pĩrĩ ra]=n wa khuru hrãmã
[3_{erg} fish this kill(sg) C]=fact.nf 1_{nom} eat_{emb} want
'I want to eat what killed the fish.'
'* I want to eat the fish he/she killed.'

(346) A definite determiner that modifies the head of a relative clause has to be outside of it
[kôt thep pĩrĩ (ra) **itha**]=n wa khuru hrãmã
[3_{erg} fish kill(sg) C **this**]=fact.nf 1_{nom} eat_{emb} want
'I want to eat this fish that he/she killed.'

(347) An indefinite determiner that modifies the head of a relative clause can go inside the clause

hẽn wa [mẽmbyjê **thõ** ={ra / re} kukhryt pĩrĩ ra] kãm i-ngkhryky
fact.nf 1_{nom} [man **one** =ERG tapir kill(sg) C] in 1_{abs}-be.mad
'I am mad at the man who killed the tapir.'[3]

(348) An indefinite determiner that modifies the head of a relative clause can go outside the clause
[kôt thep pĩrĩ %(ra) **thõ**]=n wa khuru hrãm
[3_{erg} fish kill(sg) C **one**]=fact.nf 1_{nom} eat_{emb} want
'I want to eat a fish he/she killed.'

A.2.7.1 Determiners

The Kĩsêdjê set of determiners includes the demonstrative determiners *itha*, *atha*, *nitha*, which indicate, respectively, closeness to the speaker, closeness to the interlocutor and distance from both; the determiner *ra* (*ta* if preceded by oral consonant, *nda* if preceded by nasal consonant), which indicates specificity; the indefinite determiner *thõ*; the dubitative *jantã* and the focalizer *wiri*.

As described in section A.2.2, the determiner follow the phrases they modify, which can be either simple noun phrases or nominalized verb clauses. An example of demonstrative determiner

[3] I am certain this sentence is two-way ambiguous, the alternative translation being "I am mad at the tapir the man killed.". I didn't collect that gloss at the time of the elicitation, though, and whenever that is the case, I am only providing the translation my consultants gave.

modifying a nominalized verb phrase was given in (344). In (349) we show a case of demonstrative determiner modifying a noun phrase.

(349) Hẽn wa [ngátyrejê **atha**] hrêk to anhi nh-akhre.
FACT.NF 1_{nom} [boy **this**] $grow_{emb}$ with self LINK-compare
'I compared my height with that of that boy.'

When selecting nominalized verb phrases, determiners can become the head of the clause, as 'wiri' does in (350).

(350) Ire mẽ ngere itha mbaj khãm aro ijambak **wiri**.
1_{erg} people $dance_{emb}$ this $hear_{emb}$ in 2_{abs}-with 1-LINK-remember **only**
'I always think of you when I listen to this song.'

Besides the determiners, there are other words that head a clause when selecting nominalized verb phrases. In (351) the dative postposition *mã* takes the coordination of two nominalized verb phrases as argument. In (352) the head of the clause is negation *khêt*, which also takes a nominalized verb clause as argument.

(351) [Khry thẽm nhy ire kh-wã khá itha j-atárá] **mã**.
[cold $fall_{emb}$ DS 1_{erg} 3_{acc}-for clothes this LINK-put.on(sg)$_{nom}$] **FUT**
'The cold will arrive and I will put these clothes on him/her.'
(Lit.) 'In the future the cold arrives and I put these clothes on him/her.'

(352) Khêrê. [I-nã ra i-mã ngêt] khêrê.
no. [1_{abs}-mother NOM 1_{acc}-to argue] not
'No. My mother didn't argue with me.'
(Lit.) 'It is not the case that my mother argued with me.'

Only the demonstrative determiners have plural forms, namely, *ithajê*, *athajê*, *nithajê*. The demonstratives determiners, alongside the indefinite determiner *thõ* can be used by themselves, as pronouns (353).

(353) I-mã thõ py!
1_{abs}-for one $grab_{main}$
'Grab one for me!'

A.2.8 Postpositions

Postpositions *ro* 'with' and *re* 'because' suffer phonological alternations according to the word that precedes them. In (354) you can observe the words in their primitive shapes.

(354) Postpositions *ro* and *re* in their primitive forms

a. I-nã **ro** thẽ!
1_{abs}-mother with take
'Take my mother!'

b. S-umba **re** mbârâ.
3_{abs}-fear out.of cry
'He/she is crying out of fear.'

The schemes for the mutation processes are given in (355), alongside some examples. You will notice the absence of an example for the mutation /r/ → /t/ for the postposition *re*. This is due to a gap in my database. This postposition takes as argument psych verbs, and I haven't been able to collect any such verb ending in an oral consonant.

(355) Phonological mutations of the postpositions *ro* and *re*

a. /r/ → [nd] /C$_{[+nasal]}$ —

(i) I-pãm **ndo** thẽ!
i-pãm ro thẽ
1$_{abs}$-father with go
'Take my father!'

(ii) ∅-Hrãm **nde** mbârâ.
∅-hrãm re mbârâ
3$_{abs}$-want out.of cry
'He/she is crying out of hunger (wanting food).'

b. /r/ → [t] /C$_{[-nasal]}$ —

Thep **to** thẽ!
thep ro thẽ
fish with take
'Take a fish!'

Note that case enclitics go through the exact same process in the same context (sessão A.2.3).

A.2.9 Coordination

A.2.9.1 Clausal coordination

Kĩsêdjê's inventory of postpositions doesn't include temporal postpositions equivalent to *when*, *after* or *before*, or a causal postposition equivalent to *because*. These kinds of clausal relations are subsumed via coordination, and as a result, clausal coordination ends up being more widely used in Kĩsêdjê than in languages like English. Main as well as nominalized embedded clauses can be coordinated. The coordinating conjunction is located between the conjuncts, and cliticizes to the word that precedes it (i.e. the last word of the first conjunct).

Unlike English coordinating conjunctions, the morphology of the Kĩsêdjê coordinating conjunction expresses whether the coordinated clauses have disjoint subjects or identical subjects. Should they be identical, the form of the conjunction is invariably *ne*. Should they be different, the conjunction will take different forms to agree in case and person with the subject of the second clause, and sometimes also with that clause's tense. The different subject coordinating conjunction is *nhy* (356) if the subject of the second clause is either non-nominative or third person nominative and the tense of the clause is not factual non-future. If the subject of the second clause is non-nominative or third and its tense is future factual, the coordinating conjunction is *kê*. If the subject of the second clause is nominative of a person other than third, the conjunction takes a form that fully agrees with that subject (but doesn't agree in tense with the clause). This fully-agreeing form is homophonous with the equivalent nominative pronoun.

(356) Example of coordination in Kĩsêdjê
[Hẽn ka ∅-khajtu]=**nhy** [khwẽ khátxi patá mã thẽ]=**n** [
[FACT 2$_{nom}$ 3$_{abs}$-command]=AND.DS.3$_{NOM}$ [white.people village LOC go]=AND.SS [
a-mã khu-py]?
2$_{acc}$-to 3$_{acc}$-get]?
'Did you tell him to, he went to the city, and got (bought) it for you?'

The semantic relationship between sentences thus coordinated is vague, and only determined in context. The sentences below exemplify this statement. In (357) and (358) coordination is creating a temporal relation between the conjuncts. In (359) coordination expresses a conditional relation. In (360) it expresses a purpose relation and in (361) a causal relation.

(357) [Ka pâj]=**wa** [thore tep ku].
[2_{nom} arrive]=AND.DS.1_{nom} [then fish eat]
'You will arrive and then I will eat the fish.' (temporal)

(358) [Wa pâj]=**kê** [ropkasák=ta aku].
[1_{nom} arrive]=AND.DS.3_{NOM}.FUT [dog=NOM feed]
'I will arrive and then the dog will feed.' (temporal)

(359) [Kôt kukryt pĩ]=**n** [kĩn nhihwêrê].
[INF.FUT tapir kill]=AND.SS [party make]
'If he maybe kills a tapir he will throw a party.' (conditional)

(360) [Hẽn wa ngátyrejê=mã kon kande]=**nhy** [mbra].
[FACT.NF 1_{nom} child=to knee treat]=AND.DS.3_{NOM} [walk]
'I treated the child's knee and he/she walked.' (purpose)

(361) [Hẽn wa i-mã rop wymba]=**n** [khu-pĩ]
[FACT.NF 1_{nom} 1_{acc}-to jaguar fear]=AND.SS [3_{acc}-kill]
'I was afraid of jaguars and killed them/it.' (cause)

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