

YAQUI COORDINATION

by

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**DEDICATION**

To my mother Felicitas Fabián García, and (in memoriam) to my father Fructuoso Martínez Benítez.

To the special children in my world: Rubén, Andrea, Fabián, Paulina, Alejandra, Paola.

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## LIST OF ABBREVIATIONS

1	first person	INTR	intransitive
2	second person	INTT	Intentive
3	third person	LOC	locative
ACC	accusative	M	masculine
ADJ	adjective	N-	non- (e.g. NNOM non-nominative)
ADV	adverb(ial)	NEG	negation, negative
AGR	agreement	NMLZ	nominalizer/nominalization
APPL	applicative	NOM	nominative
BENEF	benefactive	OBL	oblique
CAUS	causative	OBJ	object
CONT	continuative	PASS	passive
COM	comitative	PST	past
COMP	complementizer	PL	Plural
COMPL	completive	POSS	possessive
COND	conditional	PPL	participle
COORD	coordination	PRS	present
COUNT	counterfactual	PROG	progressive
DAT	dative	PROM	prominent
DECL	declarative	PROP	propositional
DEM	demonstrative	PST	past
DES	desiderative	PTCP	participle
DET	determiner	RECP	reciprocal
DIR	directional	RED	reduplication
DISTR	distributive	REFL	reflexive
FOC	focus	REL	relative
FUT	future	S	sentence
GEN	genitive	SBJ	subject
GER	gerundive	SBJV	subjunctive
HAB	habitual	SG	singular
HO	human object	SUB	subordinator
IMP	imperative	TNS	tense
INC	inceptive	TEMP	temporal
IND	Indicative	TERM	terminative
INSTR	instrument	TOP	topic
INT	interrogative	TR	transitive

## ABSTRACT

This research describes and explains in the OT framework the Yaqui coordination. It is assumed that coordinate structures are asymmetric and, based in the Yaqui data, I propose that the coordination is the result of an adjunct-host relation. This work shows that the ConjP is inappropriate for explaining the place that the Yaqui coordinator *into* ‘and’ occupies in overt syntax. It demonstrates that the proposal which suggests that coordinators in second position are clitics (Agbayani and Goldston 2002) can not be maintained in Yaqui because such position is generated by fronting a topicalized constituent. If we depart from the idea that clitics and topics move to different positions, then a different explanation is required.

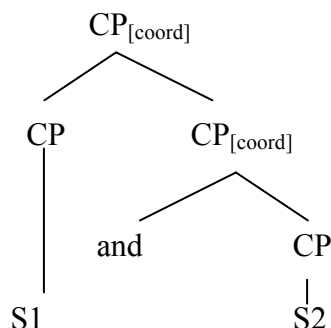
The proposal is extended to the analysis of unbalanced verbal chaining structures. It is shown that some *--kai* constructions are marked syntactically as subordinated but actually they are coordinate structures. In the final part of this work I describe and analyze the agreement between coordinate nominals and verbs. The analysis indicates that Yaqui responds partially to the system of CONCORD and INDEX features proposed by Halloway King and Dalrymple (2004). However, its whole explanation requires the use of constraints in order to explain the coordinate patterns of the language.

## 1 INTRODUCTION

This investigation is twofold: first, it describes the Yaqui coordination patterns. Second, within the framework of Optimality Theory (OT) it explains some of the most salient characteristics of this phenomenon: the structure of coordination, chaining structures, patterns of agreement and coordination of maximal projections. I have selected those topics because a literature review indicates that in spite of the fact that coordination has been a motivation for research for a long time, there is still considerable debate on these issues.

With respect to the structure of coordination, some researchers consider that it is a headed construction. In other words, they consider that coordinate structures are Conjunction Phrases where the coordinator is the head, the first conjunct the specifier, and the second conjunct the complement. This conception is accepted by researchers like Rebuschi, (2005), Abeillé (2003), Camacho (2003), Gáspár (1999), Johannessen (1998), among others. As pointed out by Borsley (2005) this conception is widely accepted within Principles and Parameters (P&P) theories, but it is rejected within other frameworks. So, Borsley (2005) himself rejects the idea that coordinate structures are Conjunction Phrases. This different conception of coordination is held by such researchers as Cormack and Smith (2005), Peterson (2004), Yuasa and Sadock (2002), Dalrymple and Kaplan (2000), and Bresnan (2000), among others. Given, in general, those two alternative positions and based in the Yaqui data, I propose that coordination is produced by adjunction structures as in (1):

(1)



The representation shows that a coordinator is an adjunct which attaches to a maximal projection and introduces a feature [COORD] which licenses the further adjunction of another maximal projection (the first conjunct). The proposal emerges from the analysis of the coordination in the Yaqui language. The proposal is presented in Chapter Three of this work, and it is done in the sense of Langendoen (2003). I consider that the coordinator *into* ‘and’ is neither a head (Johannesen (1998), Camacho (2003), among others) nor a clitic (Agbayani & Goldston, (2002)).

The idea that coordination involves adjunction is held, for example, by Cormack and Smith (2005). These researchers claim that the grammar is only capable of providing asymmetric structures and that there are not devices in the grammar specific to coordination. Therefore, the grammar will only provide adjunct-host structures and head-complement structures. They give arguments in favor of an adjunct-host approach combining a simplified version of Minimalism, with the addition of Combinators from Combinatorial Grammar. In this work and within an OT approach, I suggest that coordination must be restricted to adjunction structures too. This proposal predicts that if coordination is adjunction and subordination is adjunction as well, then we would expect

some cases where it would be hard to tell if we have coordination or subordination<sup>1</sup>. This is what we have when we consider such notions as pseudo-coordination and pseudo-subordination. These concepts are explored in Chapter Four. As a hypothesis not developed here, we can say that the double life of coordinators which sometimes behave as subordinators is due to the fact that adjunction is taking place in both coordinate and subordinate structures. If so, then the constraints involved will make the difference.

My analysis of Yaqui coordination is presented within the framework of Optimality Theory (OT) (which essentially began with Prince and Smolensky 1993, McCarthy and Prince 1993). This theory suggests that there are a set of universal, violable and rankable constraints which explain the nature of linguistic data.

OT is a versatile framework which gives us a formal apparatus to handle and account for variability of several types; in this case, the several positions that a coordinator like *into* ‘and’ can occupy in sentence coordination. Any theory with strict rules cannot accommodate syntactic variation without resource to hedges in the principles, as demonstrated by Speas (1997). However, using violable constraints, the Yaqui coordination patterns are easily explained within OT.

The work does not appeal to diachronic or comparative data; however, it is valuable because it gives us a description of coordinated structures of Yaqui that were not described before. In that sense, we have a set of data as those which a Yaqui learner is

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<sup>1</sup> To distinguish between these concepts is really an issue that requires further research. For example, Asher and Vieu (2005), within the Segmented Discourse Representation Theory (SDRT), provide some linguistic tests to clarify which relations are subordinated and which are coordinated at discourse level. On the other hand, Verstraete (2005), within a constructional approach, uses the notion of illocutionary force to distinguish coordinate constructions from subordinate ones.

faced with. Theoretically, the analysis shows the interaction between several modules of the grammar which traditionally are considered to be separated: Phonology, Morphology, Syntax, Semantics and Pragmatics. So, the reader will find in the tableaux, for example, the interaction of syntactic and pragmatic constraints.

### **1.1 Presentation**

Although Yaqui has been studied by many researchers (Lindenfeld (1973), Escalante (1990), Dedrick and Casad (1999), among others) there are many areas which have not been explored in detail, and one of them is coordination. This work describes and analyzes several Yaqui coordination patterns. This research focuses on the description and account of several Yaqui coordination patterns using the Optimality Theory (OT). The work focuses in three main aspects: first, the structure of coordination; second, coordinated chaining structures (unbalanced coordination); and third, problematic agreement patterns of the language. Subsequent chapters present the data in that order. The kind of data that the reader will find is exemplified below:

*The structure of Coordination.* Most proposals about the structure of coordination are challenged by Yaqui sentence coordination. In this construction, the coordinator can appear in three basic positions: first, second and last. The positions are defined (in the following examples) in relation to the second conjunct: first position means at the beginning of the second conjunct, second position means after some element of the second conjunct, and last position means at last in the second conjunct or at last in a single sentence. They are exemplified as follows.



First position:

- (2) [Joan bwika]            **into** [Peo into Maria ye'e].  
       [John sing.PRS]        and [Peter and Maria dance.PRS]  
       'John sings and Peter and Mary dance.'

In (2) the coordinator *into* 'and' both follows the first conjunct in brackets and it precedes the second conjunct in brackets too. This is the way in that languages like English and Spanish coordinate. These types of sentences are easily accommodated in any account that takes the relation head-complement as central in the explanation of coordinate structures: the first conjunct is the specifier, the coordinator is the head and the second conjunct the complement (Johannessen (1998), Camacho (2003), a.o.). Now, let's see example (3):

Second position:

- (3) [Diana a=tu'ure-k]            [Peo **into** a            jinu-k].  
       [Diana 3NNOM.SG=like-PST] [Peter and 3NNOM.SG        buy-PST]  
       'Diana liked it and Peter bought it.'

The sentence (3) contains the subject *Peo* 'Peter' of the second conjunct before the coordinator *into* 'and', and for that reason we can say that it is in second position. Therefore, the proposal that the first conjunct is in specifier position is not easy to accommodate. Agbayani and Goldston (2002) suggest that languages with coordinators in such position move the first element from the second conjunct and adjoin it to the coordinator. That movement is triggered by its status as a clitic: it is assumed that those coordinators are prosodically deficient and need to have a host. In chapter three I show that *into* 'and' is not a clitic and that movement is triggered by topicality.

The following example shows the third possibility where *into(ko)* 'and' can appear in open syntax:

Last position: (Crumrine 1961:22)

- (4) [ju'u o'ou kia a-u= 'omtemta benasi]  
 [DET man just 3NNOM.SG-DIR= angry like]  
 [amau a'a=to'o simlataka], [káa a-u= bitchu **intoko**].  
 [back 3NNOM.SG=leave went] [not 3NNOM.SG-DIR=look and just]  
 'The man looks as though he is angry with her, so he is leaving her behind and  
 does not even look at her.'

As example (4) indicates, *into(ko)* appears after the second conjunct. Again, the specifier-head-complement structure is not easy to accommodate.

**Coordinated chaining structures.** Yaqui has what has been called Unbalanced Coordination (Johannessen (1998)) or Pseudosubordination (Yuasa and Sadock (2002)). From a typological perspective, Givon (2001), Yaqui must be classified as a SOV-type chaining. The most salient syntactic feature of this type of clause chaining is the assignment of most finite grammatical marking only to the final clause. However, the entire chaining gets the tense indicated by the final clause. The next example shows three clauses: the first two are marked with the suffix *--kai* which is a subordinator and the last one is marked with *--k* which indicates past tense. However, all the clauses are understood as past tense. The coordinator *into* 'and' can only optionally appear between the last *--kai* clause and the tensed one, as indicated in (5).

- (5) [ili jamut yepsa-kai], [jichikia-ta nu'u-kai], [jichik-taite-k].  
 [small woman arrive-SUB], [broom-NNOM.SG take-SUB], [sweep-INC-PST]  
 'The young woman arrived, she took the broom (and) she began to sweep.'

This kind of data is treated in Chapter Four. We will see that these structures are syntactically subordinated but semantically coordinated. I describe and analyze within the OT framework these chaining structures.

**Problematic agreement patterns.** In Yaqui there are some verbs which agree with the object. Under coordination when a verb which requires a singular object takes two coordinated singular nouns, the plural verb can not be used in that case. However, with intransitive verbs a coordinate subject must agree with a plural verb. This asymmetry is analyzed in Chapter Five after a previous description of nominal and verbal classes in the Yaqui language. The following contrast shows that the singular verb *mea-k* ‘to kill.SG.OBJ-PST’ is used with one singular object (ex. (6) vs. (7)), or with the coordination of two (or more) singular nouns (ex. (8) vs (9)).

- (6) Alejandra maso-ta mea-k.  
 Alejandra deer-NNOM.SG kill.SG.OBJ-PST  
 ‘Alejandra killed a deer.’
- (7) \*Alejandra maso-ta sua-k.  
 Alejandra deer-NNOM.SG kill.PL.OBJ-PST  
 (‘Alejandra killed a deer.’)
- (8) Alejandra [maso-ta into kowi-ta] mea-k.  
 Alejandra [deer-NNOM.SG and [pig-NNOM.SG] kill.SG.OBJ-PST  
 ‘Alejandra killed a deer and a pig.’
- (9) \*Alejandra [maso-ta into kowi-ta] sua-k.  
 Alejandra [deer-NNOM.SG and pig-NNOM.SG] killed.PL.OBJ-PST  
 (‘Alejandra killed a deer and a pig.’)

It is shown that Halloway King & Dalrymple’s (2004) system, which uses two types of number features (CONCORD and INDEX features), cannot explain some of the agreement patterns found in Yaqui. For that reason, the analysis in this work uses a set of constraints which explain the alternations on agreement found in Yaqui.

## **1.2 Empirical goals**

The main empirical goal of this work is to analyze and describe the relatively unknown patterns of Yaqui coordination. As almost usual in every language and in every topic that linguists explore, Yaqui presents very particular patterns of coordination that a good theory of language should be able to predict and explain. As we can see through this research, there are some challenging patterns that do not fit into traditional accounts. In order to achieve this goal, I investigate several types of constructions: sentence coordination, verbal chaining structures and agreement between nouns and verbs. In short, the empirical goal of this research is to describe the most salient coordination patterns of the language.

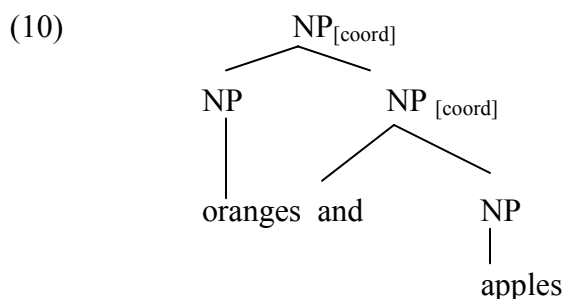
## **1.3 Theoretical goals**

The aim of this work is to analyze Yaqui coordination within the framework of Optimality Theory (OT). This theory of grammar has been (mostly) used to explain phonological and morphological properties of languages, but not much work has been devoted to the explanation of their syntactic properties. So, this dissertation intends to be a contribution to the OT literature on syntax. The patterns of Yaqui coordination have neither been described nor accounted for. The only work which describes some aspects about coordinated structures is that of Dedrick and Casad (1999), but many facts have been left untouched. Therefore, it is useful to look at and explain them. In order to do the analysis, I use several constraints well-motivated in the literature, such as alignment constraints, markedness constraints, and faithfulness constraints.

The theoretical contribution of this work relates to two aspects: it shows how OT can be applied to syntax, an area where many scholars refuse to accept it, and where the idea that there are a set of universal, violable and rankable constraints introduces enough flexibility into the model that phenomena that are highly problematic in derivational linguistic models are accounted for.

This work gives evidence that the Yaqui coordinator *into(ko)* ‘and’ cannot be considered as a clitic (as suggested by Agbayani and Goldston (2002) for other languages). It is demonstrated that the coordinator occupies several positions in sentence coordination because it shares properties with adverbials in the language and, like those elements, it has to be considered an adjunct. This conception is opposed to the idea that coordinators are heads which project their own projection, with a specifier and a complement, as suggested by researchers like Johannessen (1998, 2005), Camacho (2003), Aoun Benmamoun and Sportiche (1994), among others.

It is suggested that a coordinated phrase (nominal in the following example) has the following structure.



In the above structure the coordinator is adjoined to a phrase. This process of adjunction leaves open the possibility of a new adjunction process, where another NP is

adjoined to the first one resulting in a coordinated structure. In this sense, I follow Langendoen's proposal (2003) in which to coordinate is to adjoin a coordinator.

This work intends to prove that that chaining structures of Yaqui are coordinate and that pseudo coordination, pseudo subordination and coordination must be integrated in the explanation of a theory of coordination. It is suggested that the OT approach can be useful in the explanation of these phenomena because the constraints are rankable. The Coordinate Structure Constraint proposed by Ross (1967) is taken, in OT terms, as a violable constraint: *Do not extract from a coordinate structure*. So we do not need to use the hedge of the Across the Board Extraction principle (ATB principle), which allows extraction in some specific cases.

The last part of this research focuses on the analysis and explanation of some patterns of agreement between nouns and verbs. I propose that the system used by Halloway King and Dalrymple (2004) is unable to explain some facts about Yaqui agreement, but we can recast some of their insights into OT constraints in order to explain the Yaqui data.

Finally, the empirical and theoretical goals of this research are valuable because there was not an accurate description of the coordination patterns in the language and because these patterns require an adequate theoretical account which the head-complement conception of coordination is unable to give.

#### **1.4 Background information of the Yaqui language**

This section gives the reader background information about some of the characteristics of Yaqui, such as word order and a brief description of Yaqui coordinators.

### 1.4.1 Yaqui word order

Yaqui is an SOV language, and it does not tend to have a lot of variation on that order. However, variation exists and it is possible to find general patterns of it. For example, the object can move to final position of the sentence, leaving behind a coreferential pronoun: S CL=V O (where CL= must be understood as a clitic object pronoun).

- (11) Ruben ejkuela-po    ji'osia-m    to'o-siika.  
 Ruben school-LOC    book-PL    leave-go.PST  
 'Ruben left the books in the school and left.'
- (12) Ruben ejkuela-po    am=    to'o-siika    jume    ji'osia-m.  
 Ruben school-LOC    3NNOM.PL=    leave-go.PST    DET.PL book-PL  
 'Ruben left the books in the school and left.'

Adjuncts can appear before or after the verb, as for example in the following comitative phrase:

- (13) inepo joan-ta-mak    teo-po    bwiika-k.  
 1SG John-NNOM.SG-COM church-LOC    sing-PST  
 'I sang in the church with John.'
- (14) inepo teo-po    bwiika-k    joan-ta-mak.  
 1SG church-LOC    sing-PST    John-NNOM.SG-COM  
 'I sang in the church with John.'

Similar variation can be found in relative constructions: the relative clause may be close to its head (the example (15) shows a post-nominal relative) or extraposed to final position (ex. (16)).

Post-nominal relative:

- (15) Simon [uka    jamu-ta    [a=bép-su-ka-u]]    waata.  
 Simon DET.NNOM.SG woman-NNOM.SG NNOM.SG=hit-COMPL-PST-REL love.PRS  
 'Simon loves the woman that hit him/that he hit.'

Extraposed relative:

- (16) Simon [uka jamu-ta] waata [a=bépsuka-u].  
 Simon DET.NNOM.SG woman-NNOM.SG love.PRS 3SG.OBJ=hit-REL  
 ‘Simon loves the woman that hit him/that he hit.’

As the above examples indicate, Yaqui does not always follow its canonical order within the clause; there is some variation. These types of variation find natural accounts in the OT model with different weights given to interacting factors from different structures in the grammar.

## 1.4.2 Introduction to Yaqui Coordination

This section is a background on Yaqui coordination, it establishes the basic concepts used in this work. It exemplifies the logical coordinators of Yaqui and presents some of the most relevant characteristics.

### 1.4.2.1 Basic concepts

In this section I introduce some terms used in the description of Yaqui coordination. Let us begin with the following terms found in Haspelmath (2004): “A coordinating construction consists of two or more **coordinands**, i.e. coordinated phrases. Their coordinate status may be indicated by **coordinators**, i.e. particles like *and*, and *but*. If one or more coordinators occur in a coordinating construction, it is called **syndetic**. **Asyndetic** coordination consists of simple juxtaposition of the coordinands” (Haspelmath 2004: 4). In this work the words *coordinand* and *conjunct* are used synonymously, as are *coordinator* and *conjunction*.

Both types occur in Yaqui:



Syndetic:

- (17) María tuuka [Peo-ta-u into Pablo-ta-u] nooka-k.  
 Mary yesterday [Peter-NNOM.SG-DIR and Pablo-NNOM.SG-DIR] speak-PST  
 ‘Mary spoke to Peter and Pablo yesterday.’

Asyndetic:

- (18) [Joan], [Peo], [María], [Carlos], (into) [Tiibu] si’ime bwiika-k.  
 [John] [Peter] [Maria] [Carlos] (and) [Tiburcio] all sing-PST  
 ‘John, Peter, María, Carlos, (and) Tiburcio, all of them sang.’

It is usual to distinguish two types of syndesis: **monosyndetic** coordination, which involves only a single coordinator, and **bisyndetic** coordination, which involves two similar coordinators.

Yaqui only has the first one:

- (19) Wiikit into taawe ne’e.  
 bird and sparrowhawk fly.PRS  
 ‘The bird and the sparrowhawk are flying.’

The second one is illustrated by Kibrik (2004:538), in the Upper Kuskokwim

Athabaskan language:

- (20) [dineje] ‘il [midzish] ‘il  
 moose with caribou with  
 ‘moose and caribou’

#### 1.4.2.2 Coordinated categories

Yaqui has the coordination of various grammatical categories. This work explores the coordination with the particle *into* ‘and’. The categories that can be established are the following ones:

### 1.4.2.2.1 Coordination of likes

Yaqui has the coordination of the following grammatical categories. As we can see in the examples, all the examples can be categorized as the coordination of likes<sup>2</sup>.

#### DPs

- (21) María Peo-ta [juka lapis-ta] into  
 Maria Peter-NNOM.SG DET.NNOM.SG pencil-NNOM.SG and  
 [juka yokia-ta] mik-bae.  
 DET.NNOM.SG pen-NNOM.SG gift-INT  
 ‘María will give a pencil and a pen to Peter.’

#### N(P)s

- (22) [Kaba’i] into [buuru] ousi bwe-bwere-m.  
 Horse and donkey very RED-big-PL  
 ‘The horse and the donkey are really big.’

#### AdjPs

- (23) Joan [beme-k] into [tutuli-k] jamut-ta bicha-k.  
 John young-NNOM and beautiful-NNOM woman-NNOM.SG see-PST  
 ‘John saw the young and beautiful woman.’

- (24) Joan [beme-k] into [tutuli-k] bicha-k.  
 John young-NNOM.SG and beautiful-NNOM.SG see-PST  
 ‘John saw the young (one) and beautiful one.’

#### AdvPs

- (25) Aapo [junak] into [ketun ian] maestro.  
 3SG then and still today teacher  
 ‘(S)he was and is today still a teacher.’

---

<sup>2</sup> Yaqui does not have coordination of single postpositions, which are all bound morphemes. In other words, it is not possible to have a construction like ‘Mary planted corn behind and in front of her house: So this English sentence is translated to Yaqui like the following one:

- (i) Joan amau jo’ara-po bachi-ta e’echa-k into bicha-po ketchia.  
 John behind house-LOC corn-NNOM.SG plant-PST and in.front-LOC too  
 ‘John planted corn behind the house and in front too.’

## PostPs

- (26) Joan [torim-po] into [bicam-po] tekipanoa  
 John Torim-LOC and Vicam-LOC work.PRS  
 ‘John works in Torim and in Vicam.’

## V(P)s

- (27) Joan [bicha] into [jikkaja].  
 John see.PRS and hear.PRS  
 ‘Juan sees and hears.’

However, two transitive verbs cannot be coordinated as in (27) above. Each verb requires its own object in overt syntax. The coordinate sentence (28) has two conjuncts where each verb has in overt syntax its object<sup>3</sup>; so the sentence (29) is ungrammatical:

- (28) Peo [jita jinu] into [jita nenka].  
 Peter something buy.PRS and something sell.PRS  
 ‘Pedro buys and sells something.’
- (29) \*Peo [jita [jinu into nenka]].  
 Peter something buy.PRS and sell.PRS  
 (‘Pedro buys and sells something.’)

Finally, we have the coordination of two sentences as illustrated in (30) and (31):

## Ss

- (30) Joan ji’osiam maria-ta maaka-k Peo into a-u  
 John book Maria-NNOM.SG give-PST Peter and him-to  
 am= nenka-k.  
 3NNOM.SG= sell-PST  
 ‘John gave a book to Maria and Peter sold it to her.’
- (31) U cu’u [wakas-ta batte ke’e-ka] into  
 DET dog cow-NNOM.SG almost bite-PST and  
 [uka paros-ta batte bwiise-k].  
 DET.NNOM.SG hare-NNOM.SG almost catch-PST  
 ‘The dog almost bites the cow and it almost caught the hare.’

---

<sup>3</sup> These kinds of examples ((29) and (32)) in this work are taken as sentential coordination where the subject of the second conjunct is null. However an alternative analysis is possible where we can postulate the coordination of two VPs. In chapter four I use the constraint Drop-Topic (Blutner and Zeevat (2004) for explaining Yaqui verbal chains. So this explanation can be extended to cover examples like ((29) and (32)). See the analysis of example (108) in Chapter Four.

#### 1.4.2.2.2 Lack of coordination of unlikes

Contrary to languages like English and Spanish, it is hard to find coordination of unlikes in Yaqui. As it is well known, coordination of unlikes is very common in predicate position, as in the following examples: *The children are awake and asking for you, Paul is stupid and a liar* (Peterson 2004:647-648). However, there are several restrictions to this kind of coordination. It is shown in examples like *\*John sang beautifully and a carol* (Peterson 2004:647).

The lack of these kinds of structures in Yaqui seems to be related to the fact that the language does not have a copulative verb and to the fact that adjectives (as well as nouns) can be used as predicates, and they take the verbal suffixes. So if we try to coordinate different categories (adjective and noun for example) they are derived into verbs and emerge as coordination of likes. The following coordination indicates that the conjuncts get optionally the same ending, showing that we have a coordination of likes.

- (32) Ume usi-m [bu-busala(mme)] into [enchi nattemai(mme)].  
 DET.PL boy-PL RED-awake.PRS (PL) and 2PL.OBL ask.PRS (PL)  
 ‘The children are awake and asking for you.’

The constraints that avoid coordination of unlikes must be highly ranked in Yaqui. If we depart from Peterson’s idea that a main requisite for coordination of unlikes is that the conjuncts must have the same syntactic function, examples like the following indicate that there must be other constraints playing a role for the ungrammaticality of the coordination in Yaqui, English and Spanish. We can see in the next examples that the elements of the intended coordination are adjuncts and that each one can occur in the same context. However, when we try to coordinate them, the coordination fails.

- (33) Nee jo'ara-u siika.  
 1SG house-DIR go.PST  
 'I went home.'
- (34) Nee lunes-tu-k siika.  
 1SG Monday-VERB-when go.PST  
 'I left Monday.'
- (35) \*Nee [jo'ara-u into lunes-tu-k] siika.
- (36) Nee jo'ara-u lunes-tu-k siika.  
 1SG house-DIR Monday-VERB-when go.PST  
 'I went to the home Monday.'

A challenge for any theory of coordination is to explain why coordination can put together different categories in some languages and why it cannot in other languages, such as Yaqui. Schachter (1977), among others, has observed that the conjuncts must share the same theta-roles. Givón (2001) mentions that coordination must cover the constraint equi-case-role, which takes care of both: theta-roles and case (equi-case-role). This work does not explore further the conditions why coordination of unlikes was not attested.

### 1.4.2.3 The logical coordinators of Yaqui

The Yaqui logical coordinators presented in this section are the following: *bweta* 'but', *o* 'or' and *into(ko)* 'and'. Between them, only *into(ko)* 'and' occupies several positions, as exemplified below. Because this work only analyzes the constructions where this coordinator appears, the exploration of the syntactic characteristics is centered in the coordinator *into* 'and'. (37) illustrates an example of coordination with *bweta* 'but'. It always occurs in middle of coordinate sentences.

- (37) [Joan bwite-k]        **bweta** [Peo e'e].  
 John run-PST        but        Peter not  
 'John ran but Peter did not.'

The following example illustrates the use of the particle *o* 'or', which is a loan from Spanish. It only can occur too in the middle of coordinated elements:

- (38) Ruben tekipanoa    o        matematika-m        emo majta.  
 Ruben work.PRS        or        mathematics-PL        3REFL teach.PRS  
 'Ruben works or studies mathematics.'

The coordinator *into(ko)* 'and' occurs in several positions: first position, second position or last position, as was indicated in (2), (3) and (4) previously. Here the example shows *into* in second position.

- (39) [Dalia bwika-k]        [Peo **into** ji'ibwa-k].  
 Dalia sing-PST        Peter and eat-PST  
 'Dalia sang and Peter ate.'

Asyntetic coordination is very common in Yaqui. A case of coordination of two subordinated clauses is shown below. Being asyntetic, the coordinator does not need to occur between the two bracketed clauses:

- (40) [Joan bwite-ka]        [po'o-po'oti-sime-ka]        [yo'o-k].  
 John run-GER        RDP-bend.down-go.SG-GER        win-PST  
 'John running (and) bending down won.'

In Yaqui it is easy to find examples where two coordinators can co-occur, like a compound coordinator, specially *ta* and *into*, when these coordinators co-occur, the (*bwe*)*ta* 'but' goes first and *into* 'and' second, the coordinated sentence acquires an adversative meaning. A co-occurring coordination is illustrated in what follows.

- (41) [kaa            ta-ta]        **ta**    **into**    [kaa seebe juni].  
 NEG            RED-hot        but    and    NEG    cold    either  
 'It is not hot but it is not cold either.'

In what follows we are going to see some relevant aspects of the Yaqui coordinators.

#### 1.4.2.4 Observations about Yaqui coordinators

There are some tests for checking if we are faced with logical coordinators. According to Van Oirrow (1987:109), “one clear characteristic which is particular to coordinating conjunctions as contrasted with, say subordinating conjunctions is that the former have to occur in between the clauses which they coordinate and latter need not”. From this point of view, a Yaqui sentence with *bweytuk* ‘because’ is a subordinated one:

- (42) [Joan kot-pea]        **bweytuk**        [aapo kaa    allea].  
       [John sleep-DES]    because        [3SGP not    happy]  
       ‘John wants to sleep because he is not happy.’
- (43) **bweytuk**        [aapo kaa    allea]        [Joan kot-pea].  
       because        [3SGP not    happy]        [John sleep-DES]  
       ‘John wants to sleep because he is not happy.’

But now contrast the following sentences. The coordinated sentence can not appear in first position:

- (44) [Joan kot-pea]        **into/bweta/o/**        [áapo kaa    allea].  
       [John sleep-DES]    and/but/or/        [SG not    happy]  
       ‘John wants to sleep and/but/or/ he is not happy.’
- (45) **\*into/bweta/o/**        [aapo kaa    allea] [Joan kot-pea].  
       and/but/or/        [3SG not    happy] [John sleep-DES]  
       (John wants to sleep and/but/or/ he is not happy.)

The same author describes a second characteristic of coordination: “Coordinating conjunctions are mutually exclusive and subordinating conjunctions are not” (Oirrow 1987:106). According to this observation the co-occurrence of *into* ‘and’ and *bweytuk* ‘because’ is expected, but not the co-occurrence of (*bwe*)*ta* ‘but’ and *into* ‘and’:

- (46) [Jorge tuuka namuken] **into** **bweytuk** [neé= chae-k,  
[Jorge yesterday drunk] and because [1NNOM.SG=crie-PST  
  
née a= tetemu-k].  
1SG 3NNOM.SG kick-PST]  
'Jorge was drunk yesterday and because he cried to me, I kicked him.'
- (47) [ini'i chu'u ousi junera] **ta into** [in maala a=tu'ule].  
[this dog very ugly] but and [3SG.POSS mother 3NNOM.SG=like.PRS]  
'This dog is very ugly but my mother loves it.'

However, as we can see in the translation, the sentence has an adversative meaning and not a conjunctive one. This fact suggests that *into* 'and' is functioning in these cases more like an adverbial than like a logical conjunction. Actually, *into* can be better translated in this situation like '*in addition, moreover*'.

From these facts we can conclude that *into* 'and' has at least two characteristics, it can function as a conjunction or as an adverb.

#### 1.4.2.5 Coordination of maximal projections

Verb coordination shows several properties, some of them are the following: it is possible to have the coordination of two intransitive verbs, but it is not possible to have the coordination of two transitive verbs sharing a single object. The second transitive verb always requires an object pronoun, suggesting that it is not possible to have the coordination of heads (Kayne 1994, Takano 2004).

- (48) Andrea [bwika] **into** [yeewe].  
Andrea [sing.PRS] and [play.PRS]  
'Andrea sings and plays.'
- (49) Fabian caro-ta [jinu-k] **into** [a=nenkak].  
Fabián car-NNOM.SG [buy-PST] and [3NNOM.SG=sell-PST]  
'Fabian bought and sold the car.'



- (50) \*Fabián caro-ta [jinu-k] **into** [nenka-k].  
 Fabián car-NNOM.SG [buy-PST] and [sell-PST]  
 ('Fabian bought and sold the car.')

Related facts to the previous ones are the following: the coordination structure must be able to explain the properties of Noun coordination: it can be continuous or it can be discontinuous:

- (51) Paola [wepul na'aso-ta] **into** [wepul mansana-ta] bwa-ka.  
 Paola one orange-NNOM.SG and one apple-NNOM.SG eat-PST  
 'Paola ate one orange and one apple.'
- (52) Paola [wepul na'aso-ta] bwa-ka **into** [wepul mansana-ta].  
 Paola one orange-NNOM.SG eat-PST and one apple-NNOM.SG  
 'Paola ate one orange and one apple.'

Adjective coordination can be continuous or discontinuous too, but it requires a different case marker, the suffix *--k* 'NNOM.SG':

- (53) Paulina [bemela-k] **into** [teebe-k] bicha-k.  
 Paulina young-NNOM.SG and tall-NNOM.SG see-PST  
 'Paulina saw the young and (the) tall (one).'
- (54) Paulina [bemela-k] bicha-k **into** [teebe-k].  
 Paulina young-NNOM.SG see-PST and tall-PST  
 'Paulina saw the young and the tall.'

The examples (53) and (54) have a different case marker than nouns. This characteristic is not treated in this work and remains a topic for further research.

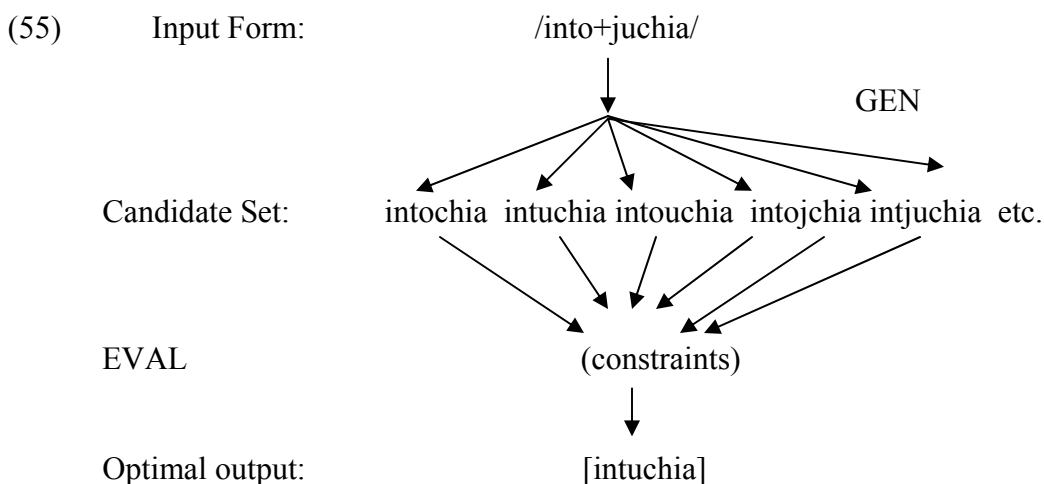
## 1.5 Optimality Theory

In this section I introduce the formal mechanisms of Optimality Theory. I illustrate the OT principles using examples from Yaqui.

### 1.5.1 OT basics

Optimality Theory (OT), as other linguistic models, proposes an input form and an output form, as well as a relation between those two forms. In OT, the relation between the input and the output form is mediated by two formal mechanisms: GEN and EVAL (Archangeli 1997:14). For example, let's take the process of fusion of *into* 'and' and *juchia* 'again'. If the input is composed of those two items, then we have to explain how we reach the output form *intuchia* 'and again', and why we don't get other logically possible output forms:

A model schema for OT, based on Archangeli (1997:14), is shown below:



Archangeli (1997), following McCarthy and Prince (1993), Prince and Smolensky (1993), among others, establishes that every input form is composed from a universal vocabulary which is given by Universal Grammar. Universal Grammar provides a vocabulary for language representation; as a result, the inputs are well formed linguistic objects, in the sense that the input forms do not contain non linguistic objects. These are the only restrictions over the input forms.

GEN must be understood as a function which generates an infinite set of candidates, it only has the restriction that the generated objects have to be linguistic objects, composed from the universal vocabulary which restricts the input itself. From this point of view the theory allows for GEN to be so creative, it is able to introduce and elide material, it is able to re-arrange input material without any restriction. This characteristic avoids appealing to any type of rule within the OT model. Another task for GEN is to point out correspondences within the input and output forms. These correspondences are crucial in the evaluation of faithfulness constraints. These constraints preserve the quality of the input forms in relation with the output form. If we take the above example, the constraints Vowel Faithfulness and Consonant Faithfulness require that each vowel and each consonant in the input form be the same in the output form.

The constraint set (CON) is considered to be part of our innate knowledge of language. From this point of view, each language uses the same constraint set, and each constraint is thought to be universal. This approach allows us to conceive that languages vary according to the constraint ranking. An important fact about OT is that constraints can be violated, this possibility hinges on the position that constraints occupy in the hierarchy of particular languages.

Eval(uation) is a mechanism that selects the optimal candidate from the candidate set created by Gen. This mechanism uses a ranking of violable constraints. The optimal output is the one that best satisfies those constraints. This satisfaction can be achieved in two ways: violation from lower constraints in the ranking are tolerated in the optimal form if that violation helps to avoid the violation of another constraint ranked higher in

the hierarchy. The lower-ranked constraints decide the optimal candidate when all candidates tie over some constraint that is higher-ranked, either because all candidates satisfied it or because all them violate it (Archangeli 1997).

### **1.5.2 The different OT approaches**

Syntax, as other areas of language, is plagued by challenges that sometimes survive across time. Coordination is a special topic that has been treated for many years, but if we look at the state of the art, we will find that few agreements are reached on the explanation of it. OT is a framework which emerges formally with the pioneering works of McCarthy and Prince (1993) and Prince and Smolensky (1993). It proved to be useful for explaining phonological and morphological facts. Since then it has been applied to several disciplines of linguistics, including syntax. However, the phenomenon of coordination has not been treated so much within this framework. Two specific works about coordination and OT are the one of Gáspár (1999) and that of Hoeks & Hendricks (2005). Therefore, this topic deserves further attention within this theory. We need to test it against the data: and Yaqui coordination has properties that are challenging to any theory of coordination.

On the other hand, as Beaver and Lee (2004) point out, there are many ways that OT approaches have evolved. They analyzed the ones in the following tableau. They use the seven phenomena mentioned there in order to see what can be solved by those specific OT approaches. Their conclusions are the following: an X mark indicates that OT fails to explain that phenomenon, the  $\checkmark$  symbol indicates that it can explain such phenomenon.

(56) Beaver and Lee (2004:150):

OT Approach	Ambiguity	Optionality	Ineffability	Uninterpretability	Total blocking	Partial Blocking	Freezing
Naïve production	√	X	X	√	X	X	X
Naïve interpretation	X	√	√	X	X	X	X
Back-and-forth	X	X	X	X	X	X	X
Strong	X	X	√	√	√	X	√
Weak	X	X	X	X	X	√	√
Asymmetric (IP)	X	X	√	X	√	√?	√
Asymmetric (PI)	√	X	√?	√	√	X	X

We can perceive that OT is still a theory which requires to be tested in most fields of the language. If we look at coordination, there are relatively few works using this framework. We need to know if this theory is able to solve some of the most recalcitrant problems in the area of coordination.

It was shown by Speas (1997) that most syntactic principles in the Principles and Parameters framework have a hedge that covers the fact that they are violable. For example, the principle *Satisfy* essentially requires that all features be satisfied, but it has a hedge that allows it to be violated: in overt syntax if they are “strong”, in covert syntax if they are “weak” (Speas, 1997:184). In OT each constraint is potentially violable.

OT approaches seem to capture better language facts, than those approaches that use rules; for example, Van Rooy (2004) shows that Centering theory (Grosz, Joshi and Weinstein (1983)), designed to make predictions about anaphoric resolution and the

interpretational coherence in discourses, was better captured by Beaver's (2004) OT reformulation (called COT) and that an OT account is superior to any account that use rules.

In Chapter Three it is shown how OT can explain the several positions that the coordinator *into* 'and' can occupy in coordinate structure. In Chapter Four an explanation based on constraints accounts for one type of unbalance coordination (called here *-kai* constructions). Finally, in Chapter Five, it is shown how the OT approach is superior to a system of rules proposed by Halloway King and Dalrymple (2004) in the account of noun-verb agreement in Yaqui.

### 1.5.3 Some OT constraints

#### 1.5.3.1 Alignment Constraints

In OT, there are alignment constraints that are in charge of allocating items in the places where they appear in the sentence. Lee (2001:81), following Choi (1999), uses the Canonical Phrase Structure Constraints, CANON, which are the following.

Canonical Phrase Structure Constraints CANON:

- (57)  $CANON_{GF}$  (f-s/c-s correspondence): Grammatical Functions align with their canonical argument positions in c-structure according to the function hierarchy (SUB > D. OBJ > I. OBJ > OBL > ADJUNCT).
- (58)  $CANON_{\theta}$  (a-s/c-s correspondence): non-verbal arguments at c-s align according to the thematic hierarchy (Agent > Beneficiary > Experiencer/Goal > Instrumental > Patient/Theme > Locative).

Other alignment constraints used by Lee (2001:81) are the Informational Structuring constraints, described below:

Information Structuring Constraints:

- (59) TOP-L: Topic aligns left in the clause.
- (60) FOC-L: Focus aligns left in the clause.
- (61) BCK-R: Background information aligns right in the clause.
- (62) COMPL-R: Completive information aligns right in the clause.

The analysis of Yaqui sentence coordination indicates that the Information Structuring Constraints TOP-L and COMPL-R are very active in the language and that these constraints are centrally responsible for the patterns of *into* ‘and’, and other coordinators, in first, second and last position.

### 1.5.3.2 Faithfulness Constraints

A faithfulness constraint requires identity between the input and output forms. I follow Lee (2001:81) in the use of the following constraints:

- (63) IDENT-IO (P-ROLE): The value of the proto-role features in the input (e.g., [VOL], [CAUS], [SENT], etc.) is preserved in the output.
- (64) DEP-IO (PROM): The feature [PROM] in the output is present in the input.
- (65) DEP-IO (NEW): The feature [NEW] in the output is present in the input.

As we are going to see in the analysis of sentence coordination, the faithfulness constraints are highly ranked in Yaqui because a [PROM] and a [NEW] feature in the input, is preserved in the output form.

#### **1.5.4 A Syntactic Model**

Following Sells (2001) and Choi (2001), among others, I assume that *Gen* is responsible for all structure building and (hence that) the input is an unstructured set of lexical items. The legitimacy of inputs could be defined on the basis of the possible satisfaction of the selectional requirements of lexical elements contained in them; next, we can see that the input contains several types of information, such as the proto-role which they are going to play in the sentence as well as informational content, crucial in the explanation of the behavior of lexical items within the sentence.

#### **1.5.5 The nature of the input for coordination**

A fundamental aspect in an OT approach to syntax is to establish the nature of the input form. There are several proposals for the input for coordination. As an example: for Oirsov (1987) the input of coordination is composed of full well-formed sentences, then coordinated structures are produced by an optional rule in the language. For Camacho (2003), the input is the numeration in the sense of a minimalist approach (Chomsky 1995, 2001). For Johannessen (1998) (within a minimalist framework too) the input is composed of full CPs (derived or underived). My proposal is that the input consists of a set of lexical items with more specifications than the numeration. My conception is closely related to the LFG approach in the sense that each element in the input carries information about the functions that each element must cover in the sentence. The input is like that proposed by Gáspár (1999) in an OT approach to coordination, but it differs of it because in my proposal the coordinator is in the input.



The nature of the input in coordination is problematic: it has been observed that there are several alternatives in order to present information which is clearly related implicationally (Winter, 2001). The case is illustrated with the next example. According to Givón (2001:5), this kind of alternation tends to occur cross-linguistically. This is supported by Yaqui and the glosses in English and Spanish. However, as the examples in those languages show, the implicational relations do not always hold.

- (66) Maria teebe Peo into teebe. ↔ María into Peo te-teebe.  
 Mary tall Peter and tall Mary and Peter RED-tall.  
 ‘Mary is tall and Peter is tall.’ ↔ ‘Mary and Peter are tall.’  
 ‘María es alta y Pedro es alto’ ‘María y Pedro son altos’
- (67) María into Peo nau saja-k.  
 Mary and Peter together go.PL-PST  
 ‘Mary and Peter left together.’  
 ‘María y Pedro se fueron juntos’  
 ↔  
 \*María nau siika into Peo nau siika.  
 Mary together go.SG.PST and Peter together go.SG.PST  
 (\*‘Mary went together and Peter went together.’)  
 (\*‘María se fue junta y Pedro se fue junto’)

The question to be answered is: Do we have the same input form for the previous examples? The answer is no. Although those sentences are implicationally related, they have different inputs. This idea is related to Peterson’s (2004:188) proposal. This research mentions that in spite of the contrast seen in that type of sentences, and that in spite of the fact that arguments are represented by the same f-structure, such arguments represent different instantiations (or tokens) of the lexical features of the arguments corresponding to different NP’s object and NP’s subject. In that framework, this difference in f-structure has semantic consequences. The value of the PRED feature is a semantic form. Each instantiation of a semantic form creates a unique object for

functional uniqueness and also for semantic interpretation. Thus, two objects in the f-structures can be interpreted differently.

Taking this idea within OT, the input will be different for each sentence in relation to the number of tokens of a lexical item. The advantage of this would be that the semantic interpretation will be potentially different as well for each winner candidate. Let us take the following contrast. We can see in examples from (68) through (71) that there are logical relations between those sentences. However, there are differences in the interpretation of them. First, the coordinate structure (68) tends to be interpreted as containing two events. Even the subject is interpreted as different in each sentence. The second coordinated structure (69) is interpreted as containing two events and a correferential subject. The third coordinated structure (70) tends to be interpreted as containing two events of one action each one. An emphasis appears over the object *tajkaim* ‘tortillas’. The structure must be interpreted as containing a single subject who does those actions. Finally, the fourth coordinated sentence in (71) must be interpreted as a single (continuous) event which contains a single subject who realizes the two actions in a temporal sequence.

(68) Maria tajta'im ya'ak into María tajka'im bwa-ka  
 María<sub>i</sub> tortillas make-PST and María<sub>\*i/j</sub> tortillas eat-PST  
 ‘María<sub>i</sub> made tortillas and María<sub>j</sub> ate tortillas.’

(69) Maria tajta'im ya'ak into María tajka'im bwa-ka  
 María<sub>i</sub> tortillas make-PST and María<sub>i/\*j</sub> tortillas eat-PST  
 ‘María<sub>i</sub> made tortillas and María<sub>i</sub> ate tortillas.’

(70) Maria tajta'im ya'ak into Ø tajka'im bwa-ka  
 María tortillas make-PST and tortillas at-PST  
 ‘Maria made tortillas and ate tortillas.’

- (71) Maria tajta'im      ya'ak      into    Ø      am=      bwa-ka  
 María tortillas      make-PST      and      3NNOM.PL=      eat-PST  
 'María made tortillas and ate them.'

This kind of contrast indicates that we do not need to postulate a conjunction reduction.

This kind of contrast indicates that we do not need to postulate a conjunction reduction. It is not necessary to apply optional rules (Oirsow, 1987) or try to derive one sentence from the other (Gáspár, 1999). In this way, in OT a fidelity constraint will force the elements in the input to appear in the output. The input for a coordinated sentence like (70) is represented as follows:

- (72) Input: [ ya'ak<sub>[1],[2]</sub> [1]=maria<sub>i</sub>-, [2]=tajkaim, bwaka<sub>[3],[4]</sub> [3]=maria<sub>j</sub>, [4]=am, into]

It is considered that the input contains all the information related to lexical items. Therefore, the inputs are taken to be a feature structure representing even discourse functions, such as the features that indicate new [NEW] and prominent [PROM] information.

Following Lee (2001), I assume a four way distinction of discourse functions based on the features [NEW] and [PROM], as indicated below. This conception is related to that of Choi (2001), Vallduví (1992), Lambrecht (1994) who consider that "information structure is a domain of a grammar where the discourse-contextual information is reflected at the sentence level. It shows how a sentence is partitioned or structured according to the information coming from the discourse context such as 'what the sentence is about' 'what the new or informative part of the sentence is'" (Choi, 2001:21). Like those authors, in this work, I use two discourse information features: [PROM] and

[NEW]. The features are related to discourse newness [NEW] and discourse prominence [PROM]. The feature [NEW] distinguishes what is ‘new’ or ‘informative’ from what is ‘given’, whereas the feature [PROM] picks out what is ‘important’ or ‘urgent’ in the sentence. These two binary features may crosscut some of the existing notions of topic and focus. The following table indicates the way in that the concepts of topic, focus, background information and completive information are taken.

(73)	+PROM	-PROM
-NEW	Topic	Background
+NEW	Focus	Completive information

In this work, I give evidence that in Yaqui topics tend to occur in clause initial position, the constraint requiring that topic be aligned to the left of the sentence wins the battle against the constraint requiring that a coordinator be aligned to the left of a sentence. There being only one left edge, only one of them can be satisfied. That explains the occurrence of *into* ‘and’ in second position. When *into(ko)* is in last position, I argue that it occupies that position because it is completive information, we will see later that less prominent information must to be aligned to the right edge of a sentence.

The analysis of Yaqui coordination shows that the interaction between syntax and information structure is well pursued in terms of ranking between syntactic constraints and information-structural constraints. It shows that discourse-contextual information plays a significant role in the explanation of Yaqui coordination. Discourse-pragmatic information such as topic and completive information interacts directly with syntax, especially in word order variation.

With this kind of input, Gen generates a candidate set which is evaluated by set of ranked constraints over c(onstituent)-structure and i(nformational)-structure, which select the optimal output.

## 1.6 Yaqui phrase structure flexibility in OT

Yaqui is an SOV language; however, it is not a rigidly structured language. It allows certain flexibility in phrase-structural descriptions, however, as usual in these relatively flexible languages, there is usually a particular phrase structural description which is considered to be unmarked, default, or canonical, while others are regarded as more marked or non-canonical. As Choi (2001:18) mentions, “the marked or non-canonical structures are often associated with certain discourse functions so that the structures appear only in certain discourse contexts”. The same researcher (Choi (2001:19) specifies that the default or canonical order is the one that is preferred when no discourse context is provided or when the context demands that the whole sentence be focused, i.e. of new information, for instance, when the sentence is uttered out of context or when it is an answer to a question like *what’s up?*, *any news?*, *what happened?*

According to this conception of canonical word order, the answer to the next question illustrates the canonical word order of a coordinated sentence, on it the coordinator appears in second position:

(74) ǰjítá yeu siika?  
 What out going.SG?  
 What’s going on?

(75) Peo juka wíkit-ta bwise-k Diana into a= nenka-k.  
 Peter DET.NNOM bird-NNOM grasp-PST Diana and 3NNOM.SG= sell-PST  
 ‘Peter grasped the bird and Diana sold it.’

Whereas the discontinuous noun coordination is non-canonical because the answer to a question like the following gives a continuous noun coordination, where both coordinated items have the same status in relation with the feature [PROM]:

(76) ʔjítá empo ya'a-k?  
 What 2SG do-PST  
 What did you do?

(77) née [bocham into supem] jinuk.  
 [+NEW +NEW +NEW]  
 [+PROM +PROM +PROM]  
 1SG shoes and shirt bought  
 'I bought shoes and shirts.'

Discontinuous coordination results when the speaker takes the coordinated noun to the right of the sentence as completive information, i.e. information considered as [+NEW, -PROMINENT]. An interesting fact about discontinuous coordination is that it can be taken as an example where an i-structure domain is broken: the coordinated object in the example is [+NEW], but it is not continuous.

(78) Née [bocham] jinuk [into supem].  
 [+NEW] [+NEW +NEW]  
 [+PROM] [-PROM -PROM]  
 1SG shoes bought and shirt.  
 'I bought shoes and shirts.'

The two previous examples indicate that, as many other languages, Yaqui word order reacts to discourse context. As Choi (2001:23) notes, the information structuring does not always match the syntactic structuring. The principles that tell us how grammatical features or functions are to be realized in the surface phrase structure, i.e. C(onstituent)-structure, and the principles that tell us how the I(nformational)-structure is to be realized in the c-structure may impose conflicting requirements on the c-structure. These

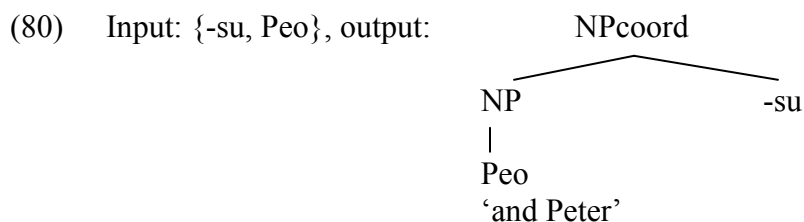
potentially conflicting requirements are proposed to be OT constraints, which are violable and ranked. It is predicted that the constraints, having these characteristics, would give rise to languages that are more sensitive to constituency and other languages more sensitive to the prominence hierarchy. Further, some could be more sensitive to [PROM] and other more sensitive to [NEW].

### 1.7 What is a coordinator?

Under my view, a coordinator is a lexical item that is adjoined to a maximal projection and it introduces the feature [COORD] (Langendoen 2003). It is in the input form (i.e. I assume that it is not introduced by constraints, as proposed by Gáspár 1999). This feature licences the adjunction of additional material. The ulterior adjunction of material will depend on the nature of the input. So, within an interaction like the following, the input for speaker's (79b) production would consist of just the items in (79b). I assume that sentence (79a) is background for the production of (79b)). In other words, I assume that the speaker in (79b), after interpreting sentence (79a), selects the required items for producing fragment (79b).

- (79) a) Joan Pesio-u siika. (Speaker 1)  
       'John Hermosillo-DIR go.SG.PST  
       'John went to Hermosillo.'
- b) Peo-su? (Speaker 2)  
       Peter-and  
       And Peter? (Did Peter go?)
- c) e'e, (ju)na chea kaa siika. (Speaker 1)  
       NEG, DEM really NEG go.SG.PST  
       'No, he did not go.'

Therefore, the input adopted here is just reduced to what a speaker produces. For that reason, we have to explain how fragments are structured. The structure of the fragment for (79b) is represented as follows:



Complete sentences containing a coordinator are not necessarily syntactically coordinated to another sentence. The interchange in (81) has a sentence in (81b) which contains a coordinator in it:

- (81) a) itepo      tuuka      Maria-ta      pasiyaloa-k      (Speaker 1)  
          1PL      yesterday      Maria-NNOM.SG      visit-PST  
          'Yesterday, we visited Maria'
- b) ʤjita      into      eme'e bwa-ka?      (Speaker 2)  
          what      and      2PL      eat-PST?  
          'And what did you eat?'
- c) bwakabak-ta      (Speaker 1)  
          bwakabaki-NNOM  
          'Bwakabaki.' (Yaqui food made with beans, meat and other ingredients).

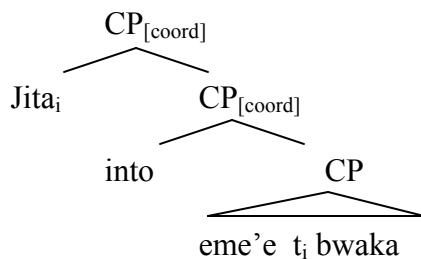
The input for (81b) adopted in this work is represented in (82). It consists just of the lexical items used by the Speaker (null pronouns, functional projections can be introduced by Gen):

- (82) Input: {jita, into, eme'e, bwaka}

The structure for the sentence (81b) is shown in (83):



(83)

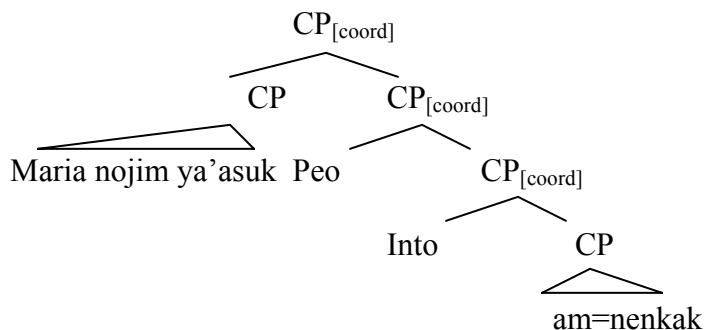


The proposal can be easily extended to sentence coordination where two conjoined sentences like (84) have the structure in (85):

- (84) Maria nojim ya'a-su-k Peo into am=nenka-k.  
 Maria tamal.PL make-TERM-PST Peter and 3NNOM.PL=sell-PST  
 'Maria finished doing the tamales and Peter sold them.'

The host CP has the feature [COORD] which licenses the addition of another CP. Because of topicalization, which will be seen in chapter 3, the host CP has a fronted NP but such topicalization does not block the adjunction of new material. The representation implies that we do not need to differentiate between specifiers and adjunction sites.

(85)



## 1.8 Summary

In this chapter we have seen the introduction to the coordinated structures of Yaqui. We have set the empirical and theoretical goals of this work. There is a background on the type of categories that Yaqui can coordinate and in some aspects of word order. There

is information about the logical coordinators and the interaction between them. In the second part of this chapter I presented the model of OT and some basic assumptions about coordination. In short, this chapter serves as background for the research developed in the rest of this dissertation.

The next chapter contains a literature review and a reflection related to coordination as a relation adjunct-host.

## 2 LITERATURE REVIEW

### 2.1 Disagreement in the Literature

The main purpose of this chapter is to show that in spite of the fact that coordination has been formally analyzed through the years, few scholars agree about it. Initial ideas such as that of Conjunction Reduction proposed by Chomsky (1957) opened the field for research and pioneering researches like that of Ross (1967) established questions that still are at the center of the debate: Among others, Is the coordination structure symmetric or asymmetric?, Does the coordinator form a unit with a conjunct or not? Is the coordinator a head? In this chapter I summarize different approaches to coordination that belong to distinct frameworks. Therefore, we expect to have distinct answers for a single question. I have selected six works; the first one is located in the HPSG framework, the second one in the Minimalist framework, the next is located in OT framework, the following in LFG framework, another is within the Autolexical framework and the last one is a revision of why coordinate structures can not be Conjunction Phrases.

It is obvious that I left out other equally important approaches; however, the main purpose of this chapter is to motivate a reflection on what is happening in the coordination phenomenon nowadays. However, many proposals of these works that are not touched here will be called upon when necessary in the description and/or in the analysis of Yaqui data.

An additional purpose of this chapter is to evaluate in a global manner the various proposals in order to adopt what can be considered most appropriate for describing and explaining the behavior of Yaqui coordination.

### 2.1.1 An HPSG approach (Abeillé 2003)

“It is striking that no agreement has been reached  
on the structure of basic coordinate constructions”  
(Abeillé 2003:1).

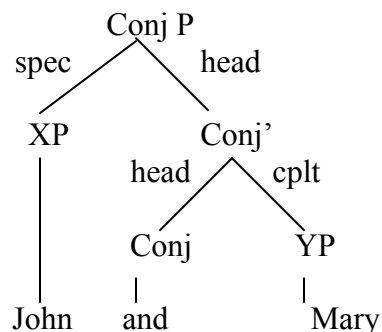
Abeillé, working within a HPSG framework, shows the validity of her (previous) claim by revising what some researchers says about this issue and drawing her own conclusions.

Her proposal holds that coordinated structures are asymmetric: the conjunction makes a subconstituent with one of the conjuncts. For her, this *Conj X* constituent has several functions, including adjunct. Abeillé’s paper explore two important questions: is the structure hierarchical or flat? And do the daughters have the same function or not? After reviewing linguistic and theoretical facts she concludes that a) it is necessary to distinguish Conjunction as a type of word and Coordination as a type of construction, b) Conjunctions are weak syntactic heads that yields a Conjunct phrase, and c) incidental conjuncts and some asymmetric conjuncts are adjuncts. From her point of view Conjunct phrases can enter into several constructions: head-only-phrases, head-adjunct-phrases and coord-phrases (Abeillé 2003:19).

This researcher rejects approaches where the coordinator is a head and where the coordinate structures are reduced to X-bar schemata, such as those of Kayne (1994) and

Johannessen (1998). For her, a structure like the following is not viable (Abeillé (2003:3)):

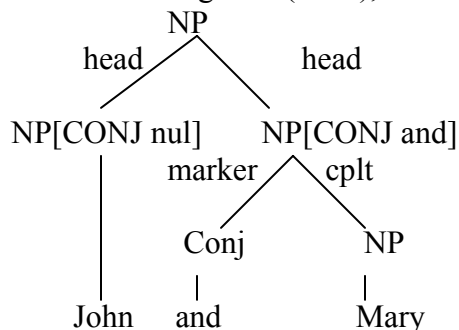
- (1) Spec-head-complement. Kayne (1994) and Johannessen (1998) cited in Abeillé (2003:3):



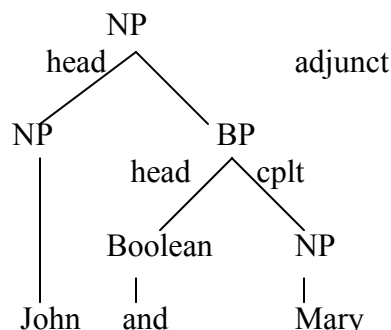
For Abeillé the most viable structures are (3a) and (3b); however, the (3b) structure needs to be revised. She considers that the structure in (3a) accounts for n-ary coordinations and for coordinations with multiple conjunctions. Structure (3b) accounts for asymmetric coordinations such as Russian comitative coordination, where the case of the NP is that of the first conjunct (McNally 1993, cited in Abeillé 2003:4):

- (2) a) Anna s Petej pridut  
 Anna-NOM with Peter-INSTR are-coming-PL  
 b) \*Petej s Anna pridut

- (3) a) Head-head. Sag et al (1985), Gazdar et al (1985), cited in Abeillé (2003:3):



b) Head-adjunct. Munn (1992), (2000), cited in Abeillé (2003:3).



In order to analyze some conjuncts as adjuncts (as the example (2a)) Abeillé proposes that the category of the adjunct should vary with its complement (NP, PP...)

After her analysis of the French particle *car* ‘since’, this researcher concludes that *car* introduces an adjunct phrase and that all coordinating conjunctions can introduce adjunct phrases in French.

The analysis of incidental coordination in French (i.e. coordination with incidental prosody which forms, according to her, is *S Conj XP*.) shows that these constructions do not involve coordination and that such conjuncts can be of various categories: NPs, PP’s, Ss. The next example contains what is considered an incidental coordination Abeillé (2003:7):

(4) John read the book (and) avidly.

The claim that these types of constructions do not involve coordination is supported by the lack of reversibility between “conjuncts” and because extraction is allowed out of the first “conjunct” (Abeillé 2003:8):

(5) a) \*John avidly and read the book.

b) The book that John read, and avidly.

Additional evidence that these constructions must be analyzed as adjoined phrases is obtained from the mobility of the construction: they tend to have the same mobility as incidental adverbs (Abeillé 2003:8):

- (6) a) Jean, et c'est heureux, a lu votre livre.  
       Jean, and it is fortunate, has read your book.
- b) Jean a, et c'est heureux, lu votre livre.
- c) Jean a lu, et c'est heureux, votre livre.
- d) Jean a lu votre livre, et c'est heureux.

And from agreement facts: real coordinate NP's trigger plural agreement whereas incidental NPs do not Abeillé (2003:8):

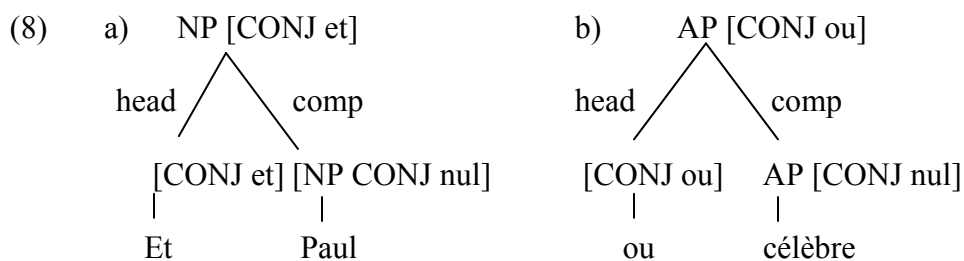
- (7) a) Jean et Marie liront/\*lira votre livre.  
       John and Marie will:read:PL/\*SG your book.
- b) Jean lira/\*liront votre livre, et marie aussi.  
       John will.read.SG/\*PL your book, and Marie too.

The same author rejects an analysis of constructions like (4) in terms of unlike coordination (as in Progovac 1998). She rejects too an analysis of (6) and (7) as S (or VP) coordination with the incidental conjunct being a reduced S (or VP) because extraction can involve only the main clause and not the incidental conjunct. This violation of the CSC would be odd if we do not have and adjunct. If we consider that these constructions are adjuncts, then it is predicted that as any adjunct, they will be mobile and an island for extraction.

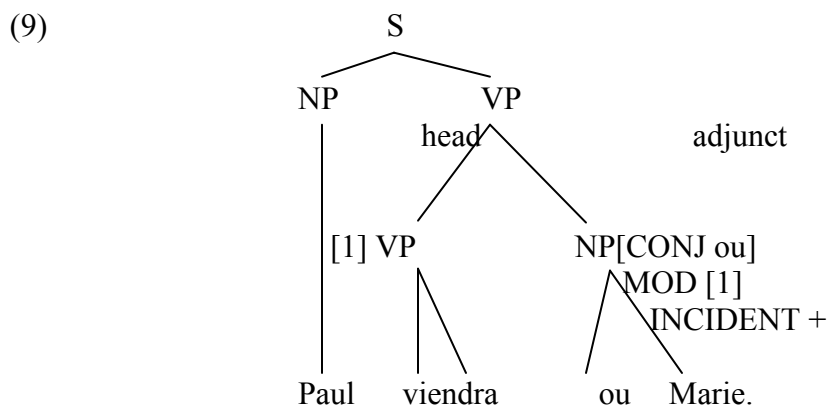
The author extends the adjunct conception to Welsh serial coordination. These constructions have several characteristics (many of them, as we will see, also appear in Yaqui): Tense is marked only on the first conjunct, the others involve “verbal nouns”, the

order of the conjuncts is fixed (and usually indicative of narrative progression), and the subject is shared between the conjuncts. The construction does not obey the CSC.

Abeillé considers that conjunction is a weak head that shares most of its syntactic features with its complement. Then conjunctions take (at least) one complement and inherits most syntactic features from it, except for the lexical feature CONJ which is specific for each conjunction (Abeillé 2003:12). Conjunctions can head phrases as indicated (Abeillé 2003:13):



Incidental conjuncts have a representation as (9). In such structures, the adjunct is represented with a Boolean head incident feature, as in Bonami and Godard (2003). The representation shows that incidental conjuncts are treated as V adjuncts, which could enter into a Head-adjunct-phrases or Head-complements-adjuncts-phrases Abeillé (2003:17).





Abeillé proposes that there are two subtypes of conjunction words: basic-conj-word and discourse-conj-word. Basic-conj-words are marked as INCIDENT and share (by default) the INCIDENT value of their complement. They also inherit the MOD value of their complement. On the other hand, discourse-conj-words have a specific MOD V feature, which they do not necessarily share with their complement, and an INCIDENT + feature, which their complement does not have. These kinds of conjunctions are binary relations and take the phrase they modify as one of their arguments (Abeillé 2003:16).

Abeillé uses basically the same lexical entries for conjuncts as main clauses or fragments, such as the following Abeillé (2003:17):

- (10) a) Mais Paul est parti!.  
           ‘But Paul is gone!’
- b) Et Paul?.  
           ‘And Paul?’

Because those fragments can denote questions, propositions, or exclamations, Abeillé takes the notion of “messages” from Ginzburg and Sag (2000) and introduces it in the lexical representation, so the conjunction takes two semantic arguments: its complement (interpreted as a proposition) and another clause available in the discourse context.

### **2.1.2 A Minimalist approach (Camacho 2003)**

“The internal structure of coordination was usually  
left unanalyzed, or assumed to be ternary branching...”  
Camacho (2003:1)

Camacho’s work, in a Minimalist framework, tries to capture two main properties of coordination: c-command asymmetry and licensing symmetry. The first one refers to the fact that one of the conjuncts c-commands the other(s), and the second one to the fact that

coordination must be symmetric with respect to a licensing head, i.e. each conjunct should reflect the same structural properties as if it were in a simplex sentence (Camacho 2003:1).

Camacho accepts the underlying idea behind Chomsky's conjunction reduction and claims that conjunction always involves a set of sentential functional projections. According to his view, coordination is propositional in nature. The structure of coordination is asymmetrical and the conjuncts are the specifiers of or complements to sentential functional (propositional) projections (Camacho 2003:2).

Camacho mentions that the exceptions to Wasow's generalization (the requirement for symmetry (balancedness) among conjuncts) are of two types: a) cases where only one of the conjuncts satisfies the requirement of the factor (Unbalanced Coordination in Johannessen's (1998) terms) and b) cases in which the features of the conjuncts do not exactly match these of the factor, giving rise to *feature resolution* (see Corbett 1983) or *feature indeterminacy* (see Dalrymple & Kaplan 2000). Feature resolution is exemplified in (11). There the verb (factor) does not match the features of the individual coordinated nouns Camacho (2003:11):

- (11) Juan y yo comimos tortilla  
 Juan and 1SG ate.1P.PL omelette  
 'Juan and I ate omelette.'

Feature indeterminacy is exemplified with a sentence from Polish. The word *kogo* 'who' satisfies the genitive and accusative case required respectively by the verbs Dalrymple and Kaplan (2000), cited in Camacho (2003:11):

- (12) Kogo Janek lubi a Jerzy nienawidzi?  
 Who Janek likes and Jerzy hates  
 ‘Who does Janek like and Jerzy hate?’

The analysis of Spanish shows that “temporal/aspectual adverbs with scope over both conjuncts requires temporal/aspectual parallelism” (Camacho 2003:13). In other words, only person, number, gender and case are subject to resolution rules in Spanish.

He follows Munn’s (1992, 1993) proposal for asymmetric c-command between conjuncts. He argues against Progovac’s (1997) objection to c-command explanations in coordinate structures. Camacho’s conclusion is that “one of the conjuncts should be structurally higher than the other” (2003:22).

Looking at the interpretation of coordination, Camacho distinguishes three types of approaches: those that favor a propositional analysis of it (Gleitman 1965, Goodall 1987, Schein 1992); those that favor treating coordination as a group forming operator that behaves like plurals (Link 1983, Munn 1993), and those that favor both the (a and b) type of proposals (Partee and Rooth 1983, Johannessen 1998, among others).

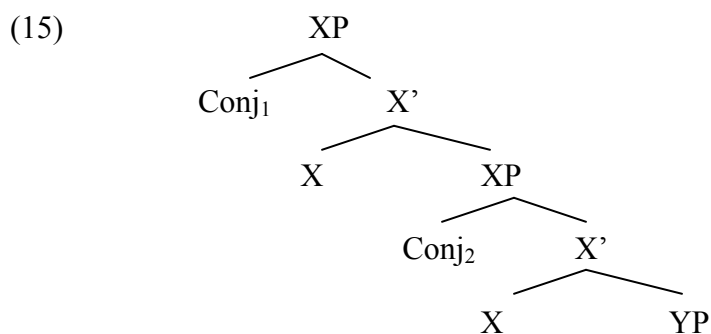
Camacho’s (2003) analysis favors a propositional approach to coordination. His arguments are based on the observation that plurals differ from conjunction: they are not licensed in the same structural position in a sentence, they have different entailment relations and they behave differently with respect to adverbs: propositional adverbs do not modify simplex DP’s, but they can modify conjuncts. This last characteristic is exemplified next. On it, the modal adverb can not scope out of the conjunction; so, the following reading is impossible: *\*the set of people possibly formed by Harvard students and Columbia students* Schein (1992), cited in Camacho (2003:27).

- (13) The Columbia students and possibly the Harvard students formed an unbroken chain around the pentagon.

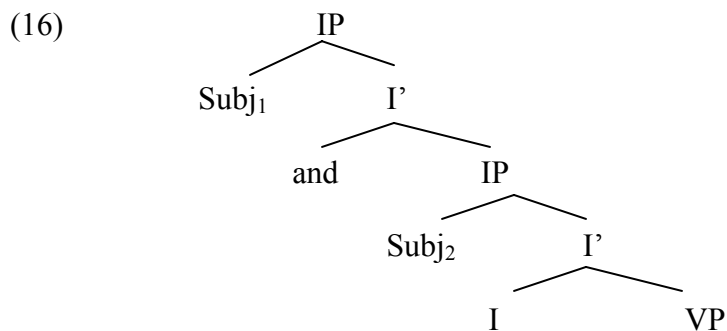
One of the central proposals of Camacho's work is that "conjunction is a sentential functional projection head that has propositional content. Its subcategorization requirements are minimum in the general case of *and*, but can be more specific for other conjunctions" (Camacho 2003:38). The representation of *and* is shown as follows Camacho (2003:38):

- (14)     *and*  
           [+ PROP]  
           ...

The general structure for coordination that Camacho proposes is the following:



In the representation the first X represents the conjunction, the second X any sentential functional projection, such as INFL, Agr, etc. Thus for subject coordination we have the following representation.



As support for treating conjunction as a functional projection linked to sentential inflection, Camacho analyzes switch reference systems, commutative constructions, adverbial coordination and clausal coordination. The explanation is given in a minimalist framework (Chomsky 1995).

Following Kayne (1994), he proposes that “heads (and parts of words) can not be conjoined” (Camacho 2003:62). Therefore, the conjuncts must be maximal categories. This conclusion is supported by the behavior of clitics which, being heads, can not be conjoined Kayne (1994), cited in Camacho (2003:65).

(17) \*Jean te et me vois souvent  
 John CL(2p.ACC) and CL (1p.ACC) sees often

An important implication of his proposal is that it derives constituency effects without a coordinate phrase. The structure allows him to explain important facts as why coordinate DPs, for example, can act as antecedents of anaphors, why they can bind infinitival PROs, and why they can undergo DP movement.

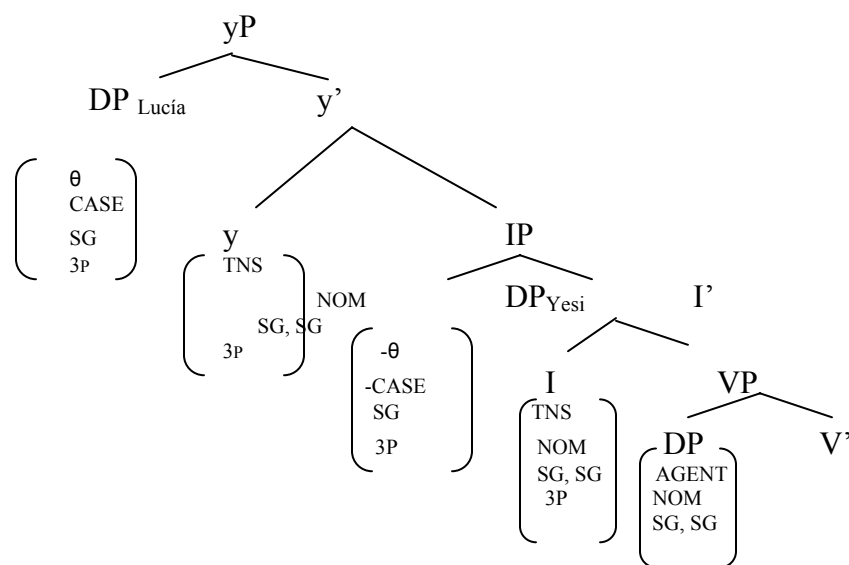
In relation to DP movement, for coordinate subjects that seem to move, Camacho suggests that they are coindexed with a category located in the thematic position, instead of moving as separate constituent to the position where they appear at the surface, as indicate below:

(18) John<sub>i</sub> and Mary<sub>j</sub> seem pro<sub>i+j</sub> to t<sub>i+j</sub> have been called t<sub>i+j</sub>

He formalizes the idea that coordination entails a chain between the conjuncts and a silent category by proposing local feature insertion to coordination. i.e. part of the features of the chain are inserted in the lowest position and they move to the two conjuncts. Lets take the example of two conjoined subjects. The agreement features of the conjoined DPs will always be generated in the specifier of IP, as illustrated in the derivation of the following Spanish sentence Camacho (2003:83):

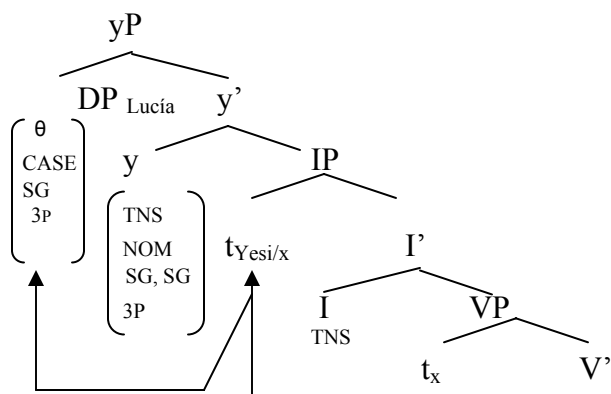
(19) Lucía y Yesi corren.  
 Lucía and Yesi run  
 'Lucia and Yesi run.'

(20)



After movements and feature checking, the derivation has the following representation:

(21)



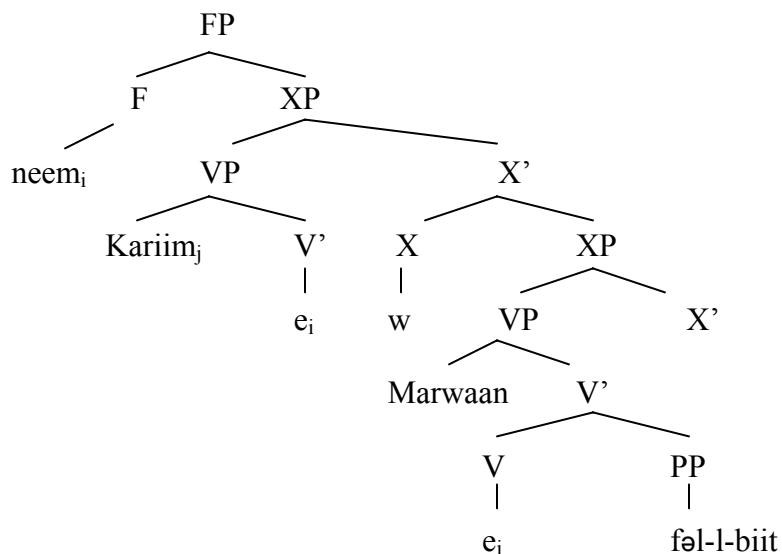
As we can see in the derivation, for Camacho, a plural is a sum of singulars, contrary to Dalrymple and Kaplan's (2000) conception of plural as a primitive feature.

For partial agreement, Camacho distinguishes two types of agreement: PF and LF agreement. The first one does not have semantic consequences (i.e. the co-reference possibilities are still those of the whole coordinate structure), while the second one does. So, for an example of LF partial agreement, Camacho reinterprets ABS analysis of Arabic coordination. The following sentence has the indicated representation.

- (22) 

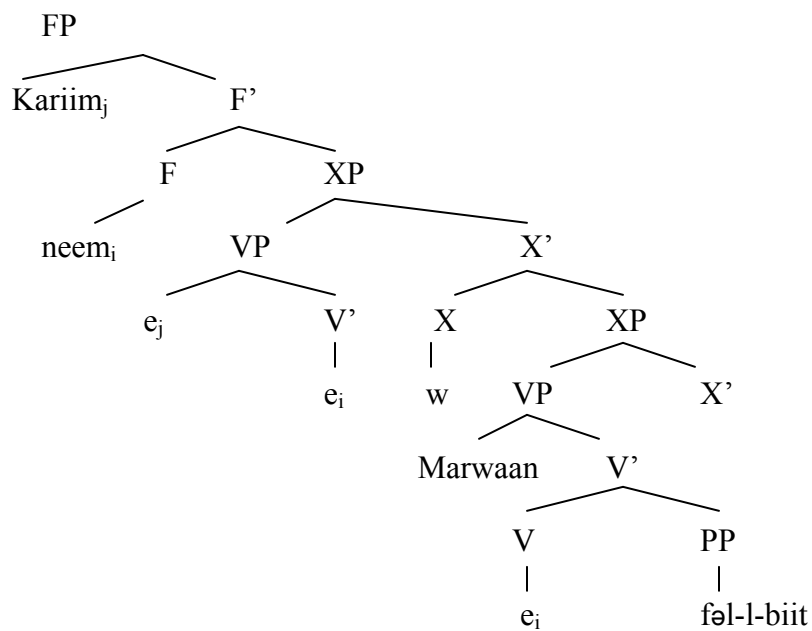
Neem	Kariim	w	Marwaan	fəl-l-biit.
Slept <sub>(3P.MAS.SG)</sub>	Kariim	and	Marwaan	in-the-room
'Kareem and Marwaan slept in the room.'				

(23)



After spell-out, the higher subject will move to the spec-FP, checking agreement with the verb in F<sup>0</sup>.

(24)



On the other hand, Camacho proposes that separateness of events could be related to the level of coordination. For separate events, the coordination could be at the level of TP



or CP, for a single event with sub events, the coordination has to be lower in the tree. For that reason, the following sentences would vary in the level they coordinate:

- (25) a) John came and Peter went.  
 b) John came and went.

### 2.1.3 An OT approach (Gáspár 1999)

“OT is well-positioned to tackle issues in the theory of coordination that have caused problems for researchers working in hard constraint-based approaches”  
 Gáspár (1999:1)

Gáspár is one of two researches that I am aware of who treats coordination in the OT framework (the other research is developed by Hendricks 2005). Gáspár tries to explain within this framework some of the most salient problems that coordination poses: “how to fit the coordinate structure into x-bar theory, how to analyze coordination that can not be treated as sentential coordination on conceptual grounds, and how to account for differences between languages in unbalance coordination” (1999:157). In OT, constraints are violable. For that reason, what seems to be a stipulation in the Johannessen (1998) minimalist approach, i.e. that the specifier and the complement are not required to be maximal projections, in OT could be seen as a violation of that restriction. The constraint is defined as:

(26) SPEC-COMP-PHRASE

\*X, if X is in Spec or Comp position and X is not maximal.

Gáspár proposes a constraint that merges segments (rather than ellipsis or deletion), he follows in this sense the ideas of Johannessen (1993). Some conditions for merging

are that they must occur in the same position in their trees and that they must not have conflicting features. The constraint is defined as follows:

(27) FUSION

X must be fused with Y, where X and Y are input elements.

In addition to this constraint, Gáspár uses the faithfulness PARSE constraint of McCarthy and Prince (1993), reinterpreting it in the following way: “as long as one token of an input element is present, PARSE, is satisfied, no matter how many tokens are in the input” (1999:161). Other constraints are SAME-THETA, which demands that conjuncts of a and P bear compatible theta roles; FILL, a faithfulness constraint that forbids the addition of new elements in addition to those of the input; and FULL INTERPRETATION (FI), a semantic constraint demanding that output forms be interpretable.

For a coordinate sentence like the following, Gáspár shows the interaction of PARSE and FUSION. He proposes the input seen in the tableaux. GEN poses several candidates, but, after the evaluation, only the candidate (b) is optimal Gáspár (1999:162)<sup>4</sup>

(28) Table that shows the interaction of PARSE and FUSION.

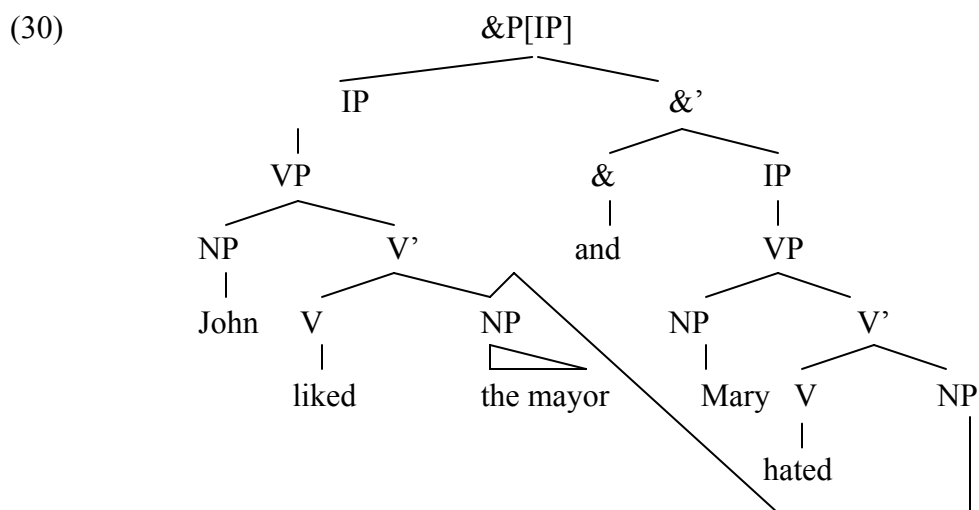
{Like <sub>[1],[2]</sub> , [1]=John, [2]=mayor, hate <sub>[3],[4]</sub> , [3]=Mary, [4]=mayor}	PARSE	FUSION
a. John liked the mayor and Mary hated the mayor		*[36] <sup>8</sup> !
b. ☞ John liked and Mary hated the mayor.		*[21] <sup>10</sup>
c. John and Mary liked the mayor.	*!	
d. John and Mary hated the mayor.	*!	

---

<sup>4</sup> A reviewer made the observation that the (28a) choice is grammatical, just a violation of Gricean principles. Gáspár’s approach does not use pragmatic constraints. However those constraints can potentially be integrated in any OT approach. The aim of such approaches would be to distinguish between grammaticality and felicitousness. That is not pursued in Gáspár’s paper.

With respect to RNR structures, this researcher proposes that a sentence like the following can have the representation indicated below. As we can see, the winning candidate has a double mother. For Gáspár this kind of representations could be well formed as long as they do not cross branches:

(29) John liked and Mary hated the mayor.



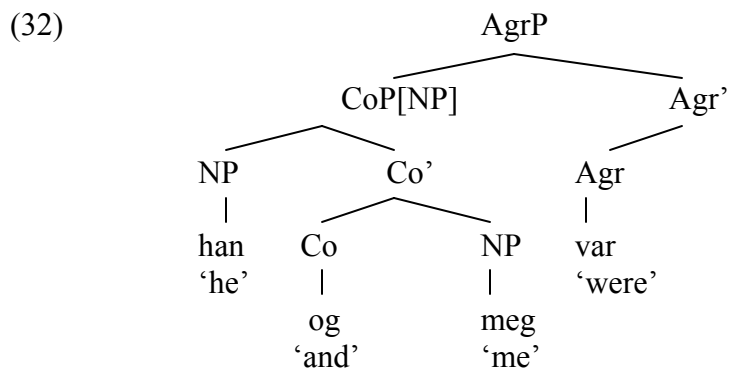
The constraint that avoids crossing branches is defined as follows:

(31) NO-CROSS

Crossing branches are forbidden.

Gáspár (1999) analyzes Unbalanced Coordination (UC), Extraordinary Balanced Coordination (EBC) and Ordinary Balanced Coordination (OBC). In UC only one conjunct bears the grammatical features associated with the conjunction phrase, but all the conjuncts are interpreted as if they had the same features. In EBC both conjuncts have deviant features; whereas in OBC both conjuncts have the expected features.

Gáspár adopts the structure proposed by Johannessen (1998). So, UC would be represented as follows:



And he introduces some additional constraints. The first one is a constraint responsible for spec-head-agreement, defined as follows Gáspár (1999:171):

(33) SHA

An element in [Spec, XP] position must agree with the element in [X] position.

Two more constraints are defined as indicated next. DEFAULT would be responsible for introducing default values, in this case, default case. SAME FEATURE requires both conjuncts to bear the same features Gáspár (1999:172-173):

(34) DEFAULT

\*If default form is not adhered to.

(35) SAME-FEATURE

[Spec, CoP] and [Spec, XP]

The different ranking of these constraints allows explaining UC, EBC and OBC.

Finally, a constraint which function is to ensure semantic resolution (i.e. it ensures that two singular NPs as subjects trigger plural agreement) is defined:

(36) SEMCA

Determine agreement features of a coordinated construction from *both* the specifier and the complement.

Because OT is an input-based theory, Gáspár considers that it is in better position to explain some ambiguities related to coordinated structures. The following ambiguity can be explained by the existence of two inputs which produce the same sentence Gáspár (1999:163).

- (37) a) the pictures of John and Mary] were underexposed.  
 b) x [x = picture (John & Mary) underexposed (x)]  
 c) x [x = picture (John vs Mary) underexposed (x)]

The inputs are given in what follows:

- (38) a) {Underexposed<sub>[1]</sub>, [1]= pictures<sub>[2]</sub>, [2]=John, [2]=Mary}  
 b) {Underexposed<sub>[1]</sub>, [1]=pictures<sub>[2]</sub>, [2]=John, underexposed<sub>[3]</sub>, [3]=pictures<sub>[4]</sub>, [4]=Mary}

#### 2.1.4 A LFG approach (Peterson 2004)

“An adequate and theoretically satisfying account  
 of coordination has long remained an elusive goal”  
 Peterson (2004:643)

Peterson’s (2004) work is located in the LFG framework. His main purpose is to explain some elusive topics in coordination: Distribution of grammatical functions, ability to coordinate unlike categories and lack of distribution of lexical properties.

The first property of coordination is illustrated with the following sentence. In it, the subject and object grammatical functions are distributed across all conjuncts: The subject *Kate* is interpreted as the subject of both verbs *faxed* and *emailed*, whereas the object *the results* is interpreted as the object of each verb too (Peterson2004:645).

- (39) Kate faxed and emailed the results to Paul.

The second property --coordination of unlikes- is illustrated next. The sentence contains the coordination of an AdjP and a NP. In short: the conjuncts do not need to belong to the same grammatical category (Peterson 2004:648):

(40) Paul is stupid and a liar.

The third property --Non-Distribution of lexical properties- refers to the fact that features do not percolate up to the coordination node. “This is equivalent to stating that coordination is not endocentric: it is not a “headed” construction” (Peterson 2004:650). The next example indicates that the coordinate subject, but not the individual conjuncts, must have the property [plural]; i.e. ‘number agreement’ does not distribute (Peterson 2004:651).

(41) a) The dog and the cat are in the garden

b) \*The dog are in the garden and the cat are in the garden.

Peterson’s solution is based in the idea that “functional structure of a coordination of constituents is the set of functional structures of the coordinated elements” (2004:651). Following Kaplan and Maxwell (1988), Peterson considers that the identity of a conjunction does not enter into any syntactic or functional generalization. The conjunction, therefore, is not included in the functional structure at all. Its information is necessarily encoded only at the semantic level of representation. So, Peterson proposes the following rule schema for coordination. We can see that no information is carried by the conjunction (Peterson 2004:652):

(42) a.  $X \rightarrow \begin{array}{ccc} X & C & Y \\ \uparrow \epsilon \downarrow & & \uparrow \epsilon \downarrow \end{array}$

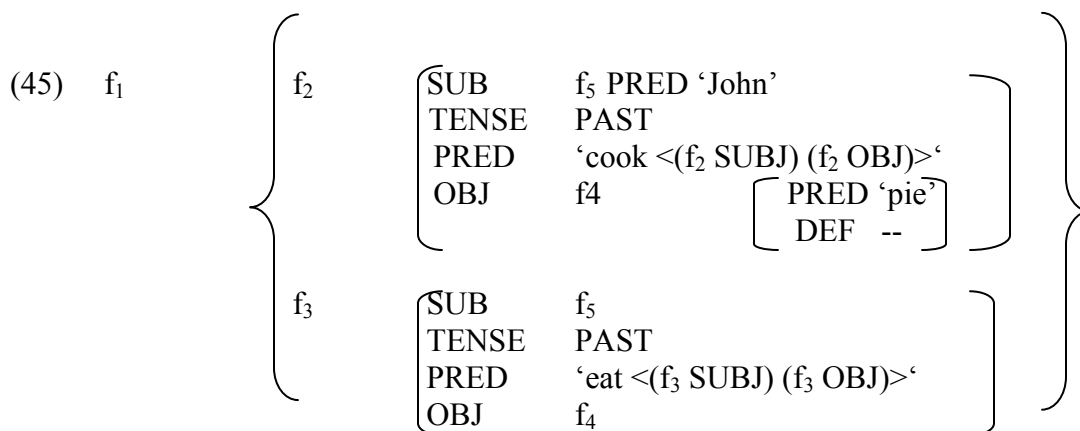
Some important assumptions hold: a verb carries with it a skeleton form of the f-structures that it can occur in; “the elements of a coordinate structure carry exactly those grammatical functions that they would have carried if they had appeared alone in place of coordination.” (Peterson 2004:654).

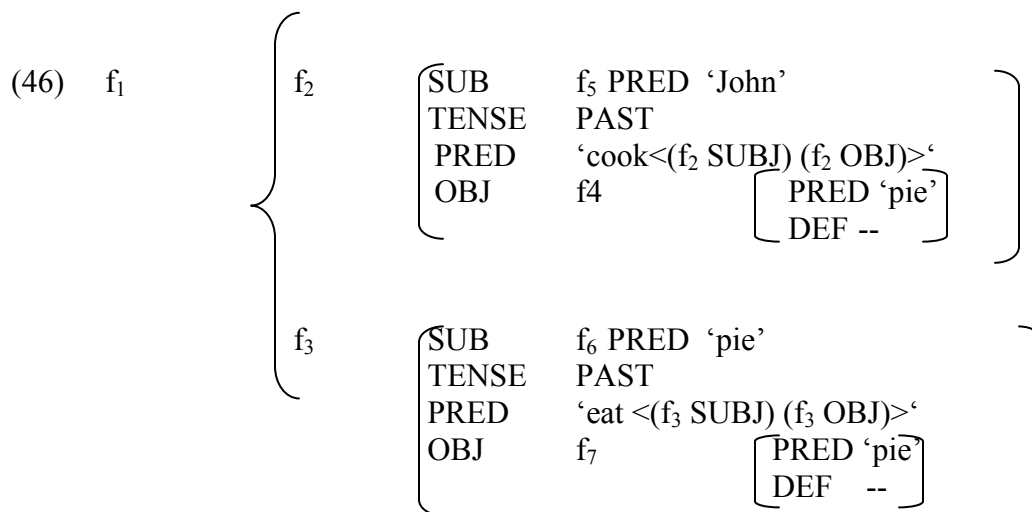
Peterson explores his proposal in relation to phenomena such as subcategorization, anaphora and control. For him sentences such as the following have different functional structures, therefore, conjunction reduction is rejected:

(43) John cooked and ate a pie.

(44) John cooked a pie and John ate a pie.

Their respective f-structures are shown below. In the first case, there is only one instantiation for *John* and only one for *pie*. However, in the second case, there are two instantiations for *John* and two for *pie*. That difference is responsible for the contrast indicated in the previous sentences.





Coordination of unlikes is explained by proposing that it is the grammatical function which determines the ability to coordinate. The f-representation of coordinate unlikes is very close to the ones seen before. Two unlikes coordinate if they share the same grammatical function. Because a conjunction is not a head, lexical properties will percolate only as far as the node dominating the individual conjunct. They are not shared across the coordination as a whole.

More interesting is Peterson's discussion of non-distribution of lexical properties. He claims that only grammatical function attributes are distributed, but that all lexical properties show non-distributivity. His claim is supported by data from several languages. In the following examples we find two singular NPs functioning as subject, with the verb also in singular (Johannessen 1996), cited in Peterson (2004: 670):

- (47) [Qafar]  
 Lubak-kee                    yanguli                    yumbulle.  
 Lion.M.SG.ABS-and    hyena.M.SG.NOM        was-seen.M.SG  
 'A lion and a hyena were seen.'



- (48) Mi ke le ta  
I and he sit.SG  
'I and he sit'
- [Slovene]  
(49) Groza in strah je prevzela vzo  
Horror.F.NOM.SG and fear.M.NOM.SG is seized.F.SG whole.ACC  
vas.  
village.ACC.  
'Horror and fear seized the whole village.'

Peterson affirms that there is grammar underspecification (at least for English) in the area of agreement with coordinated subjects, so speakers resort to various strategies to determine verbal number. Therefore, variability is expected. A strategy (in the sense of Corbett 1991), is a working principle which speakers use for “patching up” gaps left by the grammar. However, Peterson (in footnote 22, 2004:672) considers that in some languages certain strategies are grammaticalized and that maybe a core rule has to be stipulated (with the corresponding extra-cost to the grammar).

With respect to person and gender, he holds that non-distribution applies to them. For case, he mentions that all combinations of case in any order are tolerated in English NP coordinations. This observation contradicts Johannessen’s claim that only the second conjunct could be in a non-canonical case. The following examples show the affirmed variation (Peterson 2004:673).

- (50) a) % Me and him are coming to your party.  
b) % Him and me are coming to your party.  
c) % Him and I are coming to your party  
d) % Me and John are coming to your party.

### 2.1.5 An Autolexical Approach (Yuasa and Sadock 2002)

“Language is a multi-faceted affair and  
what is coordinate in one structure  
might be subordinate in a parallel one”  
Yuasa and Sadock (2002:88)

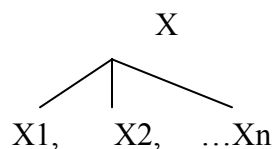
Yuasa and Sadock (2002) analyzed what they consider mismatches between coordination and subordination in the framework of Autolexical Grammar (Sadock 1991, 1993). This theory assumes the autonomy of different components of the grammar. Therefore, a sentence could be coordinated at the syntactic level but subordinated at the semantic one (pseudo coordination) and vice versa, subordinated at syntactic level but coordinated at the semantic one (pseudo subordination). Their work only focuses in this last type of construction.

For them, coordination and subordination are defined as follows:

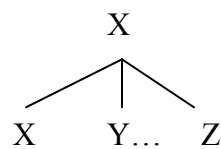
- (51) “A coordinate constituent is one of two or more sister nodes whose categorical information percolates to the mother node” (Yuasa and Sadock (2002:89)).
- (52) “A subordinate constituent is a node whose categorical information does not percolate to the mother node while that of at least one sister node does” (Yuasa and Sadock (2002:90)).

The diagrams that represent those definitions are given below (Yuasa and Sadock 2002:90):

(53) a) Coordination



b) Subordination.



The representations intend to capture the fact that, for coordination, the daughter Xs do not necessarily belong to the same category, but the categorial information of all the conjuncts can contribute to the categorial information of the mother node, whereas for subordination, the subordinate constituents Y... Z does not percolate to the mother node, however, that of their sister X does.

An instance of clausal pseudo-subordination is the following. In it, the verb *hatarai* ‘to work’ which belong to the first conjunct is not inflected for the past tense, whereas the verb *shi* ‘to do’ in the final conjunct is inflected for it (Teramura 1991:221) cited in Yuasa and Sadock (2002:92):

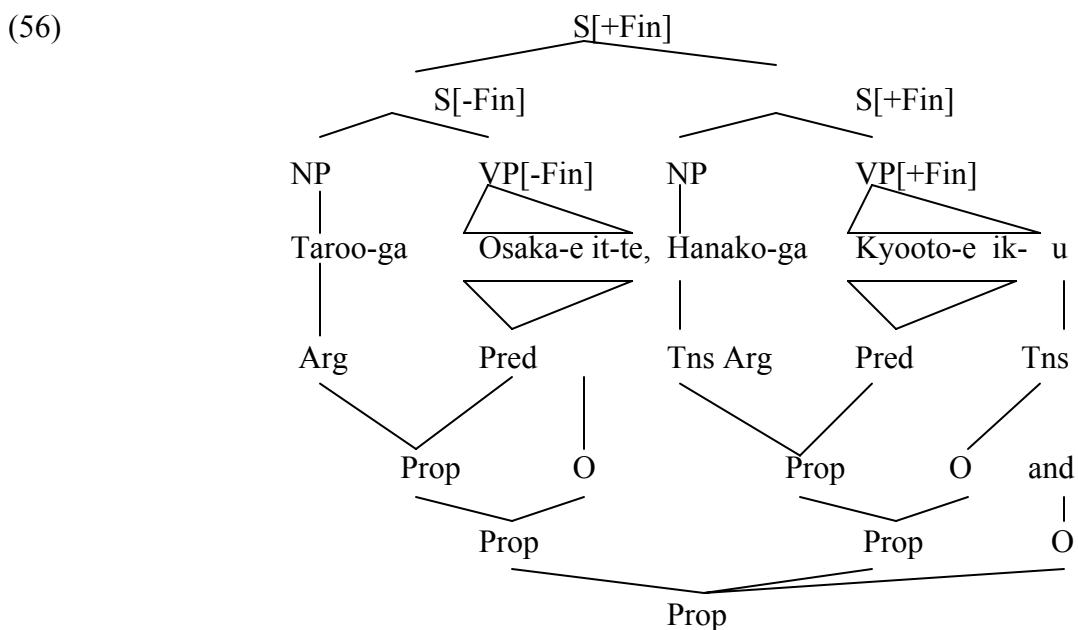
- (54) Ojiisan-ga yama-de hatarai-te obaasan-ga  
 Old man-NOM mountain-LOC work-and old woman-NOM  
  
 mise-no ban-o shi-ta.  
 store-GEN sitting-ACC do-PST  
 ‘The old man worked at the mountain, and the old woman tended the store.’

Yuasa and Sadock suggest that in examples like the previous one, only categorial information of the final clause percolates to the mother node of the entire structure, therefore all the structure is interpreted as past tense.

They follow Culicover & Jackendoff (1997) who claim that the semantics of a construction determines whether the construction is subject to the CSC. They applied this and four additional tests to *--te-*coordination and concluded that it is semantically coordinated. The results are the following and are the expected ones if semantic coordination is happening:

- (55) a) The construction is reversible and truth conditions are preserved.  
 b) The construction obeys the CSC.  
 c) Backward pronominalization is not allowed.  
 d) Any number of conjuncts can occur in coordinated constructions.  
 e) Scope considerations: under semantic coordination both conjuncts are affected by negation.

The *--te*-coordination behaves at semantic level as a coordinated construction. Given the previous facts, a dual structure is assumed for *--te*-coordination (Yuasa and Sadock 2002:98).



In the representation semantics involves coordination of like semantic structures, while the syntax involves subordination. We can see that only the final clause allows percolation of the categorial feature to the mother node of the complete structure. Of two semantic tenses, only the last is associated with any surface morpheme.

In addition to analyzing *-te*-coordination, Yuasa and Sadock (2002) explore pseudo-subordination of NPs in Yiddish and in West Greenlandic. They give the following examples:

Pseudo-subordination:

- (57) a) der           tate   mit    der            mamen.  
           The.NOM   father with   the.DAT    mother.DAT  
           ‘Father and mother.’ (Lit. ‘The father with the mother.’)

Simple coordination:

- b) der           tate   um    di            mame.  
           The.NOM   father and   the.NOM    mother.NOM  
           ‘The father and the mother.’

Simple subordination:

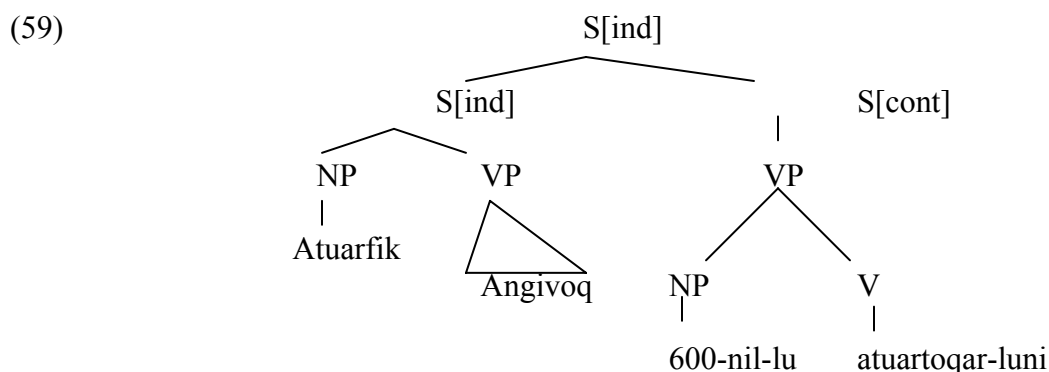
- c) der           rebe                   mit-n            hunt.  
           The.NOM   rabbi.NOM   with-the.DAT   dog  
           ‘The rabbi with the dog.’

Although (57a) and (57c) have the same syntactic representation, the structure in (57a) is coordinated at the semantic level for the following reasons: a) the terms are reversible without change in reference (that does not happen with (c) where the first conjunct refers to a particular entity), b) the verb agreement with pseudo-subordinate subjects is plural (in subordination it is singular): it occurs with predicates whose meanings demand plural subjects, c) more than two NPs can be connected by pseudo-subordinate NPs (all conjuncts “are understood as parallel, a property we would expect if we are dealing with semantic coordination” (Yuasa and Sadock 2002:102).

For Greenlandic the conclusions are similar. The basic difference with Yiddish is that “the marker of the construction in Yiddish is a preposition which is otherwise a subordinator, whereas in West Greenlandic, it is a clitic which is otherwise a coordinator” (Yuasa and Sadock 2002:107).

More important for the purpose of this work is the use of the Greenlandic *--lu* ‘and’ coordinator. In the following two coordinate clauses, one of them occurs in a subordinated mood called the Contemporative, while the mood of the other determines the mood of the entire constituent. The construction is pseudo-coordinated. The coordinator *--lu* is a clitic and “attaches as a suffix to the first word of the conjunct that follows it in much the same way as Latin *--que* ‘and’ does” Yuasa and Sadock (2002:fn14). The coordinated sentence containing the coordinator *--lu* in second position is given and represented in what follows (Yuasa and Sadock 2002: fn14):

- (58) Atuarfik-Ø    angi-voq                    600-nil-lu            atuartoqar-luni.  
 School-ABS.SG be.big-IND.3SG        600-INSTR.PL-LU have.students-CONT.RSG  
 ‘The school is big and has 600 students.’



However, as we can see under this approach the position of the coordinator seems to be irrelevant at the syntactic level. Because of the independence of syntactic and semantic levels, the coordinator is treated as an operator at the semantic level. They talk about percolation at the syntactic level and, as they recognized, percolation is the main feature of headship; therefore, they define coordinate constituents as co-heads, but avoid explicit use of the concept of headship because it implies notions such as functor, subcategorized,

morphological locus, government, and concord, which may be independent of percolation (Yuasa and Sadock 2002:fn3). In that sense, it appears that a coordinator is a marker and not a head in their conception.

### **2.1.6 A P&P approach (Borsley (2005))**

“I hope that I have contributed to progress  
by showing that the ConjP analysis of  
coordinate structures is a dead end”  
Borsley (2005:481)

Borsley (2005) focuses on the exploration of the reasons for which the Conjunction Phrase is rejected in frameworks outside of Principles and Parameters (P&P). Borsley’s first observation is that in frameworks outside of P&P scholars are reluctant to accept ConjP’s. For example, in Head Phrase Structure Grammar (HPSG) (Pollard and Sag, 1994), Lexical Functional Grammar (LFG) (Dalrymple and Kaplan, 2000) and Categorical Grammar (CG) (Bayer 1996, Steedman 2000). Borsley (2005) argues that Conjunction Phrases are unacceptable because they face problems that fall into the following types: a) the distribution of coordinate structures; b) the coordinate structures with more than two conjuncts; and c) the coordination of non-maximal projections; d) languages which appear to have as many conjunctions as conjuncts; and e) agreement facts about unbalanced coordination. These are summarized in what follows.

The distribution of coordinate structures is problematic because of the fact that there is a link between its distribution and the nature of the conjuncts: The contrast in the (60)-(64) indicates that “what conjuncts a coordinate structure can contain depends on where it appears and where it can appear depends on what conjuncts it contains” (Borsley 2005:

463). The example in (60) indicates that the coordination is licensed for the equality of conjuncts (Borsley 2005:463):

(60) Hobbs bought [a book] and [a newspaper]. (DP & DP)

(61) \*Hobbs bought [a book] and [have a drink]. (DP & VP)

(62) \*Hobbs [go home] and [a newspaper] (VP & DP)

(63) Hobbs may [go home] and [have a drink]. (VP & VP)

(64) \*Hobbs may [go home] and [newspaper] (VP & DP)

The skepticism of Borsley emerges from data as in (60)-(64) because “it will be necessary for ConjP to have different sets of feature specification in different contexts and for its specifier and the complement to have the same features in the case of non-NP coordination and related features in the case of NP coordination” (Borsley 2005: 466)

The coordinate structures with more than two conjuncts but just a single conjunction present a problem for a ConjP structure because it is a common assumption that a phrase has a finite number of specifiers or a finite number of complements. Therefore, it is not possible to generate sentence (65) without the stipulation of an empty head between the noun *Hobbs* and the noun *Rhodes*. In addition, Borsley shows that example (65) is not a coordinate structure with two conjuncts.

(65) Hobbs, Rhodes, Barnes and Gunn.

The coordination of non-maximal projections undermines the analysis of ConjPs because it is standardly assumed that specifiers and complements must be maximal projections. Therefore, the conjuncts must be maximal projections. But there are many illustrations in the contrary. Consider for example (66):



(66) Hobbs criticized and insulted his boss.

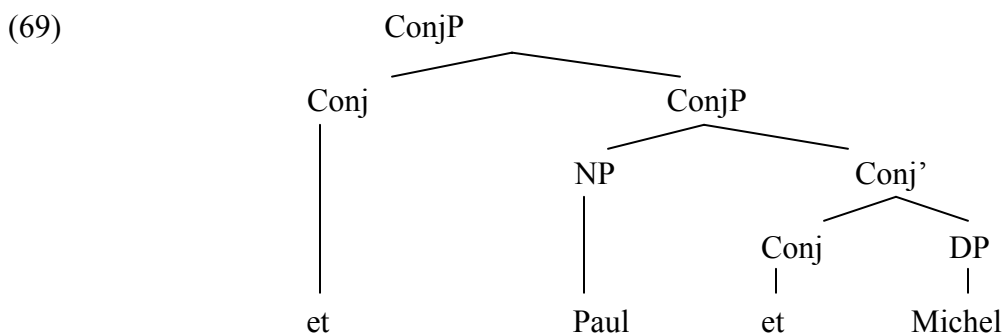
If we assume the idea that conjuncts are maximal projections, then (66) would arise from the deletion process of the next sentence:

(67) Hobbs criticized his boss and insulted his boss.

But as the meaning indicates, the sentences cannot be considered to be derived one from the other because they have different meanings. In (66) the sentence has a joint reading, whereas (67) has a disjoint reading. Therefore, a deletion approach is not appropriate for sentence (66).

The case of languages which appear to have as many conjunctions as conjuncts requires an analysis where the conjunctions have quite different combinatorial properties. The first has no specifier and takes a ConjP as complement. The second takes a specifier and a complement. That makes the analysis undesirable. The sentence is shown in (68) and the representation in (69) (Borsley 2005:473-474):

(68) Et Paul et Michel  
And Paul and Michel  
'both Paul and Michael'



The unbalanced coordination is split in several particular cases. Let's take the case where and external head agrees with just one conjunct like in (70) (Borsley (2005:475):



researchers such as Abeillé (2003), Camacho (2003), Johannessen (1998), Sag et al (1985), Kayne (1994), and Munn (2000), among others, while others conceive that coordinate constructions are flat: Peterson (2004), Yuasa and Sadock (2002), Dalrymple and Kaplan 2000, Sag and Wasow (1999), among others. The second question is relevant as well, and some specialists hold that it is a head or a weak head: e.g.–Johannessen (1998), Abeillé (2003), Camacho (2003), and Gáspár (1999); while some others deny this claim: e.g. Borsley (2005), Peterson (2004), Yuasa and Sadock (2002), Cormack and Smith (2005), Dalrymple and Kaplan (2000), and Bresnan (2000).

Some other issues that emerge from this literature review are established as the following questions: Is coordination propositional in nature? Do some conjuncts function as adjuncts? What would be a better way to approach the so called UBC or Pseudo subordination? Do languages conjoin only maximal projections? What are the properties of coordination that any theory should explain? What could be a promising framework for approaching to the coordination phenomenon?

Given the intricate nature of the field and the multiple sides of coordination, as the previous ideas indicate, my work is centered upon the following question: What properties does Yaqui have that can contribute to answer some of those persistent and important questions? There are three main aspects of Yaqui coordination that I consider important to describe and analyze.

1. Sentence coordination poses several challenges because of their patterns. The coordinator *into* ‘and’ can occur in several positions. These not so common patterns ask for a clarification about what the structure of Yaqui coordination actually is.

2. Yaqui shows, in general, Ordinary Balance Coordinated constructions; however, it has some examples of nominal UBC and verbal UBC. Since Johannessen's (1998) research these structures enter completely into a theoretical discussion that still does not end. The description of the Yaqui structures will enrich the field. Moreover, an explanation of them in OT will give us the opportunity to test this theory on these issues.

3. The language has 'unexpected' patterns of coordinate noun-verb agreement on number which, for their account, seem to require the splitting of number features into two types: CONCORD and INDEX features, as suggested by Halloway King & Dalrymple (2004).

The next three chapters treat these three general topics of Yaqui. A description and a theoretical account in the OT framework are presented in each chapter.

### 3 THE STRUCTURE OF COORDINATION

“It thus appears that the constituent structure of coordinating constructions is much more problematic than has been generally thought”  
(Haspelmath 2004:9).

#### 3.1 Sentence Coordination

The aim of this chapter is to describe, analyze and explain the sentence coordination patterns found in Yaqui. The discussion is centered in the coordinator *into(ko)* ‘and’. It shows unusual patterns which present a challenge to any theory of language which treats coordination as containing a tripartite structure.

##### 3.1.1 Distribution of *into* ‘and’

The coordinator *into* ‘and’ can occur basically in three different positions when conjoining two sentences: at the beginning of the second conjoined sentence, after the first element on the second conjoined sentence, and in final position of the second sentence. Let’s begin with the pattern of *into* ‘and’ in second position, given that this can be considered the unmarked pattern of Yaqui coordination.

##### 3.1.1.1 *Into* ‘and’ in second position

The basic patterns of sentence coordination where *into* ‘and’ occurs in second position are shown in this section. Given a question like (1), a possible answer is given in

(2). As we can see, it is a coordinate sentence where the coordinator appears after the first element of the second conjoined sentence<sup>5</sup>:

- (1)    jitá                yeu    siika?  
           What   out        go.SG  
           ‘What’s going on/ what happened?’
- (2)    [ju’u    chu’u    misi-ta        ke’e-ka],        [Diana   *into*   a= beba-k].  
           [DET   dog    cat-NNOM.SG   bite-PST]        [Diana   and   3NNOM.SG=hit-PST]  
           ‘The dog bit the cat and Diana hit it.’

Because the answer contains only new information (Choi 2001), this can be considered the unmarked pattern for the coordinator position. As can be seen from the examples too, the unmarked word order is SOV. Other possible answers to the question in (1) show the coordinator in second position too. In the following examples, the coordinator appears after the subject of the second conjoined sentence:

- (3)    [Pablo ji’osiam        jinu-k],        [María   *into*   yokia-ta].  
           [Pablo book        buy-PST],        [Mary   and   pen-NNOM.SG]  
           ‘Pablo bought a book and Mary a pen.’
- (4)    [inepo Diana-ta        bicha-k,], [apoik    achai   *into*   ketchia].  
           [1SG   Diana-NNOM.SG   see-PST], [3SG.POSS   father   and   too]  
           ‘I saw Diana and her father (saw her) too.’
- (5)    [empo yeewe-k],        [inepo   *into*   kocho-k].  
           [2SG   play-PST]        [2SG   and   sleep-PST]  
           ‘You played and I slept.’

---

<sup>5</sup> This pattern emerges when the conjoined sentences contain different subjects. If the subject is the same, the coordinator occurs between the conjoined sentences. The following example shows that a correferential pronoun occurs after the coordinator (see section 3.1.1.2. for more evidence).

- (i)    [Aapo        kuchureo]        [*into*   aapo                bochareo].  
           [3SG        fisherman]        [and   3SG                shoemaker].  
           ‘He<sub>i</sub> is a fisherman and he<sub>i</sub> is a shoemaker.’

In the above examples the position of *into* ‘and’ is obligatory. So, the following sentences where the coordinator appears between both conjuncts are ungrammatical:

- (6) [\*ju’u chu’u misí-ta ke’e-ka], *into* [Diana a=beba-k].  
 [ DET dog cat-NNOM.SG bite-PST] and [Diana 3NNOM.SG=hit-PST]  
 (‘The dog bit the cat and Diana hit him.’)
- (7) \*[Pablo ji’osiam jinu-k], *into* [Maria yokia-ta].  
 [Pablo book buy-PST] and [Mary pen-NNOM.SG]  
 (‘Pablo bought a book and María a pen.’)
- (8) [\*inepo Diana-ta bicha-k], *into* [apoik achai ketchia].  
 [1SG Diana-NNOM.SG. see-PST], and [3SG.POSS father too]  
 (‘I saw Diana and her father as well.’)
- (9) [\*empoy yeewe-k], *into* [inepo kocho-k].  
 [2SG play-PST] and [1SG sleep-PST]  
 (‘You played and I slept.’)

All the previous examples contain the subject before the particle *into* ‘and’, i.e. they are NPs. However, that is not the only category that can go before *into* ‘and’. In what follows it is shown what kind of elements can go before the coordinator. Most examples are taken from a glossed story narrated in Crumrine (1961). I decided to use this kind of material in order to get the coordination meaning from a broader context other than that in isolated sentences. The data were checked with a Yaqui speaker from Casas Blancas, Sonora, and the spelling was modified according to the one used in this work. Where the speaker disagreed in any aspect of the Yaqui sentences found in these stories, it is shown in a footnote. The next two examples show that *into(k)*<sup>6</sup> ‘and’ can occur after adverbials such as *ian* ‘now’ and *kaa* ‘not’. In these examples the subject was introduced in the first

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<sup>6</sup> There are three allomorphs of this coordinator: *into*, *intok*, and *intoko*. These are treated in a separate section, the meaning of these allomorphs in the examples given here is ‘and’.

coordinated sentence (which is not presented here in order to focus on the position of the coordinator).

- (10) (nii juya)... [**ian intok** ujúyoisi sawa-k].  
 this tree [now and beautifully leaves-POSS]  
 ‘This tree ... and now it’s beautiful with leaves.’ (Crumrine 1961:13)
- (11) (ilí chu’u)..[**kaa intok** a’a=jajáse-ka] [**intok** a’a=ta’áru-k].  
 (little dog)...[not and 3NNOM.SG=follow-GER][and 3NNOM.SG=lost-PST]  
 ‘(The little dog) is not following it and lost it.’ (Crumrine 1961:19)

Few examples show *into* ‘and’ after the determiner of a nominal phrase, the only two attested in Crumrine’s (1961) Yaqui stories are the following<sup>7</sup>:

- (12) [**íí into o’óu** im mesa-ta bepa juka kuj kutá-ta]  
 [this and man here table-NNOM.SG upon this cross wood-NNOM.SG]  
 [toó-siká].  
 [leave-go.PL]  
 ‘And this man has laid the rosary wood on top of the table (and) left.’ (Crumrine 1961:24)
- (13) [**íí into yoéme** jak-su-ma yeu siika], [jaibu juchi  
 [this and man where-INT-there out go.SG.PST] [already again  
 aman aánne-ka jum kuj-ta bepa a’a= kate-k].  
 yonder be-SUB there cross-NNOM.SG on 3NNOM.SG= sit-PST]  
 ‘And this man, coming out from somewhere again, is again there by the cross.  
 (Crumrine 1961:35)

Until now, we have several observations that must be incorporated into any analysis of Yaqui coordinated sentences: a) the unmarked order for the coordinator *into* ‘and’ is second position, b) the Yaqui unmarked word order is SOV, c) *into* ‘and’ can occur in second position if the coordinate sentences contain different subjects. Before *into* ‘and’

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<sup>7</sup> My consultants consider these two sentences ungrammatical. For them the coordinator must be after the full NP. I put them here in order to have a more complete register of coordination in Yaqui. The examples show that at least historically that position could be occupied by a coordinator. This position is not considered in my further analysis.



several types of elements, can appear, the exemplified ones are: nouns, adverbials, and determiners.

### 3.1.1.2 *Into* ‘and’ in first position

The coordinator can appear in first position in several cases: First, when the subject of the second sentence doesn’t appear in overt syntax, as in the following example, where the subject of both sentences is the same. I used a  $\emptyset$  symbol to indicate that the subject is not present in overt syntax. The sentences (15) and (16) can be an answer to the question in (1), repeated here for convenience as (14).

(14) *jitá* *yeu* *siika?*  
 what out go.SG  
 ‘What’s going on/ what happened?’

(15) [*Joan* *chu’u-ta* *beéba-k*] [**into**  $\emptyset$ <sup>8</sup> *mísi-ta* *beéba-k*].  
 [John dog-NNOM.SG hit-PST] [and  $\emptyset$  cat-NNOM.SG hit-PST]  
 ‘John hit the dog and hit the cat.’

Second, the coordinator must appear too in first position when we have a coordinated XP (a coordinated subject in this example) in the second sentence<sup>9</sup>:

(16) [*Yoeme* *bwiika*] [**into** [*Peo* *into* *Diana*] *ye’e-mme*].  
 [Man sing.PRS] [and Peter and Diana dance.PRS-3PL]  
 ‘The man sings and Peter and Diana dance.’

(17) \*[[*Yoeme* *bwiika*] [[*Peo* *into* *Diana*] **into** *ye’e*].  
 [[Man sing.PRS] [[Peter and Diana] and dance.PRS]  
 (‘The man sings and Peter and Diana dance.’)

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<sup>8</sup> I suggest that a null pronoun occurs after the coordinator. The evidence is seen in sentence (19) in this section. In it, a correferential overt pronoun with the previous subject appears after the particle *into* ‘and’.

<sup>9</sup> A reviewer made the suggestion that this effect might be the result of a processing constraint to avoid garden path. This observation seems to be on the right track. The constraint responsible of this effect would be undominated in Yaqui because the order of the constituents in (16) obligatory.

There are semantic effects related to the position occupied by *into* ‘and’ in the sentence. These effects can be seen when the coordinated sentences contain similar subject pronouns. The *into* ‘and’ particle must be used in first position in order to indicate that the subject in the second conjoined sentence is the same as the one in the first sentence. Look at the following contrast between (19) and (21), where two copulative sentences are conjoined. The first one could be an answer to a question where we ask something about a determined person, whereas the second one could be an answer to a question asking the occupations of several persons:

- (18) Jita-po            aapo    tekipanoa?  
 What-LOC    3SG    work.PRS  
 ‘What does he work on?’
- (19) [Aapo kuchureo]    [**into** aapo    bochareo].  
 [3SG fisherman]    [and 3SG shoemaker]  
 ‘He<sub>i</sub> is a fisherman and he<sub>i</sub> is a shoemaker.’

The above sentence (19) contrasts with the next in (21), which could be an answer to the question in (20). In the answer, the coordinator is in second position and the preferred reading is disjoint. If we consider, following Dedrick and Casad (1999), that the coordinator *into* ‘and’ is a pivot for topicalization together with the proposal of Lee (2001) that topics have the features /+PROMINENT, -NEW/, then this semantic effect is predicted because the pronoun in the second conjunct in (19) will be interpreted as /-PROMINENT, -NEW/ and does not have to be fronted. Whereas the features of the second pronoun in (21) would be /+PROMINENT, -NEW/ and therefore the pronoun must be fronted, appearing before the coordinator *into* ‘and’. In that sense, the sentence (21) patterns with the sentences (2-5) which contain different subjects.

- (20) Jita-po            bempo tekipanoa?  
 What-LOC    3PL    work.PRS?  
 ‘What do they work on?’
- (21) [Aapo kuchureo]    [aapo **into**    bochareo].  
 [3SG fisherman]    [3SG and    shoemaker]  
 ‘He<sub>i</sub> is a fisherman and he<sub>j</sub> (another guy) is a shoemaker.’

The sentence (19) with *into* ‘and’ in first position is similar in correferential meaning to the next one (22) where the subject is not in overt syntax<sup>10</sup>:

- (22) [Aapo kuchureo]    [**into** Ø    bochareo].  
 [3SG fisherman]    [and Ø    shoemaker]  
 ‘He is a fisherman and a shoemaker.’

This contrast is attested in coordinate sentences with same subjects (SS) vs. different subjects (DS). The following sentences contain intransitive verbs:

- (23) [Aapo bwiika]            [**into** aapo    ye’e].  
 [3SG sing.PRS]            [and 3SG    dance.PRS]  
 ‘He<sub>i</sub> is singing and he<sub>i</sub> (the same guy) is dancing.’
- (24) [Aapo bwiika]            [aapo **into**    ye’e].  
 [3SG sing.PRS]            [3SG and    dance.PRS]  
 ‘He<sub>i</sub> is singing and he<sub>j</sub> (another guy) is dancing.’
- (25) [Aapo bwiika]            [**into** Ø    ye’e].  
 [3SG sing.PRS]            [and Ø    dance.PRS]  
 ‘He is singing and dancing.’

Example in (26), taken from Crumrine (1961:19), reinforces the observation that *into* occurs in first position when in the discourse, the subject is understood as the same as the previous coordinated sentence:

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<sup>10</sup> An alternative analysis is to take example (22) as constituent coordination with the structure *He is [X and Y]*, i.e. as [VP & VP] coordination. However, I consider that in this kind of examples there is a null pronoun in subject position. This conception is based in the constraint proposed by Blutner and Zeevat (2004:4), who defined it as follows: DROP-TOPIC “Arguments coreferents with the topic are structurally unrealized”. So, for these researchers the subject tends to be dropped if previously mentioned in the discourse. See the analysis of verbal chains in Chapter 4, example (108).

- (26) [...júébena wakásim áe áwi-ne] [intok áe ji'ibwa-ne],  
 [...much cattle with.it fatten-FUT] [and with.it eat-FUT],  
 [into jipi'ikim júébená-ne]...  
 [and milk much-FUT]...  
 'Much cattle will fatten with it, and will eat it, and will be plenty of milk...'  
 (Crumrine 1961:19)

As we have seen above, when the subject is not present, the coordinator, in general, can occur in first position; however, if there is not a subject but there is a topicalized or focused element, the coordinator must be in second position. We can see this fact in the following examples where the sentence contains a postpositional phrase (Post-P). The coordinator can appear in second position (after the Post-P), or in first position (before the Post-P). This is illustrated with an example adapted from Dedrick and Casad (1999):

- (27) [juchi 'ae=koni-la sik-aa] [intok jo'o-t 'a'a=siise-k].  
 again 3SG=circle-ADV go-PPL and back-LOC 3NNOM.SG=urinate-PST  
 'And having going around him, it urinated on his back.'
- (28) [juchi 'ae=koni-la sik-aa] [jo'o-t intok 'a'a=siise-k].  
 again 3SG=circle-ADV go-PPL back-LOC and 3NNOM.SG=urinate-PST  
 'And having going around him, it urinated on his back.'

Finally, the particle *into* tends to occur before some phrasal adverbs such as *jumák* 'maybe', *junén* 'thus', *junuén* 'that way', and clitics like *ne(e)* 'I'.

- (29) [intok júmak ne kaa am =teakaate-k(o)] [inepo intok  
 and maybe 1SG not 3NNOM.PL=find-COND 1SG and  
 ino tá'aruka'ate-k(o)]...  
 1REFL lost-COND...  
 'And perhaps if I don't find them, and if I get lost...' (Crumrine 1961:16)
- (30) [...into junen au=jia kaa ama yoeka'ate-k juni'i kia]  
 ...and thus 3SG.OBL=say.PRS not there escape-PST even just  
 ...'And thus say to him, I did not escape...' (Crumrine 1961:23)
- (31) [...intok junuen jum joara-po waiwa kora-po an-si-sime]  
 ...and that-way there home-LOC inside fence-LOC walk-RED-go.PRS  
 ...'And he is acting that way in this house inside the fence.' Crumrine (1961:31)

- (32) [into=ne    kaa    jabe-m    neu    yajak    **junii...**]  
 and=1SG    not    someone-PL    1SG.OBL    come.PL.PST    even  
 ‘And even if someone does not come by’... (Crumrine 1961:17)

Summarizing this section, we observed that *into* ‘and’ occurs in first position under the following conditions: a) the grammatical subject is the same in both coordinated clauses, b) the subject of both coordinated sentences is a pronoun and there is correferentiality between them, c) there is not a topicalized element in the second conjunct sentence. In addition to these observations, we noted that *into* ‘and’ can occur in first position before adverbials or function as a host for clitic pronouns.

### 3.1.1.3 *Into* in last position

In the next examples we can see that the coordinator can appear in sentence final position. These data are taken too from the stories found in Crumrine (1961). The evidence that *intok* ‘and’ is in final position of the bracketed sentence in (33) is supported by the pause after *intok* and by the occurrence of the particle *--su* ‘and’ in the second conjunct. The particle *--su* ‘and’ functions as a coordinator in the example given here (for more information of the particle *--su* ‘and’ see section (3.1.3) of this chapter. Additional evidence that *intok* ‘and’ is attached to the end of the first conjunct (as indicated by the bracketing) comes from the fact that we have two conjoined sentences with disjoint reference in (33). Consequently, normal conjoining *intok* would have to occur in second position if it were really just between the conjuncts. So *intok* ‘and’ links a previous sentence in the discourse and appears in the final position of the first conjunct.

- (33) ...[ito am bit-bae-o **intok**] [bempo-su bina<sup>11</sup> botana  
 ...[1PL 3PL.OBJ see-INTT-TEMP and] [3SG-and this side  
 itom ane'e beas yajak...].  
 1PL are of arrive.PL.PST...]  
 'And (since) we wanted to see them, and they came over to this side where we  
 are.' (Crumrine 1961:21)

The following two sentences have *intoko* in final position, however, in the original text from (Crumrine 1961), it had *intok kía* 'and trully' in final position<sup>12</sup>:

- (34) [ju'u o'ou kia au= 'omtemta benasi],  
 [DET man just 3SG.OBL= angry like]  
 [amau a'a= to'o simlataka], [káa au= bitchu **intoko**].  
 [back 3NNOM.SG= leave went] [not 3SG.OBL=look and just]  
 'The man looks as though he is angry with her, so he is leaving her behind and  
 does not even look at her.' (Crumrine 1961:22)

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<sup>11</sup> For the consultant, the word is *biná*, however, the original text have *bimá*, the same happens with *botana* wich in the original was *bétana*. With respect to the verb, the consultant used *yajak* instead of *itom áaneka* wich was in the original text, but it didn't make sense to the consulted Yaqui speaker. Therefore, the sentence presented here is a different sentence to that in the original text.

<sup>12</sup> These sentences contained *into kía* 'and really' instead of *intoko* 'and (just)'. However, they were ungrammatical for the Yaqui speaker which helped me in the verification of this data. For him, the sentence is perfectly acceptable if we have *intoko* in final position instead of *into kía* wich was in the original text. He considered that it is possible to use *intok kía* between the coordinated sentences, as shown next:

- (i) [ju'u ó'ou kía au='omtemta benási], [amáu a'a=tó'o  
 [DET man just 3SG.OBL=angry like] [back 3NNOM.SG= leave  
 simlataka], [**intok kía** káa áu bitchu]  
 went] [and just not 3SG.OBL look.PRS]  
 'The man looks as though he is angry with her, so he is leaving her behind and does not even look  
 at her.'
- (ii) ju'u a=téaka-me [tuisi a'a= súa-e] [**into** náke-ka  
 DET 3NNOM.SG-owns-REL [well 3NNOM.SG=care-IMP] [and love-GER  
 [á'a= bitchá] [**intok kía** káa-beta áma kíkímútúa ].  
 [3NNOM.SG=see] [and just no-one there go.in.allow]  
 'The owner (said): take well care of it and loving it, see it and just don't let enter anyone.'

- (35) ju'u a=téaka-me [tuisi a'a=súa-e] [into náke-ka  
 DET 3NNOM.SG=owns-who well 3NNOM.SG=care-IMP and love-GER  
 á'a=bitchá] [káabeta áma kíkímútúa **intoko**].  
 3NNOM.SG=see.PRS [no.one there go.in.allows and.just]  
 'The owner (said): take well care of it and loving it, see it, and just don't let enter  
 anyone.' (Crumrine 1961:23)

The next example shows how the coordinator can occur in final position; both sentences have the coordinated particle in final position. It is important to observe that the coordination in the last sentence is *intoko*,<sup>13</sup> whereas it can be *into* 'and' after the first sentence:

- (36) [...ápo a'a= tú'ute **into**] [a'a=bá'atúa **intoko**].  
 [...3SG3NNOM.SG= clean and] [3NNOM.SG=waters and]  
 '...And he cleans it up and he waters it.' (Crumrine 1961:23)

An important question is why and when *intoko* occurs in final position. The answer is related to the several functions that *into(ko)* 'and' can take: the above examples show that *into(ko)* in addition to express coordination, introduces an additional meaning: 'and just'. It functions as adverb too.

Another important fact is that the coordinator can appear in final position of a coordinated sentence, and the particle *boetuk* 'because' introduces the sentence:

- (37) [inime kábuim ne am=tá'áya] [**boetuk** ne júébenasi  
 [these mountains 1SG 3NNOM.PL=know] [because 1SG many.times  
 'ám= bit-la **intoko**].  
 3NNOM.PL=seen-PFV and]  
 'This mountains, I know them and because I have been through here so many  
 times.' (Crumrine 1961:23)

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<sup>13</sup> The consultant used the particle *intoko* in these examples; however, the original text only has *intok*. This could be due to variation in the use of Yaqui language. The text from Crumrine was published in 1961, and the speaker was giving the information in 2000-2002. There are several generations of difference between consultants.

- (38) ...[**bóetuk** bá'a jú'ebenáe-ka-n **intok**] [ité intok aet  
 ...[because water much.was and] [1SG moreover on.it  
 kia jiba paséalo restémcha réjtem]...  
 just always joy.wandering traveling.as traveled]  
 ...'And because much water was there. And moreover we traveled about it just as  
 though always joy-wandering...' (Crumrine 1961:38)

Finally, *into* can be in final position accompanied by elements which usually go in initial position too: *into juchi* 'and again', and *ian into* 'and now'. Look at the contrast inside of the example (39). It shows the occurrence of *juchi* 'again' and *int-uchi* 'and again' in final and initial position. The example (40) shows *ian intoko* 'and now' in final position.

- (39) [pá'akun yéu nóité-ka] [kúj-taú sejtul nóité-ka **int-uchi**]  
 [outside out go-GER] [cross-DIR once go-GER and-again ]  
 [**juchi** nótte-ka] [**int-uchi** bemélasí **júchi** nótte-ka]  
 [again return-GER] [and-again anew again return-GER]  
 [hum puétau í'an kikte-k **int-uchi**].  
 now door now stands-PST and-again]  
 'Again returning, and again one more time returning, and again now he stands in  
 front of the door.' (Crumrine 1961:24)
- (40) [ápo a'a éa-po a'a= páttáika] [áma  
 3SG 3SG.POSS will-LOC 3NNOM.SG=closed there  
 [káá yéu wéye **ian intoko**].  
 not out walk now and  
 'He determined to close it, and now he doesn't want to come out.' (Crumrine  
 1961:32)

Summarizing: *into(ko)*<sup>14</sup> can be in final position under certain circumstances: a) when it functions more like an adverbial than as a simple coordinator; in this case, it means

<sup>14</sup> It is important to mention here that *intoko* can be considered the full form of the coordinator. In Yaqui it is common for full forms emerge in final position or in isolation. For example, the demonstrative *inii'i* 'this' in (i) must appear in its full form because it is at the end, after *jitasa* 'what'; however, if it is not at the end it can be in its short or in its full form as indicated in (ii).

(i) ζjitása inii'i?                      (ii) ζinii('i) jitása?  
 What is this?                              What is this?



‘and just’, b) when another particle such as *boeytuk* ‘because’ introduces the sentence, it has to be in final position. It is common to find the coordinator in final position forming a kind of compound such as *int-uchi* ‘and again’<sup>15</sup>.

### 3.1.2 Other uses of the particle *into*

In general, we can say that *into(ko)* functions as a coordinator, however, as we perceive from the data of *into(ko)* in final position, the Yaqui particle is more than a single coordinator. The next examples show that *into* has the meaning of ‘and more’, ‘and more(over)’; i.e. in addition to their coordination feature, it is like an adverbial particle. This meaning was attested in four cases: a) when *intoko* is final position, b) when *into(ko)* is in second position, c) when *into(ko)* is after the negation *kaa*, d) and when *into(ko)* is after the particle *--su* ‘and’. The distribution of *into(ko)* with this meaning is not clear from the obtained data. I leave this matter open for now. When *intoko* has the mentioned meaning and a coordinator with the ‘and’ meaning is required, it must be used with the particle *--su* ‘and’, as shown in (44).

- (41) [báj-ta juébenaku yuku-mak], [ju’u báso yu’in tobóktila **intoko**]<sup>16</sup>.  
 grass-NNOM.SG where.much rain-COM DET grassplenty risen and.more  
 ‘And the grass, with the rain, has come up high.’ (Crumrine 1961:20)

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<sup>15</sup> A reviewer made the comment that these cases seem to be more instances of subordination than coordination. Although subordinators in Yaqui are in sentence final position, the examples seen here do not have the case marking usually associated with subordination. For example, a singular subject in a subordinated sentence is marked with *-ta* ‘NNOM.SG’ or, if it is a pronoun, it has to be in genitive case. But if we look at example (37), we can see that both subject pronouns are in nominative case as expected in coordination. However, from the data is clear that *into(ko)* is more than the single logical coordinator ‘and’.

<sup>16</sup> Again, the original text only has *intok*, but the consultant used *intoko* in this construction.

- (42) [áma jumak ápo wáíwa bó'oka]. [Júmak ramáa-po],  
 [there maybe 3SG inside lying]. Maybe ramada-LOC  
 [káá **into** bó'o-bae-kai].  
 [not more lie-INTT-SUB]  
 'He is inside lying down; not wanting to lie down in the ramada anymore.'  
 (Crumrine 1961:29)
- (43) [bóetuk bá'a jú'ebenáe-ka-n intok]. [Ité **intok**  
 [because water much-PST-CONT and]. We moreover  
 áet kia jiba paséalo restémcha réjtem]  
 on.it just always joy.wandering traveling.as traveled  
 ...'And because much water was there. And moreover we traveled about it just  
 as though always joy-wandering...' (Crumrine 1961:38)
- (44) **í'án-su intok** empo káa im yúm jó'e-báe-te-k (o) **júni'i**  
 now-and more 2SG not here tiredness rest-INTT-COUNT-COND even  
 'And now if you don't want to rest here even.' (Crumrine 1961:16)

### 3.1.3 Other particles that indicate 'and' coordination

There is another particle used to indicate a continuation in the discourse which has a similar meaning that the particle *into* has. It is the particle --*su* 'and', however its use is restricted to the following contexts:

It is a suffix and it is affixed to nominals and pronominals. It is used on interrogative and declarative constructions:

- (45) inepo-su 'and I'  
 empo-su 'and you'  
 aapo-su 'and (s)he'  
 itepo-su 'and we'  
 eme'e-su 'and you'  
 bempo-su 'and they'
- (46) inepo kaa ye-yena, ¿empo-su?  
 1SG not RED-smoke, you-and  
 'I don't smoke, and (do) you?'

- (47) [ito am= bit-bae-o **intok**] [bempo-su biná<sup>17</sup> botana  
 [1PL 3NNOM.PL see-INT-when and] 2PL-and this side  
 itom ane'e beas yajak...].  
 1PL are of arrived.PL.PST  
 'And since we wanted to see them, they came over to this side were we are...'  
 (Crumrine 1961:21)

It was found affixed to adverbials, such as *ian* 'now' and *che'awa* 'much'. The meaning can be that of 'more(over)' attested with the particle *into* 'and'.

- (48) **i'an-su intok** empo kaa im yum jo'e-bae-te-k(o) juni'i.  
 now-and more 2SG not here tiredness rest-INTT-COND even  
 'And now if you don't want to rest here even.' (Crumrine 1961:16)
- (49) in kaba'i che'awa-su awi lobolai **intok** pappeya...  
 1SG.POSS horse much.more fat round and active...  
 'My horse is much fatter and round and is very active...' (Crumrine 1961:20)

### 3.1.4 Setting the problem

There are several interesting aspects about Yaqui coordination. In this section I am going to focus on three central aspects: a) *into* 'and' breaks the unity of the second coordinated sentence, this aspect is a problem for theories which suggests that the coordination has a flat structure, b) *into* 'and' has adverbial characteristics. I will show that it shares several properties that other Yaqui adverbials have. Therefore, we can consider that *into* 'and' is adjoined to the sentence where it appears. This aspect is important if we want to explain appropriately the distribution of the *into* coordinator in an OT framework, c) *into* can co-occur with other coordinators. This fact suggests that this

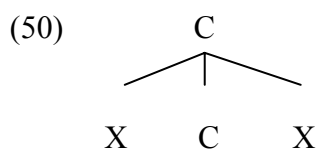
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<sup>17</sup> For the consultant, the word is *biná*, however, the original text have *bimá*, the same happens with *botana* wich in the original was *bétana*. With respect to the verb, the consultant used *yajak* instead of *ítóm áaneka* wich was in the original text, but it didn't make sense to the consulted Yaqui speaker. See the footnote (2) of this chapter.

particle has characteristics of a subordinator and/or compound. This aspect shows that the limits between coordination and subordination in Yaqui are not always clear cut.

### 3.1.4.1 *Into* ‘and’ breaks the unity of the coordinated sentences

As we have seen before, the Yaqui logical coordinator *into* ‘and’ occurs in unusual patterns which present a challenge to theories that suggest that coordination has a flat structure (among others: Najit 1979, Peterson 2004, Yuasa and Sadock 2002), such as shown in (50).



Where C stands for coordinator and X for maximal projections.

We have seen that a very common way to coordinate two sentences in Yaqui is that indicated in (51), where the coordinator appears within the second sentence; more precisely, after the subject or after a topicalized element. In other words, the coordinator breaks the unity of the second sentence. As examples (51) and (52) indicate, the coordinator cannot appear between the two sentences. Therefore, a flat structure like (50) does not seem to be appropriate for (51):

(51) [Joan b<sup>w</sup>ika-k]      [Maria      **into**    ye'e-ka].  
       [John sing-PST]    [Mary      and      dance-PST]  
       ‘John sang and Mary danced.’

(52) \*[Joan b<sup>w</sup>ika-k]      **into**    [Maria ye'e-ka].  
       \*[John sing-PST]    and      [María dance-PST]  
       ‘John sang and María danced.’

In section 3.2.3.6 of this chapter I am going to argue that *into* does not have clitic properties that would account for its second position placement in a sort of surfacy,

morphophonological way. That is, the second-position placement of *into* is a syntactic fact, not a morphophonological one. The second position is clearly a position that follows a topic slot of some kind. Clitics don't care whether they attach to topics or some other kind of XP.

### 3.1.4.2 *into* 'and' is like other adverbials

Another important characteristic of the particle *into(ko)* 'and' is that it has adverbial properties. Remember that it has sometimes the meaning of 'and more(over)'. When we look at the adverbial particles, we realize that many of these particles have the same distribution as *into*, in what follows I give evidence of this distribution.

Sentential adverbials tend to occur in second position, for example, the adverb *jumak* 'maybe':

- (53) **intok júmak**            ne      káa                    am=                    téakaate-k(o)  
 And   maybe            1SG   not                    3NNOM.SG=        find-COND

          inepo    intok    ino                    tá'aruka'ate-k(o).  
 1SG            and    REF    lost-COND

'And perhaps if I don't find them, and if I get lost...' (Crumrine 1961:16)

- (54) **ini      jumak**            chú'u  
 This    maybe            dog  
 'Maybe this is a dog' (Crumrine 1961:18)

Other particles tend to occur in sentence final position, including the following: *jajáni* 'perhaps', *ja'ani* 'somehow' (expresses doubt), *juni(i)* 'even', and *o'oben* 'nevertheless', *jumaku'u* 'probably':

- (55)    ilí      pánim            o      jitasa                    puáto-ta                    **jajáni.**  
 little    bread            or      whatever                plate-3NNOM.SG        perhaps  
 'There is perhaps a little bread, or something on the plate.' (Crumrine 1961:18)

- (56) *níí wíkit juma techóe ja'ani.*  
 this bird might do-bad-omen somehow  
 'This bird might be of bad omen somehow.' (Crumrine 1961:35)
- (57) ...(*uusi-m*)... *yum jo'oe-bae-te-k juni...*  
 ...(boy-PL)... tiredness rest-INTT-PST even  
 ...'(boys)... if you want to take a rest...' (Crumrine 1961:14)
- (58) *ite jumak [wói-ka] [[káa báe-ka] juni'i] nábuhtia kátne.*  
 1PL maybe two-GER [[not want-GER] even beyond go-FUT...  
 'Maybe we, there being two of us, even if we don't want to, will go beyond...'  
 (Crumrine 1961:14)
- (59) [*puéta-ta ala etapóka o'oben [ta bea].*  
 Door-NNOM.SG is opening nevertheless but already  
 [into *kaá eu weáma*]... [*jaisa jumák jume auláta-kai*].  
 and not out walk what might the have be-  
 SUB  
 'Nevertheless he opened the door but he doesn't want to walk out...' (Crumrine 1961:32)
- (60) [*két né hunen hiáu-su] [=hú sénu yoéme i'im*  
 Yet 1SG thus saying-and] [=DET one man here  
*táawa-báe jumakú'u*].  
 remain-POT probably  
 'And now, as I was saying, one man probably wants to remain here.' (Crumrine 1961:14)

As shown above, adverbials such as *junii* 'even' or *juni'i kía* 'even just' goes in final position. Actually, in the following sentences *into* 'and' and those particles cannot co-occur in final position (if we try to use the full form *intoko* with *junii* or *juni'i kía* in final position, the sentences (61) and (62) becomes ungrammatical). In other words, *into* has to occur in first or second position, but not in last position.

- (61) [*into=né káá jabe-m néu yaják juni*]...  
 and=1SG not someone-PL 1SG.OBL come.PL.PST even  
 'And even if someone does not comes by...' (Crumrine 1961:17)

- (62) [[*into júnén aú = jía*] *káá áma yóeka'ate-k juni'i kía*].

And            thus    3SGOBL=say   not    there   escape-PST    even   just  
 ‘And thus say to him, I did not escape.’ (Crumrine 1961:23)

### 3.1.4.3 *Into* ‘and’ can co-occur with another coordinators

With respect to the occurrence of *into* with other coordinators, we can see that it can appear with (*bwe*)*ta* ‘but’ which is a logical coordinator and which position is restricted to occurring only between two full sentential clauses. This fact tells us that the function covered by *into* in these cases is not that of a real coordinator. According to Oirrow (1987) two real coordinators cannot co-occur. These facts show that subordination and coordination are not clear cut in the Yaqui language, or that *into* ‘and’ leads a double life as both coordinator and subordinator.

(63) [iní'i má ó'ou ían kábái-ta áma yéu tójak  
 This so man now horse-NNOM.SG there out bring-PST  
 jum kóra-po] [intok á-et ja-já'amu]  
 there fence-LOC and on.it RED-mounting  
 [ta intok ket juni únna wákila]  
 but and yet even very skinny  
 má chea káá 'a=túa yúumaka.  
 so more not 3SG.OBL= truly unable.to.carry  
 ‘This man now brought the horse inside the fence and is attempting to mount it but it (the horse) is very skinny so the horse is unable to carry him.’ (Crumrine 1961:37)

(64) into inwain mesa-po juka jí'ik  
 And hither table-LOC DET.NNOM.SG needle  
 wáata máne-ká-m-ta jáiwa ta intok  
 basket stands-PST-NMLZ-NNOM.SG searching but and  
 ju'u áma wáate-wa-me into ka=jita áma áu-k.  
 DET there want-PASS-NMLZ and no-something there exist-PST  
 ‘She came up here to the table searching for the basket where it stands, but what she wants in the basket is not there.’ (Crumrine 1961:24)

(65) náiya'a-báe-m-ta benásia tá into jumak  
 Burn-INTT-NMLZ-NNOM.SG like but and might  
 jume báji ibáktim káá juébena.

those three armfuls not enough  
 ‘As though he might want to build a fire, but maybe the three armfuls are not enough.’ (Crumrine 1961:33)

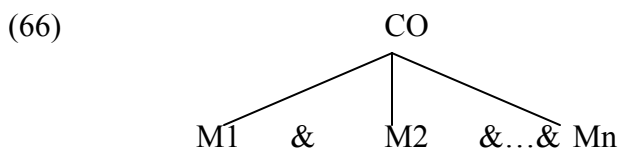
### 3.2 Proposal about the structure of coordination

In this section I propose that Yaqui coordination patterns can be explained if we adopt a set of alignment constraints, faithfulness constraints, and markedness constraints, together with the idea that *into* ‘and’ is an adjunct that attaches to an XP category.

#### 3.2.1 Background

##### 3.2.1.1 The syntactic structure is not flat

Let us begin with a single definition of coordination taken from Dik (1997:89). Within a functional framework, Dik defines coordination as “a construction consisting of two or more members which are functionally equivalent, bound together at the same level of structure by means of a linking device”. As a general symbolization he proposes the following schema (Dik 1997:89-90):



Where “CO” is the coordination as a whole, the “M”s are the members ( $n > 1$ ), and “&” symbolizes the “linking device” by means of which members are combined.

As we can see, those members are combined at the same structural level, i.e., none of the members M is in any way subordinate to, or dependent on any of the others. They are all on a par, and equal members of the coordination CO.







them, and the coordinator is then either attached at the beginning of the second phrase or at the end of the first phrase. The intonation break is indicated by a comma” (Haspelmath 2004:7). The next example, of two coordinated sentences, indicates that after the break the coordinator and the second conjunct form a unit:

- (71) Jabé           biba-m           jину-k, [into jabé       vino-ta           jину-k].  
 Someone       cigar-PL       buy-PST [and someone wine-NNOM.SG       buy-PST]  
 ‘Someone bought cigars and someone bought wine.’

**Extrapolation** This criterion requires checking whether the language allows “extrapolation to the end of the clause, so that, the construction is no longer continuous” (Haspelmath 2004: 7). The following contrast indicates that in Yaqui the coordination can be continuous or discontinuous. If it is discontinuous, the coordinator always goes with the second conjunct. Therefore, the pattern of (73) is that shown in (69a):

- (72) ineпо [kowí-ta       into       misí-ta]       bwuise-k.  
 1SG [pig-NNOM.SG and       cat-NNOM.SG] grasp-PST  
 ‘I caught the pig and the cat.’
- (73) ineпо [kowí-ta]                       bwuise-k       [into       misí-ta].  
 1SG [pig-NNOM.SG]                       grasp-PST       [and       cat-NNOM.SG]  
 ‘I caught the pig and the cat.’

The survey of Yaqui coordinated structures indicates that it is asymmetric. The coordinator always goes with the second conjunct. These examples indicate that Yaqui uses both types of structures (4a) and (4c). Any account of Yaqui must reflect this property of coordination. In other words, we have to consider the internal configuration of coordinated constituents.

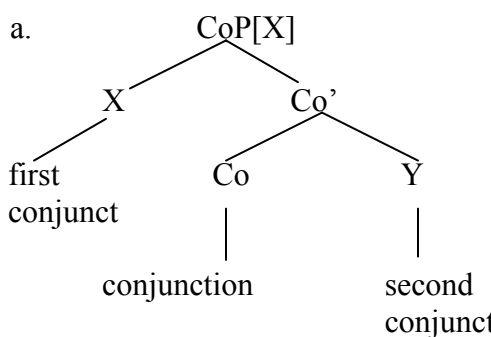
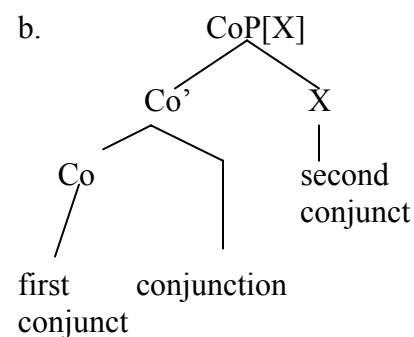
### 3.2.2 Alternatives for the structure of coordination

One thing that has to be clarified is the structure of coordination. Across time researchers have proposed several alternatives. In this section I confront those approaches in the light of Yaqui data. As we have seen before, Yaqui clausal coordination is the following.

- (74) [Joan bwiika-k] [María into ye'e-ka].  
 [John sing-PST] [María and dance-PST]  
 'John sang and María danced'

To repeat, the coordinator appears after the subject of the second clause. The first type of proposal is a flat tripartite structure (see Chapter 2) which we have seen is unable to explain sentences such as the one above.

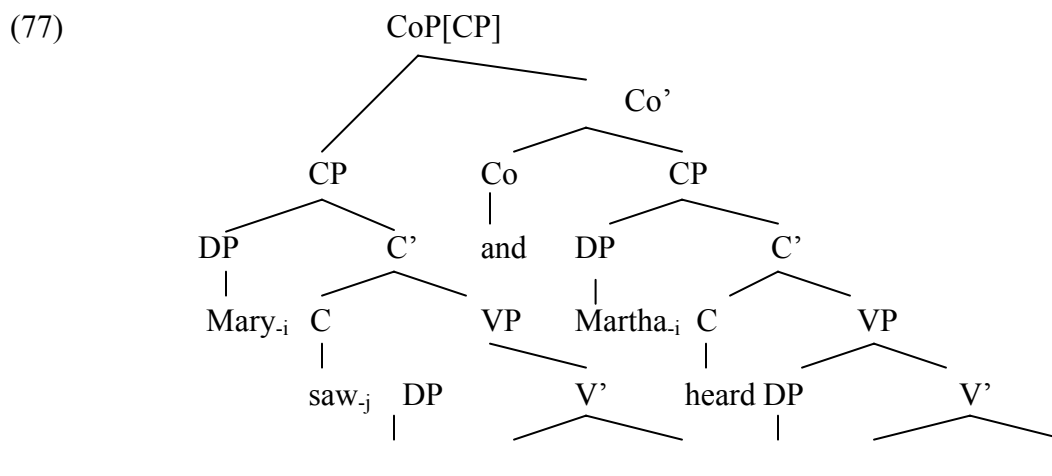
In the second place we have proposals where the coordinator is a head. For example, for Johannessen (1998:107) the structure of the conjunction phrase is as in (75). It is headed by a conjunction generated from the lexicon; moreover, the conjunction needs two arguments in order to have a saturated phrase (i.e. it needs a conjunct as a complement and another as a specifier). So, the conjunction phrase follows the principles of X-bar theory.

- (75) a. 
- b. 

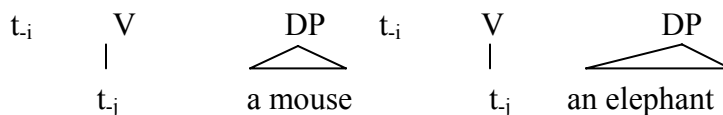
Johannessen (1998:175-76) suggest that conjuncts are attached to CoP by a transformation: coordinate-alpha. This operation is general in the sense that it can coordinate any category with any other category at any stage in the syntactic derivation. From her point of view, a clausal coordination is the union of two CP's.

An important assumption is that the input structures on which coordinate-alpha operates are fully projected CPs. She gives the example (76) of clausal coordination and shows its derivation in (77) (Johannessen 1998:177). Because she follows the minimalist approach, whether the CPs were attached to the CoP before or after their separate derivations is impossible to tell; either is possible. In other words, the two CPs might have been underived or derived at the point where CoP attached to them.<sup>18</sup> The CoP, strictly speaking, is now a CoP[CP]. As we can see, the derivation follows the principles of X-bar theory and has implicit principles of deletion.

(76) Mary saw a mouse and Martha heard an elephant.



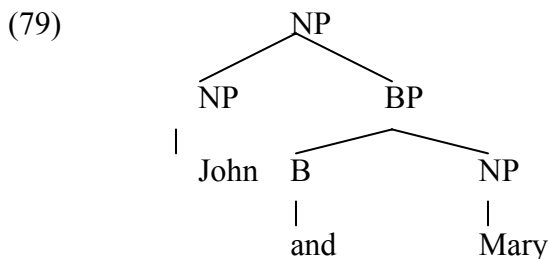
<sup>18</sup> As a reviewer appropriately notes, in the Minimalist Program it would be important that the CPs be fully-derived structures before coordination applied to them, because to insert unarticulated CP nodes into the structure and then insert material inside the CP would violate a constraint called 'Extended Target' which states that material may be added to a tree at its root. Because OT is not a derivational model and Gen can generate an infinite set of candidates, this constraint can be dispensed with.



According to this theory, a prediction for Yaqui coordination is that the coordinator will appear between the two sentences. But, as seen before, such structure is not correct:

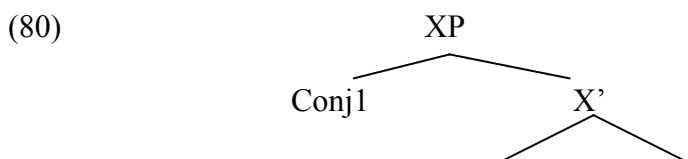
- (78) \*Joan bwiika            **into**    María ye'eka.  
       John sing.PST            and    María danced.PST  
       'John sang and María danced.'

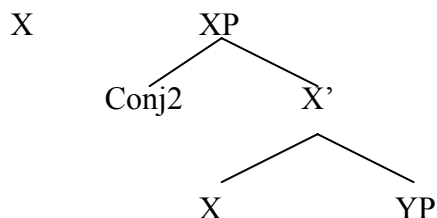
Another alternative is found in Munn (1987, 1993) who suggests that coordination relates to a Boolean phrase. The conjuncts form a strong unit together. In the representation, the conjunction B (for Boolean) takes the second conjunct as a complement, and projects to a BP which is in turn a complement of the first conjunct or adjoined to it:



Again, the prediction from this structure is that Yaqui would have the pattern in (78) which does not hold in the language.

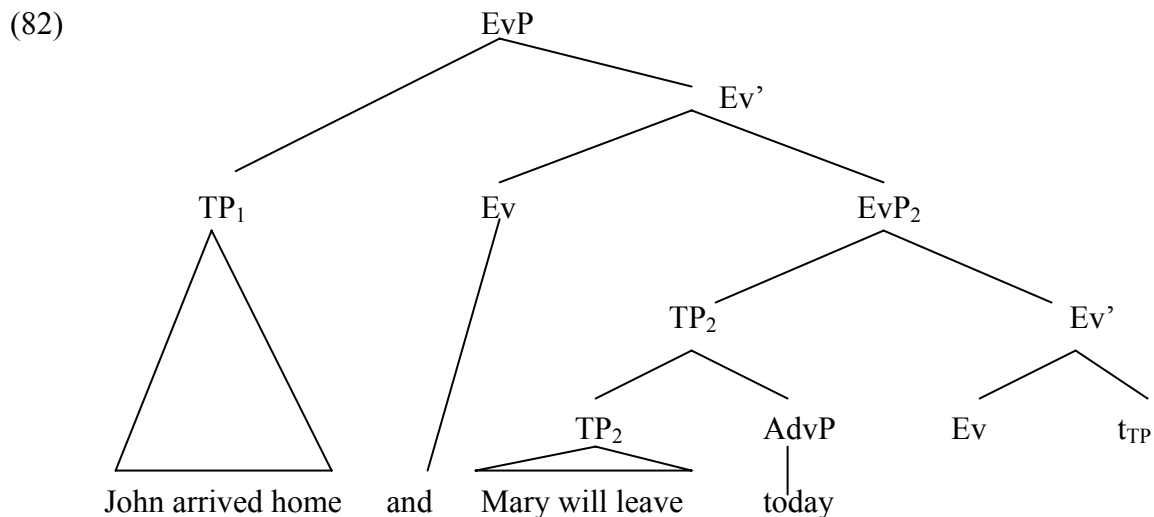
A more recent approach is that of Camacho (2003), who considers that the structure of coordination is the following one (Camacho 2003: 52). On it, the first X represents the conjunction, the second X any sentential functional projection, such as INFL, Agr, etc.





For him, clausal coordination implies the coordination of two events. Thus a sentence like (81) would be derived as in (82) (Camacho 2003: 56-57). In the derivation, Camacho establishes that “the lower event head will not rise to the specifier of the higher head, unlike in the case of adverbs. This yields independent temporal readings for conjoined clauses but co-dependent temporal readings for adverbial coordination” (Camacho 2003: 56).

(81) John arrived home and Mary will leave today.

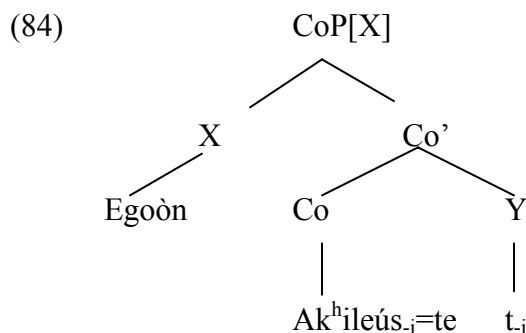


This proposal predicts again that the events will be tied in overt syntax by a coordinator between both sentences. That is not the pattern of Yaqui coordination.

However, an interesting constraint proposed by Camacho is that events must share speech time, a constraint that will be used in my analysis of the Yaqui coordination.

On the other hand, Agbayani & Golston (2002) explore coordination constructions where the coordinator is in second position. They follow the idea that the coordinator is a head (Munn 1993, Johannessen 1998, Progovac 1998, Zoerner 1999) and they agree with the idea that the basic coordinate structure is universally the same. In their work they explore three types of coordination structures that cover, according to them, all types of coordination structures: full form, clitic form and asyndetic form. For them the enclitic pattern is derived from asyndetic movement of the first word of the second conjunct to the position commonly occupied by the clitic coordinator. For example, the nominal Greek coordination in (83) is derived as shown in (84) (Agbayani & Golston 2002: 4):

(83) Egoòn Ak<sup>h</sup>ileús=te  
 I Achilles=and  
 'I and Achilles'



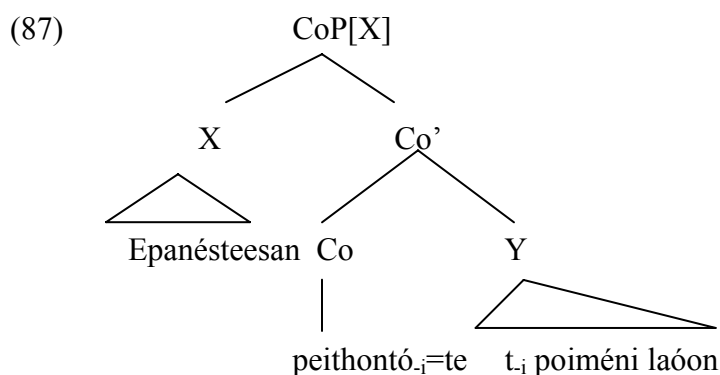
This kind of movement in Greek is obligatory in order to avoid an ungrammatical construction. So, Agbayani & Golston rule out the following type of structure because the clitic coordinator stands alone:

(85) \*Egoòn =te Ak<sup>h</sup>ileús  
 I =and Achilles  
 'I and Achilles'

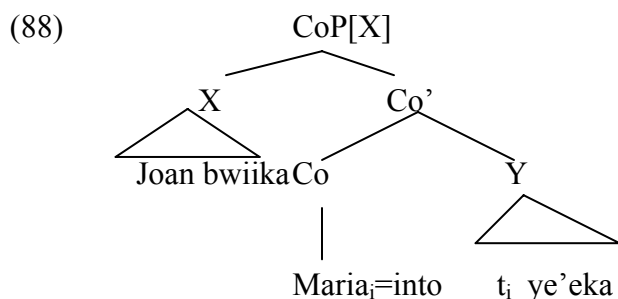


This explanation is extended to clausal coordination. Then the next example (Agbayani & Golston 2002: 4) can be represented as indicated below. In the representation the verb in the second conjunct moves up and attaches to the clitic =*te* ‘and’, satisfying the clitic requirements of the coordinator. They do not mention if there is a topic requirement on the element that adjoins to the clitic in the Greek construction, but examples like that in (83) are probably evidence that the coordinator is prosodically deficient and the movement is just for clitic reasons.

- (86) Epanésteesan peithontó=*te* poiméni laón  
 After arose persuaded=*and* shepherd of.army  
 ‘They arose after him and persuaded the leader of the army.’



Thus, from this point of view, the coordinator *into* ‘and’ in sentence (74) (represented in (88)), should be considered a phonological clitic prosodically dependent in a way that first position coordinators in the language are not:



However, there are many reasons to reject the idea that *into* ‘and’ is an enclitic. If it were an enclitic there would be two initial predictions: the first one is that two coordinated nouns will have this coordinator in final position, as shown in (89), and, second, that a structure with *into* ‘and’ between the nouns would be ungrammatical (90). But contrary to predictions, (89) is ungrammatical and (90) is grammatical (the result is opposed to examples (83) and (85) of Greek):

(89) \*inepo Joan into.  
       1SG John and  
       (‘I and John’)

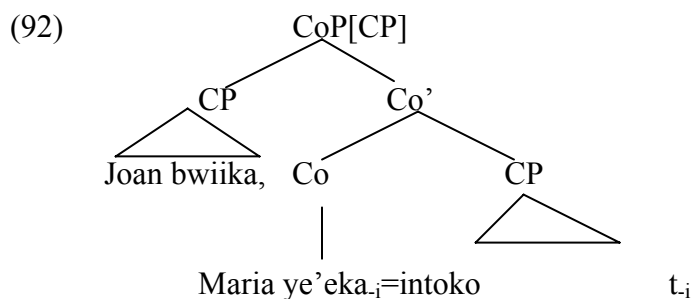
(90) inepo into Joan.  
       1SG and John  
       ‘I and John’

There is more evidence that shows that it is inadequate to take *into* ‘and’ as a clitic: a) *into* ‘and’ can appear in first position (i.e. between clauses. See data in section 3.1 of Chapter 3), an unexpected behavior if were a clitic; b) the coordinator *into* ‘and’ has stress by itself and consists of a minimal word in Yaqui (bimoraic trochaic foot). i.e. it is not prosodically deficient. This is contrary to Yaqui clitics which are monosyllabic and unstressed (Escalante 1990); c) The coordinator *into* ‘and’ can be a host for other clitic particles: ex. /into e’e/ ‘and not’ > inte’e ‘and not’ (see sentence (70) in this chapter); d) Coordinated noun phrases can be discontinuous, and when that happens, the coordinator always appears with the second conjunct, crucially, preceding the second conjunct. That fact indicates that it does not form a unit with the first conjunct (in other words, it is not attached to the first conjunct and can not be a clitic); e) it is not the closest element in the second conjunct which “moves” to first position in Yaqui. The position can be occupied

by any topicalized element; finally f) the coordinator *into* has several allomorphs: *into*, *into-k*, *into-k-o* ‘and’. The last one is used in clausal coordination and tends to appear more frequently in final position (i.e. after the second sentence). These claims are supported in the next section.

If *intoko* ‘and (moreover)’ tends to occur in final position, then, from Agbayani and Golston’s (2002) proposal it is the entire CP which has to move in order to satisfy the clitic requirements of *intoko*:

- (91) Joan bwiika-k, María ye’e-ka intoko.  
 John sing-PST Mary dance-PST and  
 ‘John sang and (moreover) Mary danced.’



This movement seems to be inappropriate for Yaqui: the particle *into* ‘and’ is not a clitic, therefore, if movement happens, it has to be for other reasons. Dedrick and Casad (1999) hold that coordination in Yaqui is a pivot for topicalized items. My analysis of the language indicates that this conception is correct. Therefore, if the coordinator *into* ‘and’ is an adjunct and not a head, the kind of structures present in coordinated clauses must be different.

### 3.2.3 The coordinator *into* ‘and’ is not a head

#### 3.2.3.1 Evidence from affixation that *into* is an adjunct

The Yaqui coordinators come from several sources and they present characteristics similar to adjuncts. In the next section I show how some coordinators take suffixes. This fact strongly suggests that the coordinator *into* ‘and’ must be grouped together with adverbials (at least for the adjunction process). Although they are lexicalized, it is possible to recover evidence that they were inflected. In the next section, I show the type of affixes that *into* ‘and’ and other coordinators and adverbs can take.

#### 3.2.3.2 Coordinators which take suffixes

In this work I restrict my study to analyze constructions where *into(k-o)* is involved. When compared with other logical coordinators such as *bweta* ‘but’, *o* ‘or’ --*ko* ‘if...then’, we realized that *into* seems to be a lexicalized form where the verbal affixes --*k* and --*o* are attached to a coordination base. Moreover, *into* ‘and’ is not alone in relation with this characteristic: other sequential coordinators present this special property.

If we review the sentences in this chapter, we can find that there are three allomorphs for *into* ‘and’: *into*, *intok*, and *intoko*. The distribution of them is not clear and it seems that the differences are blurred. However, there is a preferred position for the allomorph *intoko* ‘and’ in final position. In this final position, the allomorph usually has the

additional meaning ‘and just’, ‘and moreover’. Examples with the allomorph *into*, *intok* and *intoko*<sup>19</sup>:

- (93) in            uusi    tajkaim        bwaka,        in            saila  
 1SG.POSS      son    tortillas      eats           1SG.POSS    brother  
**into**    ‘a=  
 and    3NNOM.SG=    see.PRS  
 ‘My son is eating tortillas and my brother is looking at him.’
- (94) jume    bemela            jamuchim    emo    chike-k        **intok**  
 DET.PL young            women                            3REFL comb-PST    and  
 ejpejopo      emo    bicha-k.  
 mirror            3REFL see-PST  
 ‘The young women combed themselves and saw themselves in the mirror.’
- (95) aapo    juka            bweu    tetata                            puate-k        **intoko?**  
 3SG    DET.NNOM.SG big    stone-NNOM.SG                            charge-PST    and  
 ‘And did she charge the big stone?’

### 3.2.3.3 Origins of the Yaqui coordinators

The coordinators and subordinators in Yaqui show that they come from several sources, the most common being demonstratives and locatives. They show inflection with the suffixes *--k*, *-o*, *-n*, etc.. This is true for several adverbs which introduce sentences.

Many of these forms are in free variation, as we can see in the groups formed below:

- (96) juna’a                            ‘that’  
 juna-k                                ‘then’  
 juna-k-o                              ‘then’  
 junak-sa-n                            ‘then, and then’
- (97) junu’u                            ‘that’  
 junu-e-n                              ‘thus’  
 junu-e-n-i                            ‘really’

---

<sup>19</sup> The allomorph *intoko* can appear between the conjuncts. See example (107) of this chapter.

- (98) jun-i 'so, thus'  
 jun-tu-k 'for that reason'  
 jun-tu-k-o 'well...'  
 jun-tu-k-sa-n 'that is why'  
 jun-e-n 'thus'  
 jun-e-n-su 'that's why'
- (99) ju'u 'the'  
 ju-le-n 'that's why'  
 ju-le-n-sa-n 'that's why'  
 ju-le-n-tu-k-o 'for that reason'  
 ju-ma-k 'it would better if'  
 ju-ma-k-sa-n 'may be so'
- (100) jeewi 'yes'  
 jeewi-ma 'yes, then'
- (101) chuuba 'for a while'  
 chuba-la 'momentarily'  
 chuba-la-tu-k-o 'in a while'  
 chuba-tu-k-o 'in a little while'
- (102) ini'i 'this'  
 ini-a-n 'in this way'  
 ini-le-n 'in this way'
- (103) iyi-le-n<sup>20</sup> 'in this way'  
 iyi-min-su 'over there'

It's easy to see that the coordinator *into* 'and', is affixed with *--k*, and *--o*. Those are the only suffixes which *into* 'and' can host.

- (104) into 'and'  
 into-k 'and'  
 into-k-o 'and (just)'/ '(moreover)'

---

<sup>20</sup> Synonym of *ini-an*.







(108)	juna-k-o	‘then’
	jun-tu-k-o	‘well...’
	ju-le-n-tu-k-o	‘for that reason’
	chuba-la-tu-k-o	‘in a while’
	chuba-tu-k-o	‘in a little while’
	into-k-o	‘and (just/when/moreover)’

### 3.2.3.6 Evidence from cliticization

Agbayani and Golston (2002) suggest that if a coordinator occurs in second or final position, it must be treated as a clitic. However, as we can perceive next, this claim is not supported by Yaqui. There are several reasons for this: clitics in this language tend to be monosyllabic, as exemplified by the following pronouns and their respective clitic forms.

(109)	Full Pronoun	Clitic Form	Gloss
	inepo	=ne(e)	‘I’
	itepo	=te	‘we’
	aapoik	=a	‘him/it’

*Into* ‘and’ is itself a base for cliticization. The next examples show that *into* ‘and’ functions as a host for several types of particles. This process, although not obligatory, is very common. The next examples show that *into* ‘and’ merges with particles such as *ju’u* ‘that’ and *juchi* ‘again’, *jitasa* ‘what’, *juka* ‘DET.NNOM.SG’, *i’an* ‘now’, *aapo* ‘3SG’, *im* ‘here’, *um* ‘there’, *i’i* ‘this’, *au* ‘to him’, among others.

(110)	a)	into-ju’u	int-u’u	‘and that’
		into-juchi	int-uchi	‘and again’
		into-jitasa	int-itasa	‘and what’
		into-juka	int-uka	‘and the (NNOM.SG)’
	b)	into-i’an	int-i’an	‘and now’
		into-aapo	int-apo	‘and (s)he’
		into-im	int-im	‘and here’
		into-um	int-um	‘and there’
		into-i’i	int-i’i	‘and this’
		into-au	Int-au	‘and to him’

The examples are the following:

- (111) i'an **int-u'u** ilí chu'u buásiata yoa-ka.  
 Now and-that little dog tail-NNOM.SG wag-GER  
 'And now that little dog wagging his tail...' (Crumrine 1961:18)
- (112) i'an **int-uchi** jumee bakoch-im a'abo itóm= jariu  
 Now and-again those snake-PL here 3PL.OBL= search:PRS  
 'And now the snakes come on this side to look for us.' (Crumrine 1961:21)
- (113) ...kaa nooka int-uchi, **int-itasa**<sup>21</sup> jumak ama joa sisime.  
 ...not talking and-again and-what maybe there do going.HAB  
 '...and, he doesn't say anything, and what he is doing there (we don't know).'
- (114) ian **int-uka** pueta-ta apo mijmo  
 Now and-this.NNOM.SG gate-NNOM.SG 3SG himself  
 a'a= pattai-ka into kaa='a= tetea-ka.  
 3NNOM.SG= close-PST and not=3NNOM.SG= find-PST  
 'And now, though having shut the gate himself, he cannot find it.' (Crumrine 1961:33)
- (115) **inti'an** into jumee naba'aso-m jume kuusim ae  
 And-now and those blade-NNOM.SG that rosaray with.it  
 a'a= kutukta-ne-'u kaa te-teaka.  
 3NNOM.SG= carve-FUT-REL not finding  
 'And now he cannot find the knife with which he carves the beads.' (Crumrine 1961:24)
- (116) **int-aapo** intok kaa ju'unea jitasa jumak a'a= waata-'u  
 And-3SG and NEG know.PRS what maybe 3NNOM.SG=want-REL  
 o a'a= ju'uneyea.  
 or 3NNOM.SG=know  
 'And maybe he does not know what does he want or it knows.' (Crumrine 1961:27)
- (117) i'an **int-im** ramaata puntta-po weeka yen-taite-k.  
 Now and-here ramada end-LOC standing smoke-INCEP-  
 PST

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<sup>21</sup> In the original text the word was *intasa* 'and what', but my consultant rejected it as ungrammatical and only accepted *intitasa* 'and what'.

‘And now, standing at the end of the ramada, he has start to smoking.’ (Crumrine 1961:30)

- (118) **int-um** kari beju’uku kate-ka.  
 And-there house leaves-LOC sit-GER  
 ‘And he sits under the leaves.’ (Crumrine 1961:27)
- (119) ian **int-i’i** sami-t jikau tajtajti weam-su-ka...  
 Now and-this adobe-LOC up through walk-TERM-SUB...  
 ‘And now, after having walked up and down on the adobe ...’ (Crumrine 1961:36)
- (120) **int-a-u** bo’oka a’a=bitchu ili chu’u.  
 And-3NNOM.SG-DIR lay.down.PST 3NNOM.SG= look.PRS little dog  
 ‘And the little dog laying down besides him and is looking at him.’ (Crumrine 1961:37)

It is important to realize that *into* ‘and’ may fuse with those particles independently if it is in first, second or final position. In other words, it does not occupy those positions for clitic reasons. We have to remember that the process is optional and that *into* can occur in those positions without the union of any particle.

The next example shows *into-(j)uchi* ‘and again’ three times in initial position:

- (121) [**int-uchi** juka yoem-ta sim-su-k] [**int-uchi** jaku’ubo  
 and-again that man-NNOM.SG go-CONT-PST and-again somewhere  
 suma yeu sika].  
 maybe out come.PST  
 [**int-uchi** ko’om yepsaka jum ramaata betuk]  
 and-again down arrived DET ramada under  
 ‘And when the man was gone again, it (the bird) again came from somewhere.  
 And again arrived going under the ramada.’ (Crumrine 1961:36)

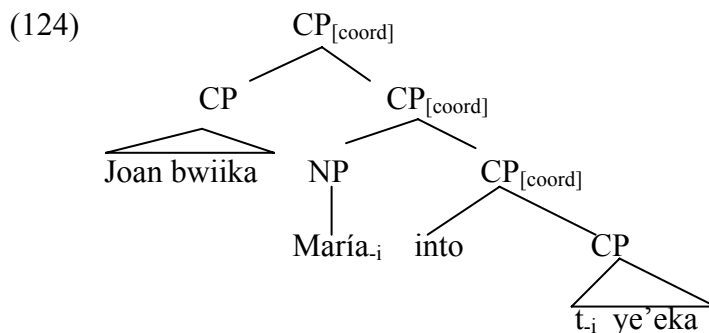
The final example illustrates *into-im* ‘and here’ in second position.

- (122) ‘amak **int-im** káwi ááka-m-ta bétukún  
 Sometimes and-here mountain pithaya-NMLZ-NNOM.SG under  
 bicha matánsa-ú bichá saká’a-ne.  
 toward Matanza-DIR toward go-FUT  
 ‘And sometimes we would go toward the mountain which has pitaya on it to the slaughter house.’

### 3.2.4 The structure of coordination: A proposal

At the beginning of this chapter we supported the view that a coordinated sentence groups the coordinator with the second conjunct, as in (123). Clausal coordination now is represented as in (124). On it, the subject of the second conjunct has been fronted because of topicalization and is adjoined to CP. An additional adjunction process introduces a full CP (first sentence). This adjunction process is licensed by the presence of the feature [coord] in the CP.

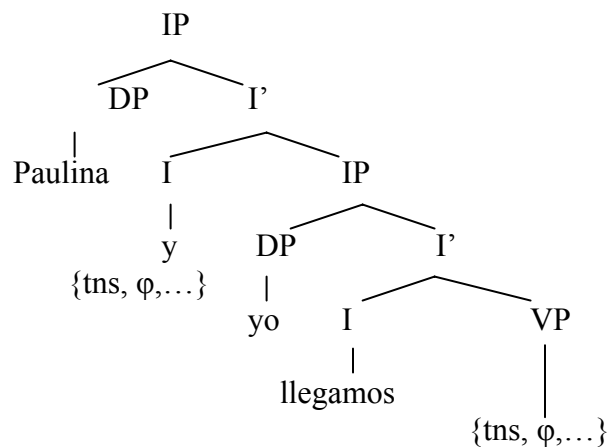
(123) S1 S2  
[Joan bwiika] [Maria into ye'eka]



This explanation for Yaqui coordination contrasts with proposals such as that of Camacho (2003). He considers that coordination is a functional head (whereas here it is considered as an adjunct). For example, subject coordination in Camacho's proposal holds that if a subject in a simplex sentence is licensed as a specifier of INFL, each conjunct in a conjunction of subjects will be licensed as a specifier of an INFL-like propositional projection. The coordinated subject from a Spanish sentence (125) is represented in (126) (Camacho 2003:39):

(125) Paulina y yo llegamos.  
Paulina and 1SG arrive.PST.1PL  
'Paulina and I arrived.'

(126)



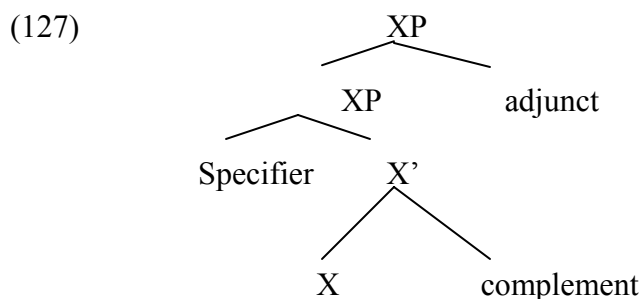
There are several assumptions that are important to keep in mind. He assumes that a conjunction will copy all the features from another category present in the numeration. Depending on the position of the conjunction, a different licensing head with different feature specifications will give the conjunction content. In this sense, the distribution of conjoined elements will depend on their licensing position in the tree. Because my approach is framed within OT, many of these assumptions can be avoided and will have to be derived from the interaction of constraints.

### 3.2.4.1 Coordination as a process of adjunction

In this section I show that Yaqui coordination can be treated as an adjunction process. The idea that coordination is a head has been rejected by many authors, e.g. Peterson (2004), Munn (1993), among others.

In this work I adopt the position that coordination particles are adjuncts. As such they are sisters of phrasal nodes, as pointed out by Adger (2003: 11): adjunction ensures that there is a parallelism between adjuncts and specifiers and complements. Complements are sisters of lexical items; specifiers are sisters of  $x'$ -nodes and adjuncts are sisters of XP

nodes. A common view about adjunction is that adjoined elements are incorporated into a sentence but not via the checking of selectional features. The adjunction is represented as follows:

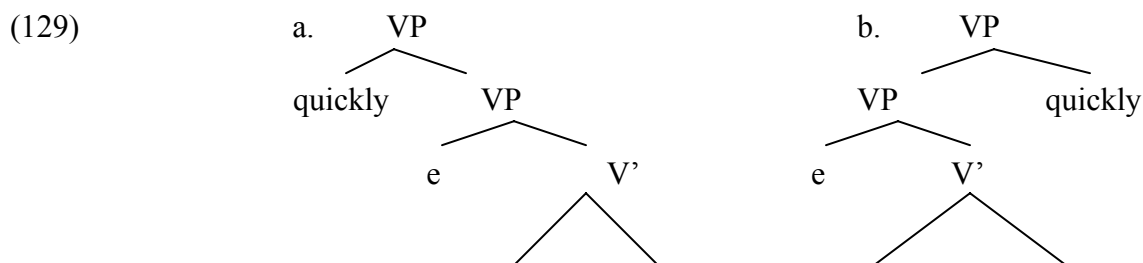


Taking coordination as adjunction has the advantage that the phrasal level of XP does not change, since there is no satisfaction of a selectional feature. This conception of coordination explains its ability to conjoin different categories. The proposal conforms to the principles of X'-theory. In addition, the assumption that adjunction is not linearized explains why a coordinator like *into* 'and' in Yaqui can appear in the positions seen before: first, second, and last in a sentence containing it.

Adger (2003: 113) gives evidence that in English an adjoined item like the adverb *quickly* can appear on either side of the phrase. The next sentences are represented as follows:

(128) a. Quickly kiss Anson.

b. Kiss Anson quickly.



kiss                      Anson                      kiss                      Anson

If a coordinator is an adjunct, then the prediction is that it would have this property. Yaqui data confirm that this happens. The next example contains a coordinator in initial position (sentence (19) is repeated here as (130)). I am assuming here that the coordinator is a member of the second conjunct:

- (130) [aapo kuchureo]    [**into** aapo bochareo].  
       [3SG fisherman]    [and 3SG shoemaker]  
       ‘He<sub>i</sub> is a fisherman and he<sub>i</sub> is a shoemaker.’

But a coordinator can also appear in final position. The next example is a question with a coordinator in final position (of course, it is not a simple coordination, as in (130)):

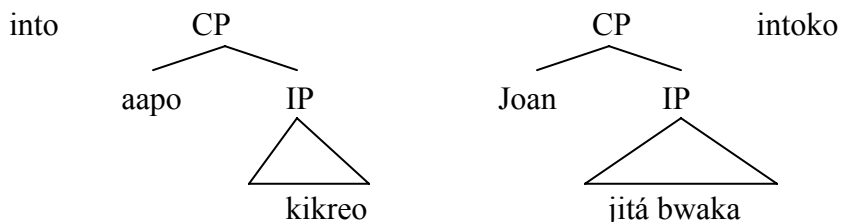
- (131) Joan    jitá    bwa-ka                      intoko?  
       John    what    eat-PST                      and  
       ‘And what did John eat?’

In addition, the coordinator can appear in second position (sentence (21) is repeated here as (132)):

- (132) [aapo kuchureo]    [aapo **into** bochareo].  
       [3SG fisherman]    [3SG and shoemaker]  
       ‘He<sub>i</sub> is a fisherman and he<sub>j</sub> (another guy) is a shoemaker.’

If the coordinator is not a head but an adjunct, then these patterns are easily accounted for because it would be able to occupy different positions in a sentence. The coordinator can be represented as follows (I assume that the wh-question in (133b) is in situ). In the structure, the coordinator introduces a feature [coord] which enables the CP to acquire another adjoined category: the first conjunct.

- (133)            a.                                            b.                      



The feature [COORD] is different from that of [+PROP] proposed by Camacho (2003:38). Camacho suggests that a coordinator introduces a propositional feature [+prop]. The conception here is that [coord] is a feature that allows the adjunction of another element which would be taken as the first conjunct. In that sense, the feature does not imply necessarily that we have a propositional feature in each conjunction process. For Camacho (2003), the conjunction is a sentential functional head that has propositional content. In the present approach, it is not a head. There are cases where coordination of two nouns does not necessarily imply (at least directly) a feature [+prop]. Sentence (134) contains two coordinated nouns, but they are not the main argument, although, they are coreferent with it. Being optional, we can think that they are adjoined to a projection inside the sentence.

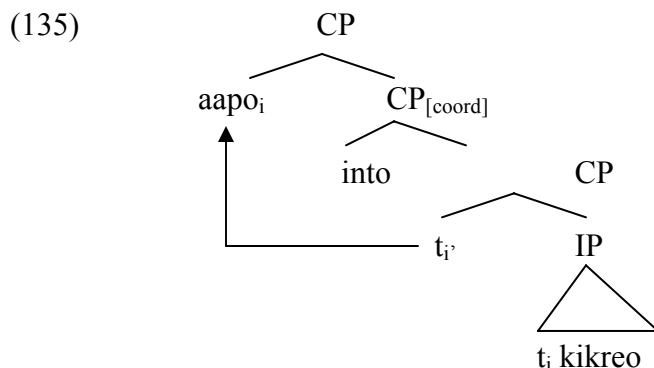
- (134) bempo<sub>i</sub>        yeu-sajak,    [joan into peo]<sub>i</sub>.  
          3PL            out-go.PL.PST [John and Peter]  
          ‘They left, John and Peter.’

The facts about *into* ‘and’ in second position are related to topicalization (Dedrick and Casad 1999). The topicalized NP is fronted. Then the subject in the example has an extra movement up, adjoining to the extended CP<sup>22</sup>:

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<sup>22</sup> Heidi Harley (p.c.) suggests that this example shows that adjuncts and specifiers are not distinct, or need not be distinct. This is a big issue in many approaches to X-bar theory and related phrase structure theories (e.g. Kayne’s LCA-type approach, Chomsky’s Bare Phrase Structure) which deserves more research.





There is additional evidence for this: *into* ‘and’ occurs in positions where sentential adverbs tend to occur in the language: initial second and final position (already exemplified at the beginning of this chapter)

Under this approach, a coordinator is not a head, it is an adjunct and as such it is not assigned  $\theta$ -roles (nor does it assign any theta-roles itself). Therefore, it is adjoined to some projection. This approach predicts that coordinators are optional (at least in cases like (136), although in cases like (130) they are obligatory), because (in a minimalist approach) the operation *Adjoin* is not an operation which is triggered by feature-checking requirements. Look at the contrast between (131) and (136). The sentence (131) has the coordinator *into* ‘and’ adjoined to it, but the sentence (136) does not, there the coordinator is optional.

- (136) Joan *jitá* *bwa-ka*?  
 John what eat-PST?  
 ‘What did John eat?’

It also predicts that coordination may be recursive, since the output of the adjunction operation is still the same category to which the coordination adjoins:

- (137) Peo *into* Maria *into* Joan *emo* *ta’a*.  
 Peter and Mary and John 3REFL know.PRS  
 ‘Peter and Mary and John know each other.’

It has been observed that coordination is asymmetrical in the sense that the coordinator seems to be more tied to the second conjunct than to the first one (Ross 1967). Researchers like Camacho (2003:60) keep this observation in order to explain conjoined verbal projections. At the beginning of the derivation Camacho takes the coordinator to be part of the second conjunct, although at the end of the representation he holds that “the conjunction does not form a constituent with the second conjunct, contrary to standard assumptions...there is no single constituent that groups all conjuncts and the conjunction leaving all other nodes out” (2003: 69). The Yaqui data indicate that we have to evaluate whether the coordinator really groups with the second conjunct. At first glance, this seems to be true. A coordinator in the second and in the final position suggest that idea. Therefore, the proposed structure must reflect that fact. On the other hand, we have discontinuous coordination in the language. The coordinator always goes with the second conjunct but not with the first one:

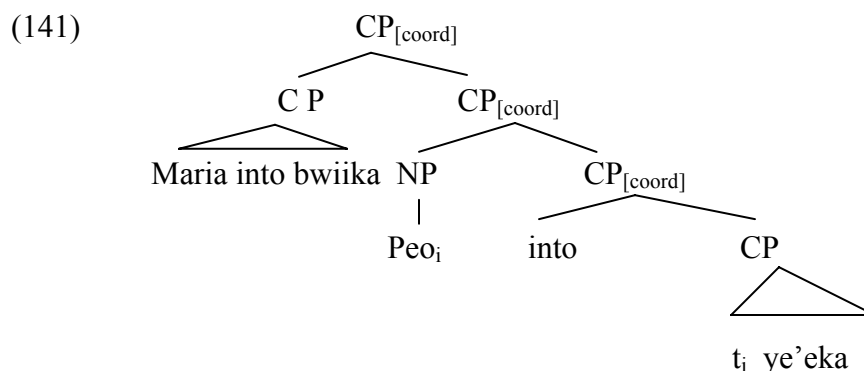
- (138) [inepo Sandra-ta                    tu’ule]                    [into Eva-ta]  
          [1SG Sandra-NNOM.SG        like.PRS]                    [and Eva-NNOM.SG]  
          ‘I like Sandra and Eva.’

In addition, it is possible to have a coordinator in both sentential conjuncts. The request in the next sentence could be answered by the following sentence. It is shown that each sentence has its coordinator after each subject (although the first one is not a pure coordinator).

- (139) [bweta nee=tejwa],                    [jitasa into                    yaa-ka-mme?  
          [but 1SG.OBL=tell.PRS]                    [what and.more                    do-PST-3PL  
          ‘But tell me, and what else did they do?’

- (140) [María into bwika-k] [Peo into ye'eka].  
 [Mary and.more sing-PST] [Peter and dance-PST]  
 'And moreover Mary sang and Peter danced.'

Therefore, the structure for that coordinated sentence is shown in (141).<sup>23</sup>



In the structure, there is only one slot for coordination. This conception contrasts with that of Agbayani and Golston (2002), who allow the introduction of empty positions in order to allow the introduction of another conjunct. The following sentence presents a contrast with the next one. As we can see, the presence of a coordinator between both clauses is possible. The sentence is not so bad, (the informant's intuition is that it introduces a kind of emphasis or redundancy), as shown below:

- (142) [Joan bwiika-k] [Maria into ye'e-ka].  
 [John sing-PST] [Mary and dance-PST]  
 'John sang and Mary danced.'
- (143) ?[Joan bwiika-k] into [Maria into ye'eka].  
 [John sing-PST] and [Mary and dance-PST]  
 'John sang and Mary danced.'

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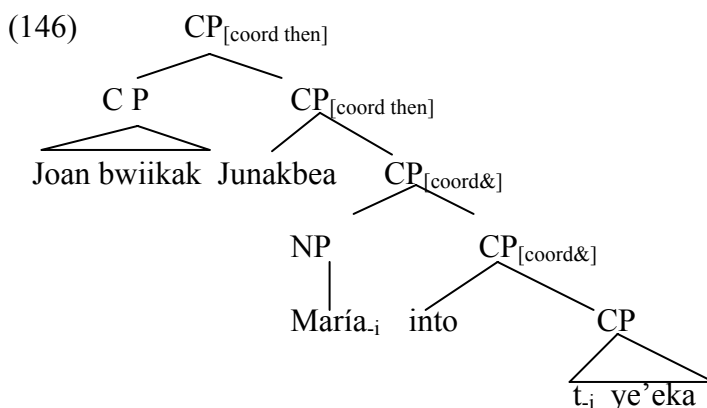
<sup>23</sup> Agbayani & Golston (2002) assume that a coordinator is a head, therefore, in their representation, when the specifier of the coordinator is full, an abstract coordinator is needed for licensing the addition of another conjunct. However, for Yaqui, it would be hard to maintain the well-formedness of that kind of structure for sentences like (142).

The movement of a topicalized element to initial position (leaving the coordinator in second position) is obligatory. Therefore, sentences like the following are ungrammatical due to the lack of movement of the topicalized noun *Maria* to first position in the second conjunct.

- (144) \*[Joan bwiika-k] [into Maria ye'eka].  
 [John sing-PST] [and Mary dance-PST]  
 'John sang and María danced.'

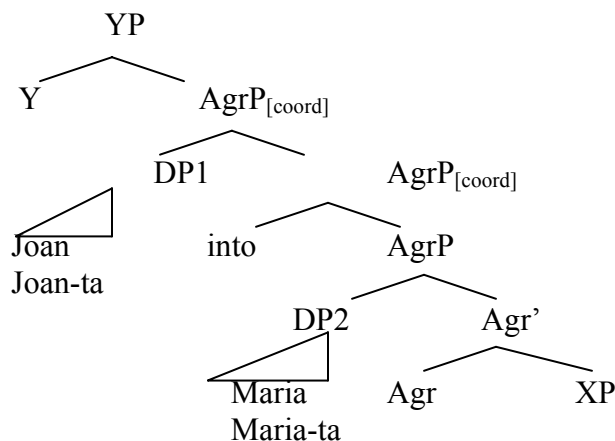
However, when we introduce a sequential coordinator, the sentence is totally grammatical. The two coordinator meanings do not enter into conflict and the sentence is grammatical. For that reason, we need to specify that the input contains information about the type of coordinator that adjoins to the syntactic structure. For now let's assume that there are features [COORD &] and [COORD then]. The cooccurrence of two logical coordinators can be ruled out then by a constraint that forbids such a situation.

- (145) Joan bwiika-k [junakbea Maria into ye'e-ka].  
 John sing-PST then Mary and dance-PST  
 'John sang and then María danced.'



On the other hand, the coordination of subjects (*Joan into Maria* 'John and Mary') and objects (*joan-ta into maria-ta* 'John-NNOM and Mary-NNOM') is indicated next. The representations stand for Agr<sub>s</sub>P or Agr<sub>o</sub>P respectively:

(147)

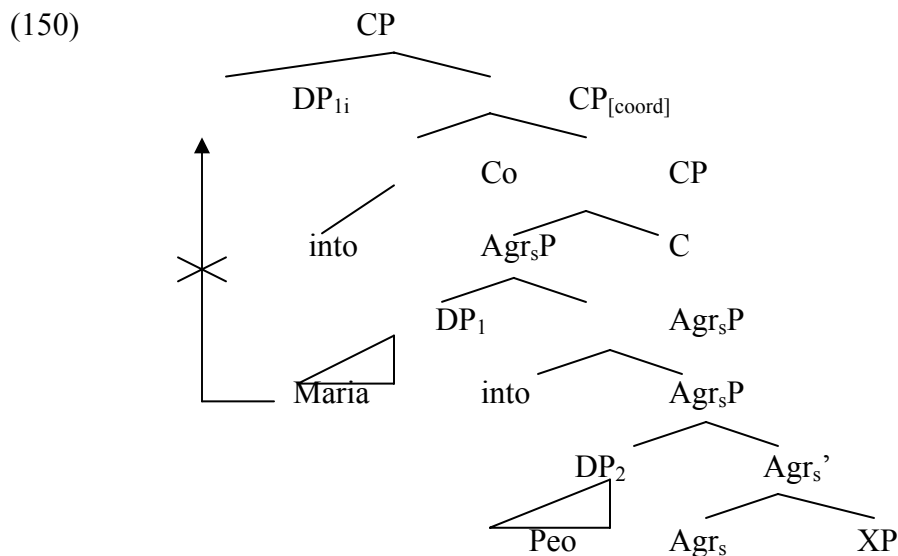


Another pattern of coordination in the language is the following. A coordinated subject in the second conjunct forces the occurrence of the coordinator in first position.

(148) [Joan bwiika-k] into [[Maria into Peo] ye'e-ka].  
 John sing-PST] and [[Mary and Peter] dance-PST]  
 'John sang and Mary and Peter danced.'

(149) \*[Joan bwiika-k] [[Maria into Peo] into ye'e-ka].  
 [John sing-PST] [[Mary and Peter] and dance-PST]  
 ('John sang and Mary and Peter danced.')

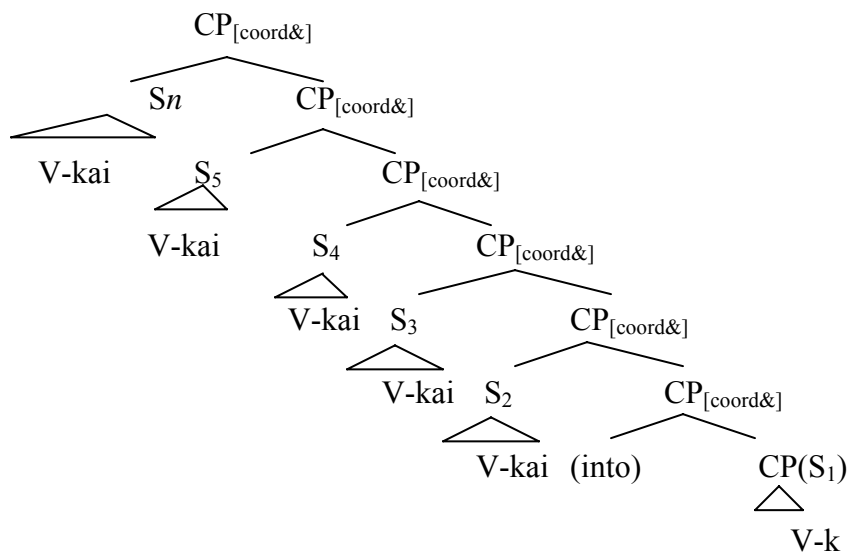
This can be explained using the Coordinate Structure Constraint (CSC) (Ross 1967), as follows. There is no way in which both DP<sub>1</sub> and DP<sub>2</sub> may be fronted. They occupy two different slots. The only option would be to move the first DP<sub>1</sub>, but that would produce the ungrammatical structure with repetition of two coordinators: \*[DP<sub>1</sub> into into DP<sub>2</sub>] violating the well known coordinate structure constraint (CSC) which forbids movement of a single conjunct from the conjoined structure.



Finally, the pattern of coordination with serial verbs in the following, which shows unbalanced coordination, can be explained by the multiple adjunction of clauses as indicated in the representation.

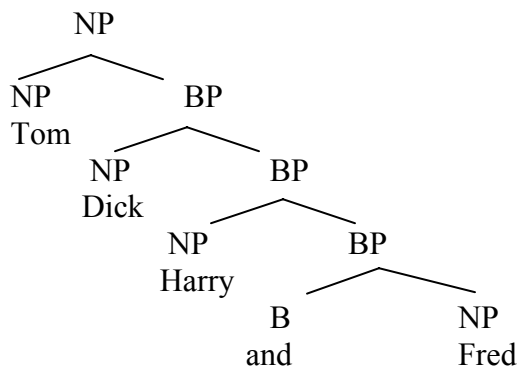
- (151) u        yoi            a=karo-wa            tucha-kai, uka            liacho-ta  
 DET (white).man 3SG.POSS=car-POSS stop-SUB DET.NNOM.SG bag-NNOM.SG  
 tobokta-kai a=kari-wa            bicha wee-taite-kai uka  
 take-SUB 3SG.POSS=house-POSS toward go.SG-begin-SUB DET.NNOM.SG  
 pueta-ta etapo-kai, (into) a=jubia-wa            tebotua-k.  
 door-NNOM.SGopen-SUB (and) 3SG.POSS=wife-POSS greed-PST  
 ‘The man stopped his car, took the bag, went to his house, opened the door and greeted his wife.’

(152)



This view of the coordination process is very close to Munn's approach (1993), who treats iterative conjunction by simply adjoining to a Boolean Phrase (BP). Thus conjoined NPs of the sort *Tom, Dick, Harry and Fred* are represented as indicated in (153) (Munn 1993:24):

(153)



Munn considers that coordinate structures are adjunction structures containing a Boolean Phrase. However, by using a set of constraints we are able to derive the effects seen in coordinate constructions and establish some relations with subordination. It is a common claim that it is hard to distinguish coordination from subordination. What this

means in an OT framework is that several constraints interact in such a way that we seem to have a continuum between coordination and subordination.

### 3.3 Analysis in OT

In this section I propose several constraints in order to explain the variation in the position of *into* ‘and’ in the Yaqui language. I begin with the explanation of the unmarked pattern of coordination: *into* ‘and’ in second position.

#### 3.3.1 *Into* in second position

The basic patterns of sentence coordination with *into* ‘and’ in second position are repeated here for convenience. Some of the examples are taken from Dedrick and Casad (1999). The coordinator is obligatorily placed in second position and can not appear in these cases in first position<sup>24</sup>.

- (154) a) Joan      b<sup>w</sup>ika-k      Maria **into** ye’e-ka.  
           John      sing-PST      Mary and      dance-PST  
                   John sang and Mary danced.’
- b) \*Joan      b<sup>w</sup>ika-k      **into** Maria ye’e-ka.  
               John      sing-PST      and      Mary dance-PST  
                   ‘John sang and Mary danced.’

---

<sup>24</sup> Recall that the coordinator *into* ‘and’ can be affixed with *-k* and *-o*. These suffixes, when attached to verbs, mark tense: *-k* indicates perfective aspect whereas *-o* has temporal adverbial characteristics and can be glossed as ‘when’. However it is not clear if these suffixes add the same temporal distinctions when attached to *into* (see Dedrick and Casad (1999)). For example, the sentence (154a) have the following two variants, without apparent change in meaning:

- (i) joan b<sup>w</sup>ika-k      maria      into-k      ye'e-ka  
       joan b<sup>w</sup>ika-k      maria      into-ko      ye'e-ka  
                   'John sang and Mary danced'



In the next example, the sentence contains a postpositional phrase (Post-P). The coordinator can appear in second position (after the Post-P), or in first position (before the Post-P), as illustrated below:

- (155) a) *juchi* ‘ae=koni-la                      sik-aa **jo’o-t**                      **intok** ‘a’a=siise-k.  
 Again 3NNOM.SG-circle-ADV go-PPL back-LOC and 3SGPOSS=urinate-PST  
 ‘And having going around him, it urinated on his back.’
- b) *juchi*                      ‘ae-konila                      sik-aa **intok ho’o-t** ‘a’a= siise-k.  
 again                      3NNOM.SG-circle-ADV go-PPL and back-LO 3SG.POSS=urinate-PST  
 ‘And having going around him, it urinated on his back.’

Looking at the data in (154) and (155a), we can be tempted to say that the coordinator *into* ‘and’ behaves as a clitic and occupies the second position for clitic reasons, as suggested by Behloul and Harbert (2002) for other languages where the coordinator is in second position. But we have seen that it is difficult to hold for Yaqui that *into* ‘and’ occupies the second position for clitic reasons (see section 3.2.2). Yaqui, as most Uto-aztecan languages, is a “second position language”; but, as Steele (1979) pointed out, second position is derived from the importance of the first position. She made the following observation (Steele 1979: 244):

[T]opic, negation, quotatives, modals and tense tend to occur in sentence initial position, if sentence initial position is defined to include second position. Obviously, not all these elements can occur initially within a single sentence. One factor in the relative position of these elements is the potential that the scope relationships between these elements will be manifested in their surface relationship to one another.

In OT terms, we can say that these elements tend to be aligned to the leftmost edge of a clause, but there being only one left edge, only one of them can be the winner. That amounts to saying that we have a set of constraints responsible for the allocation of lexical elements to positions.

The question to be addressed, then, is what forces the allocation of the Yaqui coordinator *into* to second position? The answer seems to be related to topicalization processes. Steele (1979: 245) suggests that the second position of modals, tense, quotatives, and possibly negatives is that topic tends to win the battle for first position.

A similar observation was made by West (1986) in her analysis of the Tucano adversative coordinator (which appear in second position too): *purica* ‘but’ occurs following simple noun phrases (noun, pronouns, or locative words) when these acts as the topic of the sentence" (West 1986: 202). In Tucano, sentence topic is marked by a clause constituent’s being moved to the first position in the sentence.<sup>25</sup>

Dedrick and Casad (1999) suggest that Yaqui coordination is a “topic pivot” for topicalized nouns and temporal adverbs. Although this observation is basically correct, it is not entirely accurate because we predict that given a non-topicalized (subject) noun, a sentence like (154b) (repeated here as (156)) would be grammatical. However that does not happen.

(156) \*Joan            b<sup>w</sup>ika-k            **into**    Maria ye’eka.  
          John            sing-PST            and    Mary dance-PST  
                           (‘John sang and Maria danced.’)

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<sup>25</sup> The normal word order of Tucano and Yaqui is SOV. Other languages that place coordinators in second position such as Gaviao and Guaraní seem to be SOV too. I didn't investigate the correlation between word order and this phenomenon but it seems to be worth pursuing it. I leave this issue for further research.

Steele (1979) mentions the hypothesis that topics tend to solidify in sentence initial position. Given that the Yaqui language is SOV, I propose that, in absence of another topicalized element, subjects are interpreted as the topic of the sentence and must be fronted. This fact will force “the movement” of the subject from the Spec of IP to a higher position in the clause. In OT terms, the candidate with the subject in first position and the coordinator in second position will be chosen by the ranked constraints. The candidate with coordinator in first position and the subject in second position will be ruled out as non optimal.

That this approach is right is supported by the fact that in the presence of another topicalized element, the subject doesn’t rise to initial position whereas the topicalized element does. The sentence in (157a) contains a topicalized (therefore, fronted) direct object. It contrasts with the sentence (157b) where the subject is raised to topic position (adjunction to CP, in this case). Note that the order in (157) is the unmarked SOV:

- (157) a) [Joan        bocham jinu-k] [**panim    into** Maria am=nenka-k]  
           [John        shoe.PL buy-PST] [bread    and    Mary 3NNOM.PL=sell-PST]  
           ‘John bought shoes and bread Mary sold it.’
- b) [Joan        bocham        jinu-k ]        [**Maria into** panim nenka-k].  
           [John        shoe.PL        buy-PST]        [Mary    and        bread    sell-PST]  
           ‘John bought shoes and Mary sold bread.’

Following Grimshaw (1995) and Choi (2001), among others, I assume that topic and focus are marked in the input, such as illustrated below:

- (158) <sing (x), x=topic, x=John>

In what follows, I propose the constraints responsible for the patterns of Yaqui coordination. The first one is related to the topicalization process which places

topicalized elements at the beginning of the sentence. It is defined as follows and it belongs to the family of Information structuring constraints. It is a general constraint which I adopt from Lee (2001):

- (159) Top-L (Lee, 2001:81)  
Topic aligns left in the clause.

In order to be more concrete, let us define some members of the family of topics mentioned in (159) as follows:

- (160) Top-Subj  
A subject bearing a topic feature must align left in the clause<sup>26</sup>.
- (161) Top-Post-P  
A Postpositional Phrase (Post-P) bearing a topic feature must align left in the clause.

The constraint responsible for coordinators' allocation is defined as follows. It is derived from the function covered by a coordinator: it is the glue between two units (NP's, VP's, S's) and, therefore, must be at the leftmost edge of the following conjoined element<sup>27</sup>. The next constraint stands too for a family of constraints (languages usually have several coordinators).

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<sup>26</sup> Although these constraints resemble alignment constraints in phonology (McCarthy and Prince 1993, Prince and Smolensky 1993), it seems that they can not be defined in such terms. This is because the satisfaction of them doesn't relate to the measure of how far the elements in the candidates are from the edge. Suppose that in the hypothetical example in (i) the constraint A requires XP<sub>y</sub> to be fronted. A candidate like (ia) will be optimal, but the candidate (ib) which violates the constraint once, is not necessarily better than the candidate (ic) which violates the constraint four times.

(i)	Candidates	Constraint A
a. ☞	<b>XP<sub>y</sub></b> + XP <sub>z</sub> + XP <sub>u</sub> + XP <sub>v</sub> + XP <sub>w</sub>	
b.	XP <sub>z</sub> + <b>XP<sub>y</sub></b> + XP <sub>u</sub> + XP <sub>v</sub> + XP <sub>w</sub>	!*
c.	XP <sub>z</sub> + XP <sub>u</sub> + XP <sub>v</sub> + XP <sub>w</sub> + <b>XP<sub>y</sub></b>	!****

<sup>27</sup> This constraint is defined in a broad sense (family of constraints). Beyond admitting coordination of sentences, it allows coordination of two VP's (*eat* and *drink*), or two single NP's (*John* and *Mary*). In the

## (162) Coord-L

A coordinator must occupy the leftmost edge of XP.

The constraint that will place the coordinator *into* ‘and’ at the beginning of a coordinated sentence is defined as follows. I am using the word *into* for mnemonic reasons. The constraint is universal and not particular for Yaqui.

## (163) Into-L

A logical coordinator must be allocated to the leftmost edge of XP (S in this case).

From the data with *into* ‘and’ in second position, we can conclude that Top-Subj dominates Into-L. In other words, the family of Topicalization constraints must dominate Into-L. This is illustrated in the following table (164). The winning candidate contains the subject in Spec of JP, therefore, it doesn’t violate the highest ranked Top-Subj and, in spite of violating the lower ranked constraint Into-L, it emerges as optimal.

## (164) Tableau indicating the ranking Top-Subj &gt;&gt; Into-L.

Input: {Maria<Top>, into...}	Top-Subj	Into-L
a. $\curvearrowright$ CP[DP Maria <sub>i</sub> CP[C <sub>oor</sub> into IP[Spec t <sub>i</sub> ...]]]		*
b. CP[ $\emptyset$ CP [C <sub>oor</sub> into IP[Spec Maria...]]]	!*	

The data in (155), where *into* ‘and’ may be in first or second position, depending on topicalization facts, are explained too by ranking Top-PostP >> Into-L. In the following table, the input contains a Post-P (*ho’o-t* ‘on his back’) marked for topic. The winning candidate (165a) doesn’t violate Top-PostP because the Post-P, being marked for topic,

appears in the highest position in the projection of IP. The candidate (165b) does not violate the lower ranked constraint Into-L, but violates the higher ranked Top-Post-P, therefore, it is rule out as non-optimal.

- (165) Tableau indicating the ranking Top-Subj >> Into-L.  
The postpositional phrase is marked for topic in the input.

Input: {ho'o-t<Top>, into...}	Top-PostP	Into-L
a. $\text{CP}[\text{Post-P} [\text{ho}'\text{o-t}]_i \text{CP}[\text{Coord into...Post-P}[\text{t}_i] ]]$		*
b. $\text{CP}[\emptyset \text{CP}[\text{Coord into... Post-P}[\text{ho}'\text{o-t} ]]]$	!*	

### 3.3.2 *Into* in first position

This section shows that *into* 'and' occurs in first position, when there is not an XP marked for topic in the sentence. Interestingly enough, when postpositional phrases are not marked for topic, Top-Post-P is inert and the coordinator must appear at the beginning of the sentence. This is illustrated by the following table where the winning candidate does not violate any constraint.

- (166) Table illustrating the ranking Top-Post-P >> Into-L. The postpositional phrase is not marked for topic in the input.

Input: {ho'o-t, into,...}	Top-PostP	Into-L
a. $\text{CP}[\text{Coord into... Post-P}[\text{ho}'\text{o-t} ]]$		
b. $\text{CP}[\text{Post-P} [\text{ho}'\text{o-t}]_i \text{CP}[\text{Coord into...Post-P}[\text{t}_i] ]]$		!*

The explanation given for the possibilities for placing *into* 'and' relative to postpositional phrases can be extended to the following pattern of coordination. In the

example (167) the coordinator conjoins two clauses without an overt subject and, as the example indicates, it does not have to appear in second position:

- (167) tu'isi kaa aa ye'e            **intok** kaa aa            eteho,  
 good not able dance.PRS      and not able converse.PRS,  
 kia tene-ka kik-ne.  
 only mouth-SUB stand-FUT  
 'He was not able to dance well, and he was not able to tell stories very well, he would just stand there with his tongue in his mouth.'

The example (167) is explained by the absence of a topicalized element to be fronted in the conjoined sentence. The lack of an overt subject -which has been solidified as topic- implies that if there is not a topicalized element in the clause, the coordinator does not have to appear in second position in S.

### 3.3.3 Analysis of two coordinators

More challenging is the pattern where two lexical elements which usually function as coordinators are found in the same clause. The following example contains the sequential coordinator *junak* 'then' and the logical coordinator *into* 'and'. As exemplified, *junak* must always be in first position, *into* in second and the subject in third position.

- (168) a) *junak*        **into**    joan    kaa    yepsa-k.  
           then        and     John   not   arrive-PST  
           'And then John did not arrive'
- b) \**into*        *junak*    joan    kaa    yepsak
- c) \*Joan        *junak*    into    kaa    yepsak

The constraint responsible for the allocation of *junak* 'then' belongs to the family defined in (162). The constraint is defined as follows.

- (169) *Junak-L*  
 A sequential coordinator must be allocated to the leftmost edge of S.

The data in (168) suggest that Junak-L is ranked over Into-L. The following table shows that in the presence of an input containing both *junak* and *into*, the former always occupies the first position in S.<sup>28</sup> In the next table, the winning candidate (170a) does not violate the undominated constraint Junak-L, and, in spite of violating Into-L, it emerges as optimal. The candidate (170b) violates the undominated constraint Junak-L and is ruled out as non-optimal. If we reverse the ranking, we have the output of languages such as English and Spanish (*and then...* ; *y entonces...*).

(170) Tableau indicating the ranking Junak-L >> Into-L.

Input: {junak, into...}	Junak-L	Into-L
a. $\text{CP}[\text{Coord } \text{junak } \text{CP}[\text{Coord } \text{into } \dots]]$		*
b. $\text{CP}[\text{Coord } \text{into } \text{CP}[\text{Coord } \text{junak} \dots]]$	!*	

In order to explain all the data in (168), we need to appeal to another constraint which is defined below. It is derived from the observation that subjects tend to occur in the Spec of IP. In the minimalist framework this fact is attributed to Nominative Case marking (I assume a Split IP, where the higher projection is AGRs; for simplicity reasons, I only refer to the Specifier of IP):

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<sup>28</sup> The constraint Junak-L is dominated in languages such as Gavião and Guaraní. In the following example from Gavião (Stute 1986: 10) the demonstrative appears first and the coordinator second:

- (i) è            bó                    tá-máh            mató-á  
 that    connector (then) 3PL-DECL+PAST    3SG+show+FINAL  
 ‘Then they showed it.’



(171) Subj-SpecIP<sup>29</sup>

Subjects must check case overtly in the Spec of IP.

The pattern introduced in (168) is explained by the following table. We can see that the winner candidate is (172a). It does not violate the constraint which requires that subjects check Nominative Case in the Spec of IP. Its closer competitor (172b) has the subject in a higher position in the sentence and, therefore violates the constraint Subj-SpecIP and is ruled out as non optimal. It is important to realize that the evaluation over constraints requiring fronting of lexical elements does not count how far the lexical elements are from the edge. For example, in the optimal candidate (172a) the subject is twice as far away from the left edge compared with the candidate (172b), which has only one lexical element between it and the left edge. If the evaluation of those constraints were counting lexical elements, the candidate (172b) would be the winner. However, the evaluation process only looks at the satisfaction or non-satisfaction of constraints. Because neither candidate (172a) nor (172b) satisfied it, both are starred. The final decision in favor of (172a) is done by the lower ranked constraint Subj-SpecIP. With respect to the candidates (172c) and (172d) which contain the subject in first position, they are ruled out because Junak-L is ranked over Top-Subj and can not emerge as optimal. The candidates (172e) and (172f) which contain the coordinator *into* ‘and’ in first position, are out too because the constraint Junak-L dominates Into-L. The constraints Into-L and Subj-SpecIP are unranked with respect to each other.

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<sup>29</sup>Grimshaw defines the constraint responsible for the subject allocation in the Spec-of-AGRs as follows: SUBJECT: The highest A-specifier in an extended projection must be filled. The difference in the definition of this constraint and that adopted here is clear. Grimshaw's definition will allow the filling of Spec-of-AGRs by another element, whereas the one adopted here does not. I leave this matter unsolved until more evidence in favor of one or another may be found.

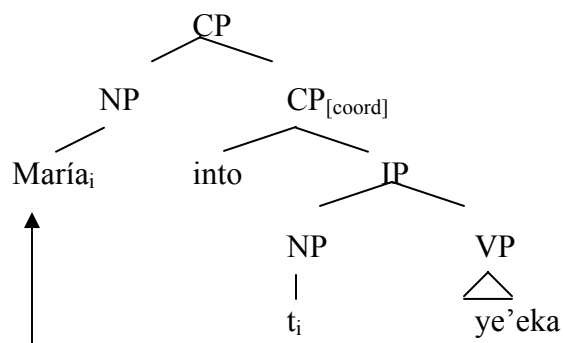
(172) Tableau indicating the ranking Junak-L >> Top-Subj >> Into-L; Subj-SpecIP.

Input: {junak, into, hoan<Top>...}	Junak-L	Top-Subject	Into-L	Subj-SpecIP
a. ☞ CP[ <sub>Coor</sub> junak CP[ <sub>Coor</sub> into IP[ <sub>Spec</sub> hoan <sub>i</sub> ...[t <sub>i</sub> ]]]]		*	*	
b. CP[ <sub>Coor</sub> junak CP[ <sub>DP</sub> joan <sub>i</sub> CP[ <sub>Coor</sub> into IP[ <sub>Spec</sub> t <sub>i</sub> ...]]]]		*	*	*
c. CP[ <sub>DP</sub> joan <sub>i</sub> CP[ <sub>Coor</sub> junak CP[ <sub>Coor</sub> into [ IP[ <sub>Spec</sub> t <sub>i</sub> ...]]]]]]	!*		*	*
d. CP[ <sub>DP</sub> joan <sub>i</sub> CP[ <sub>Coor</sub> into CP[ <sub>Coor</sub> junak IP[ <sub>Spec</sub> t <sub>i</sub> ...]]]]	!*		*	*
e. CP[ <sub>Coor</sub> into CP[ <sub>Coor</sub> junak IP[ <sub>Spec</sub> joan <sub>i</sub> ...[t <sub>i</sub> ]]]]	!*	*		
f. CP[ <sub>Coor</sub> into CP[ <sub>DP</sub> joan <sub>i</sub> [Coor junak IP[ <sub>Spec</sub> [t <sub>i</sub> ...]]]]]	!*	*		*

### 3.3.4 Into in last position.

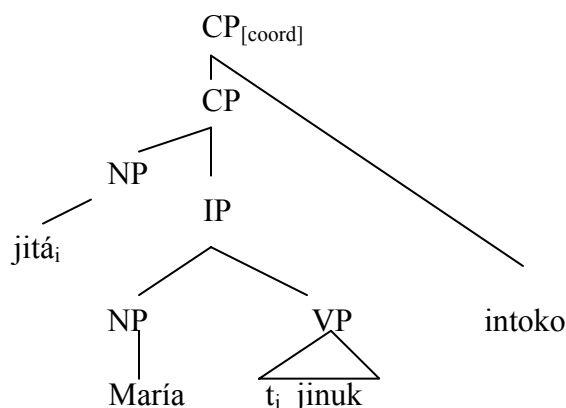
We have seen that coordination can be viewed as the adjunction of a coordinator which introduces the feature [coord] in the top node of the projection to which it is adjoined. This process of adjunction of a coordinator allows for the possibility of another adjunction to the same category. This fact explains *into* ‘and’ in second position as the result of raising and adjunction to the maximal node of a topicalized subject NP, as illustrated in what follows:

(173)



This idea of adjunction allows us to also explain *into(ko)* ‘and (just)’ in final position. We can see that *into(ko)* ‘and’ in final position dominates the entire clause which is coordinated. It only is aligned to the right, that is the reason why we don’t attest a mirror image of second position phenomena in coordinators (i.e. there is not *into* ‘and’ before the final word). The following illustration indicates the way in which the coordinator is aligned to the right and appears in final position:

(174)



The constraint responsible for the adjunction of *intoko* ‘and just’ to the right of IP conflicts with the constraint into-L which requires fronting of the coordinator. There are two conditions under which *intoko* go in final position: a) when *intoko* ‘and (just)’ has additional to its conjunctive meaning an adverbial meaning. It is like an adverb. b) when it is forced by other particles which introduce a sentence such as the particle *bweytuk* ‘because’.

The constraint responsible for *intoko* in final position is an informational-structural one, in Yaqui complete information or background information which has the features [-prominent] is aligned to the right edge in a sentence, I suggest that this constraint is responsible for this pattern. Let’s take the following interaction:

- (175) tuuka            jita    empo ya'a-k?  
 yesterday    what 2SG do-PST  
 'What did you do yesterday?'

A possible answer could have the following two variations, where the comitative noun may appear in a preverbal or postverbal position. Let us analyze first the answer in

(176). Here the speaker is highlighting the fact that he was accompanied by Maria:

- (176) inepo **Mariata-mak** sentro-u        noite-k.  
 1SG Mary-COM center-DIR go-PST  
 'I with Mary went to the center'

In terms of features, the subject, being [-new, +prominent], is the topic and the rest is the focus of the sentence. It is the focus because the lexical items have the features [+new, +prominent].

- (177) inepo            **Mariatamak**            centro-u            noitek.  
 -new                +new                +new                +new  
 +prom                +prom                +prom                +prom

Now, let us analyze the answer (178). Here the speaker mentions Mary's company at the end of the sentence. This fact has the effect of removing importance to Mary's company. The act of *going downtown* seems to be more important. The topic is still the subject referred to by the pronoun *inepo* 'I', the focus is *centrou siika* 'went to the center', but the comitative noun is completive information only.

- (178) inepo centro-u                    siika            **Mariata-mak.**  
 1SG downtown-DIR go.PST.SG Mary-COM  
 'I went (to) downtown with Mary.'

Because the speaker reduces importance to the company of the person referred to by the comitative noun, it has the features [+new, -prom]. It only functions as completive information and, therefore, is aligned to the right:

(179)	inepo	centro-u	siika	<b>Mariatamak</b>
	-new	+new	+new	+new
	+prom	+prom	+prom	+prom

If the first speaker continues with the conversation and asks the following sentence, the lexical items will have the features indicated.

(180)	¿jitá	Maria	jinu-k	<b>intoko?</b>
	What	Mary	buy-PST	and
	‘And what did Mary buy?’			

The subject is the topic and the object and the verb are the focused elements. The coordinator, functioning more like an adverb is [+new, -prom] and, therefore, has to be aligned to the right:

(181)	jitá	Maria	jinuk	<b>intoko?</b>
	+new	-new	+new	+new
	+prom	+prom	+prom	-prom

The answer could emphasize the thing bought for the person who asked the above question, as illustrated next. The features are indicated below.

(182)	aapo	e	betchi’ibo	wepul	supem	jinu-k
	3SG	2SG.OBL	for	one	shirt	buy-PST
	<b>into</b>	<b>wepul</b>	<b>ko’arim</b>			
	and	one	skirt			
	‘Lit: She for you a shirt bought and a skirt’					

As we can see, the subject *aapo* ‘3SG’ is the topic, whereas the NP object *senu supem* ‘one shirt’ and the benefactive NP *enchi betchi’ibo* ‘for you’ are the focus of the sentence. All they have the features [+new, +prom]. The coordinator *into* ‘and’, being a logical coordinator, does not have adverbial meaning; it is not in final position; its features are [+new, -prom], the same than when it is an adverbial. The NP *senu ko’arim* is completive information [+new, -prom] and must be aligned to the right of the sentence.

A question arises here. Why is *into* ‘and’ not in final position? I suggest that the answer is related to the fact that a coordinator must dominate the element which it coordinates. If we allocate it in final position, it would be understood as modifying or coordinating the entire sentence and not only the NP *senu ko’arim*. In addition, the sentence would be ungrammatical because the extraposed NP would not have a coordinator which established the union with the previous NP.

(183) aapo e betchi’ibo wepul supem jinuk **into wepul ko’arim**  
 -new +new +new +new +new -new +new +new +new  
 +prom +prom +prom +prom +prom +prom -prom -prom -prom

(184) \*aapo e betchi’ibo wepul supem jinuk **wepul ko’arim into**

Another interchange where we can attest the informational status of the lexical items which go in final position is the following. In the answer, the NP *juka mariata* ‘the Maria’ is optional and correferential with the object clitic pronoun *a=* ‘her’:

(185) empo kaa Maria-ta tu’ule?  
 2SG not Mary-NNOM.SG like.PRS?  
 ‘Don’t you like Mary?’

(186) naaka, inepo a=waata juka Maria-ta.  
 Yes, 1SG 3NNOM.SG=love.PRS DET.NNOM.SG Mary-NNOM.SG  
 ‘Lit: Yes, I love her, the Mary.’

The features of the answer are the following: As we can see, *juka Mariata* ‘the María’ has the features [-new, -prom]; in other words, it is background information. It is correferential with the clitic pronoun *a=* and because it is background information that is not prominent, it must go in final position.

(187) naaka, inepo a= waata juka Maria-ta  
 +new -new -new +new -new -new  
 +prom +prom +prom +prom -prom -prom

The constraint is defined as follows Lee (2001:81):

(188) Non-Prom(inent)-R(ight):

Information not prominent must be aligned right in the clause.

The next table indicates that given the input with *intoko* having the features <+new, -prom>, the optimal candidate is (189a) because it does not violate the constraint Non-Prom-R which is ranked higher than Into-L. The candidates (189b,c) violate fatally the constraint Non-Prom-R and are left out as non optimal.

(189) Tableau indicating how emerges *intoko* in final position.  
The ranking is Prom-R >> Into-L.

Input: {Jitá, maria, jinuk, <b>intoko</b> +new -new +new +new +prom +prom +prom -prom}	Non-Prom-R	Into-L
a. $\leftarrow$ CP[NP Jitá [CP[[IP[SpecMaría[VP jinuk]]] [Coord intoko]]]		*
b. CP[NP Jitá CP[Coor Intoko IP[Spec María [VP jinuk ]]]]	!*	*
c. CP[Coorintoko CP[NP jitá IP[Spec María [VP jinuk ]]]]	!*	

In closing this section, I present the explanation of *bweytuk* (or *boetuk*) ‘because’ in first position and *into(ko)* ‘and (just)’ in final position. It does not require additional machinery. *Bweytuk* has the features [+new, +prom] and *intoko* [+new, -prom], the last one must be to the right and the first one to the left by the constraint which states that coordinators must be aligned to the sentence left edge. The example (37) is repeated here as (190). The table (191) shows how the order of these constituents is obtained in OT. The candidate (191a) does not violate the higher ranked constraint Non-Prominent-Righ and emerges as optimal. The candidate (191b) violates it and is ruled out as non optimal.

- (190) [inime kábui-m ne am = tá'áya] [boetuk ne  
 These mountain-PL 1SG 3NNOM.PL= know] [because I  
 júébenasi ám= bit-la intoko]  
 many.times 3NNOM.PL= see-PFV and]  
 ‘This mountains I know them, and because I have been through here so many times.’ (Crumrine 1961:23)
- (191) Tableau which shows the interaction between boetuk ‘because’ and intoko ‘and (just)’. It has the ranking Prom-R >> Into-L.

Input: {boetuk, ... intoko} +new +new +prom -prom}	Non-Prom-R	Into-L
a. $\text{CP}[[\text{CP}[\text{boetuk}\dots] [\text{Coord intoko}]]]$ +new +new +prom -prom		*
b. $\text{CP}[[\text{Coord intoko}]\text{CP}[\text{boetuk}\dots]]$ +new +new -prom +prom	!*	

In this last section I have shown how the constraints over topicalization, the constraints over location of coordinators and constraints over non-prominent information explain the different positions where the coordinator appears: first, second and last. The framework of OT allows us to integrate several insights in a unified account in order to give a better understanding than previous frameworks.

### 3.4 Summary of Chapter 3.

In this chapter I have given evidence that it is hard to maintain that a coordinator is a head. We saw that a coordinator occupies different positions in a coordinate sentence. Those positions require a structural explanation and the adjunct-host relation seem to be more appropriate for explaining the mobility of the coordinator *into(ko)* ‘and’ than the specifier-head-complement relation. The use of constraints that regulate word order in



Yaqui allows us to explain the sentence coordination patterns in Yaqui. For example a constraint over topics requires the fronting of topics, a constraint over non-prominent right puts to the right of a sentence the non-prominent information. The OT approach has enough flexibility for explaining the different patterns which we found in the use of the coordinator *into* ‘and’ in Yaqui.

## 4 OBC AND UBC IN YAQUI

The purpose of this chapter is to present a description and OT analysis of Ordinary Balanced Coordination (OBC) and Unbalanced Coordination (UBC)<sup>30</sup>. In the first part I define and describe both the OBC and the UBC. After that it is shown that the UBC should be classified at least as semantic coordination because it fits with several tests used in Yuasa and Sadock's (2002) analysis: The construction respects the Coordinate Structure Constraint (CSC), and the construction is reversible and backward pronominalization is not allowed, among others. In the next section I analyze some of the most salient characteristics of *--kai* constructions within the OT framework. In the last part of this chapter I revise the characteristics of Pseudosubordination, Pseudocoordination and Coordination.

### 4.1 Verbal coordination

This section explores verbal conjuncts (i.e. verbs and verb phrases as well as clausal conjuncts). We will see that it is difficult to separate verbal coordination from sentence coordination as the language does not allow the conjunction of individual verbal heads. Next, the reader will find a description of the main characteristics of these types of coordinations.

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<sup>30</sup> The third typological possibility; the Extraordinary Balanced Coordination (EBC), was not attested in Yaqui.

#### 4.1.1 Verbal balanced coordination

In what follows we can see that in general, verbal coordination could be considered balanced in Yaqui. The concept of verbal balanced coordination as used here refers to a situation where both coordinated verbs are inflected in the ordinary way by tense, aspect and mood, and various agreement features such as person and number (i.e. it is the opposite of the unbalanced coordination of Johannessen 1998).

The next example illustrates ordinary balanced coordination. It shows that both verbs (there could be more) are inflected the same way. Both are marked for past tense. Then, for these types of examples, coordination is balanced. The example contains two intransitive verbs.

- (1) U ili usi [chept-e-k into buit-e-k].  
 DET small boy [jump-INTR-PST and run-INTR-PST]  
 ‘The boy jumped and ran.’

##### 4.1.1.1 Yaqui coordination tends to be balanced for tense

With respect to tense, Yaqui coordinated verbs can be inflected the same in past (as above) present and future. The next example contains two bare verbs. A Yaqui verb without inflection signals a continuous present:

- (2) yoi [bwika into ye’e].  
 (non-Yaqui).man [sing.PRS and dance.PRS]  
 ‘The (non Yaqui) man is singing and dancing.’

The sentence in (3) contains verbs in the future tense. The verbs can contain different tenses too, as indicated in (4):

- (3) u uusi [chept-i-ne into buit-i-ne].  
 DET boy [jump-INTR-FUT and run-INTR-FUT]  
 ‘The boy will jump and will run.’

- (4) u            uusi    [chept-e-k                    into            buit-i-bae].  
 DET        boy    [jump-INTR-PST                and            run-INTR-INTT]  
 ‘The boy jumped and will run.’

However, as we will see in the section about verbal unbalanced coordination, tense is the feature where it is possible to find unbalancedness.

#### 4.1.1.2 Yaqui verbal coordination is balanced for number

In relation to other features such as person and number, Yaqui verbs, in general, don't mark them. They don't mark gender either. However, there are a set of suppletive verbs which are conditioned by number and some few verbs that use reduplication for marking plurality. Those can be tested to discover how they behave under coordination. The next example indicates that verbal coordination is balanced in this respect: Both conjuncts require their plural forms:

- (5) bempo torimme-u    [{saja-k/ \*siika}            into aman ko-kocho-k].  
 3PL torim-DIR        {go.PL-PST/\*go.SG-PST} and there RED.PL-sleep-PST]  
 ‘They went to Torim and slept there.’

#### 4.1.1.3 Yaqui verbal coordination is balanced for aspect

The following example indicates that verbal coordination is balanced for aspect as well. Each verb can be inflected by different aspectual suffixes. It is not the case that one depends on the other for aspectual interpretation. In the following example, the inceptive suffix *--taite* ‘began’ does not affect the meaning of the first conjunct, showing that both verbs have independent aspect.

- (6) a maala-wa        [hoara-u yepsa-k            into aman jichik-taite-k].  
 his mother-POSS [house-DIR arrive.SG-PST and there sweep-INCEP-PST]  
 ‘His mother arrived at the house and began to sweep there.’

#### 4.1.1.4 Yaqui verbal coordination is balanced for mood

Mood is also balanced in verbal coordination. The example in what follows indicates that the reduplication marks modality over the last conjunct but it does not affect the meaning of the first conjunct (i.e. the “decide” meaning introduced by the reduplication does not spread to the first conjunct).

- (7) Aapo pueplo betana yepsa-k into ji'i-bwa-ba-bae-k.  
 He town from arrive.SG-PST and something-eat-RED-INNT-PST  
 'He arrived from the town and decided to eat something.'  
 '\*He decided to arrive from the town and decided to eat something.'

#### 4.1.2 OT Constraints for explaining Balancedness

This section explores some constraints useful in explaining balancedness in Yaqui. Tense, mood and number are the characteristics explained here.

##### 4.1.2.1 Tense, number, and mood balancedness

The constraints used for explaining balancedness in tense, number and mood are based on economical considerations. The underlying idea here is that it is more economical to avoid morphological tense, number and mood marking than inserting it.

The constraints are defined as follows:

- (8) \*TENSE MARKING: Avoid morphological tense marking.  
 (9) \*NUMBER MARKING: Avoid Morphological Number marking.  
 (10) \*MOOD MARKING: Avoid morphological mood marking.

These constraints are beat by a constraint requiring feature satisfaction. I assume that lexical items in the input carry information of the type shown in (12). Those features must be morphologically (or semantically) satisfied:

- (11) SATISFY FEATURE: lexical feature requirements must be morphologically satisfied.

So, given an input as in (12), some of the most viable candidates are shown in (12a,b,c):

- (12) Ranking: SAT-FEAT, FAITH-I-O >> \*TENSE, \*NUMBER, \*MOOD

Input:	[ye'e, <TNS:PRS> <Num: _> <Mood:IND>	into, <and>	buika] <TNS:PRS> <Num: _> <Mood:IND>	SAT-FEAT	FAITH-I-O	*TENSE	*NUMBER	*MOOD
a) $\varphi$	Ye'e <PRS, __, IND,>	into and	buika <PRS, __, IND>	**				
b)	Ye'e <PRS, IND>	into and	buika-k <PST, IND>		!*	*		
c)	Ye'e-ka <PRS, IND>	into and	buika <PRS, IND>	**	!*			

In the previous tableau, we can see that there is no way for Yaqui to satisfy the demand of the constraint SAT-FEAT because there is not a morphological affix in open syntax for marking indicative present tense. The single verbal root marks indicative present tense and does not convey information about number. Therefore, all the most viable candidates violate the SAT-FEAT constraint. However, the candidate (12a) respects FAITH-I-O whereas candidates (12b) and (12c) do not. FAITH-I-O is violated in (12b) because the second conjunct has a different tense marking than the one required in the

input. Candidate (12c) does not bear the indeterminacy for number present in candidate (12a). Therefore, it is not optimal too and (12a) emerges as the optimal one.

Because Yaqui allows the union of CP's with different tense markings, we have to allow coordination with different tense values. For a sentence like (13), we must have a verbal input as that indicated in (14).

- (13) *ian buika-k into yooko yi'i-ne.*  
 today sing-PST and tomorrow dance-FUT  
 '(He) sang today and will dance tomorrow.'

- (14) Ranking: SAT-FEAT, FAITH-I-O >> \*TENSE, \*NUMBER, \*MOOD

Input: [buika-k, into, yi'i-ne] <TNS:PST> <and> <TNS:FUT> <Num: _> <Num: _> <Mood:IND> <Mood:IND>	SAT-FEAT	FAITH-I-O	*TENSE	*NUMBER	*MOOD
a) $\phi$ buika-k into yi'i-ne <PST, IND, __> and <FUT, IND, __>			**		
b) buika into ye'e <PRS, IND> and <PRS, IND>	!***	**			
c) buika-k into yi'i-ne <PST, IND> and <FUT, IND>		!***	**		

The tableau indicates that candidate (14a) satisfies both SAT-FEAT and FAITH-I-O. Therefore, it wins against candidate (14b) which violates both of them. It wins too against candidate (14c) which only violates the higher ranked constraint FAITH-I-O.

#### 4.1.3 The Coordinate Structure Constraint (CSC)

Yaqui data indicate that the language does not allow extraction from any conjunct. Therefore, we can establish that this behavior is produced by the higher ranking of a constraint regulating extraction. The CSC (Ross 1967) is seen here as a universal, violable constraint. The definition in OT is as follows:

(15) \*EXTRACTION: Extraction from a conjoined structure is not allowed.

This constraint avoids extraction from any conjunct, as indicated in the next examples. In (16) we have two declarative coordinate full sentences, if we try to extract from the conjuncts, it is not possible to have a grammatical sentence.

(16) Joan Paola-ta atea-k Maria into Peo-ta tebotua-k.  
 John Paola-NNOM.SG meet-PST Maria and Pedro-NNOM.SG greet-PST  
 ‘John found Paola and Mary greeted Peter.’

First, if we try to extract the object from the first conjunct, the result is an ungrammatical sentence like (17):

(17) \*jabe-ta Joan Ø atea-k Maria into Peo-ta tebotua-k.  
 who-NNOM.SG John Ø meet-PST Maria and Peter-NNOM.SG greet-PST  
 (‘Who did John find and Maria greeted Peter.’)

Second, if we try to extract the object from the second conjunct, the result is again an ungrammatical sentence:

(18) \*jabe-ta Joan Paola atea-k Maria into Ø tebotua-k.  
 who-NNOM.SG John Paola meet-PST Maria and Ø greet-PST  
 (‘Who did John find Paola and Maria greeted?’)

Finally, it is not possible either to have Across the Board Extraction, as indicated by the following ungrammatical sentence:

(19) \*jabe-ta Joan Ø atea-k Maria into Ø tebotua-k.  
 who-NNOM.SG John Ø meet-PST Maria and Ø greet-PST  
 (‘Who did John find and Maria greeted?’)



The only way to ask for the objects is by having a WH-question inside each conjunct. Therefore, the constraint \*EXTRACTION is not violable in the language<sup>31</sup>:

- (20) jabeta Joan atea-k into jabeta Maria tebotua-k.  
 who John meet-PST and who Maria greet-PST  
 ‘Who did John find and who did Maria greet.’

The previous example could be explained if we consider that the constraint \*EXTRACTION interacts with a constraint that forbids coordination of non-maximal projections. This constraint is supported both theoretically and empirically. On the theoretical side there is a common view that languages coordinate maximal projections. Kayne (1994) rejects the coordination of verbal heads in English. He proposes the coordination of VPs for English; Johannessen (1998) proposes that coordination joins CPs. Empirically, Yaqui shows that the language only licenses the coordination of VP’s but not V’s. The constraint is defined as follows:

- (21) \*COORDINATION OF NON-MAXIMAL PROJECTIONS (\*COORD-NON-MAX):

Coordination of heads is not allowed.

In addition to the previous constraints, we have the presence of a constraint based on the observation that in coordinate structures we have the distribution of grammatical functions (Peterson 2004). This constraint forces the reduction of lexical material to the

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<sup>31</sup> A reviewer made the suggestion of checking if it is possible that movement of a DP to the left in Yaqui is topicalization, but WH-words automatically are focused elements, and hence cannot be topicalized. If this were true, the ungrammaticality of (17) and (18) would be explained by this fact. The following sentence indicates that the WH-word in the second conjunct can be topicalized (it appears in the slot for topicalized items: before the coordinator *into* ‘and’). Therefore, the ungrammaticality of these sentences ((17), (18)) must be attributable to the extraction of WH-words.

- (i) jabeta Joan atea-k jabeta into Maria tebotua-k.  
 who John meet-PST who and Maria greet-PST  
 ‘Who did John find and who did Maria greet.’

minimal amount required for covering the functions in a coordinate structure. For example, in the Spanish sentence in (22) the grammatical functions of subject and object are distributed because they appear just once, but they are interpreted as the subject and object of each verb.

- (22) El maestro abrió y cerró la puerta.  
 The teacher opened and closed the door  
 ‘The teacher opened and closed the door.’


The constraint is defined as indicated next:

- (23) DISTRIBUTION OF GRAMMATICAL FUNCTIONS (DGF): The attributes of grammatical functions must be distributed in a coordinate structure.

The example in (24) can be explained by the interaction of these constraints. As indicated in table (25), the input is unordered. The most viable candidates are (25a, b, and c). Among them, candidate (25a) is optimal because it does not violate the higher ranked constraint \*EXTRACTION, whereas candidates (25b) and (25c) do. It is interesting to note that candidate (25b) shows the distribution of the grammatical functions subject and object, like example (22) in Spanish and English. However, it does not emerge as optimal because the constraint \*EXTRACTION is higher in the hierarchy.

- (24) Jabeta Joan atea-k into jabeta aapo tebotua-k.  
 Who John find-PST and who 3SG greet-PST  
 ‘Who did John find and who did he greet?’

- (25) Tableau with the ranking \*EXTRACTION >> DGF, \*COORD-NON-MAX.

Input: {Jabeta, joan, atea-k, into, jabeta, aapo, tebotuak}	*EXTRACTION	DGF	*COORD-NON-MAX
a.  Jabeta joan atea-k into jabeta aapo tebotuak		**	
b. Jabeta Joan atea-k into tebotuak	!*		*
c. Jabeta Joan atea-k into aapo tebotuak	!*	*	

The next section will treat some of the most important characteristics of what we call here “--*kai*-constructions”.

#### 4.1.4 Verbal unbalanced coordination

In this section we are going to see that Yaqui verbal coordination has only one of the two typological patterns (assigning and receiving types) proposed by Johannessen (1998): the receiving type. The assigning type is ruled out because the language does not allow verbal head coordination and therefore it is not possible to find a situation where the features of the objects enter in conflict. The descriptive concept of verbal unbalanced coordination that I use is that suggested by Johannessen (1998). It is split into two types of unbalancedness: The receiving type of UBC and the assigning type of UBC. The first one happens when “one verb is inflected in the ordinary way; by tense, aspect and mood, and various agreement features such as person and number. The other conjunct(s) occur(s) in their base form, or in some or other non finite form” (Johannessen 1998:34).

Amharic:

- (26) [yɨ-rrammɛ-ɨnna      yɨ-rət’-al.  
           3SG.M-walk-and      3SG.M-run-3SG.M.NON-PAST  
           ‘He walks and (then) runs/will run.’

The second type (assigning) happens when “the verbs in each conjunct have different subcategorization properties; they assign, e.g., different case to their complements” (Johannessen 1998: 38). Examples (27) and (28) show that the closest verbal conjunct assigns its case to the object *den Mann* ‘the man’: the verb *half* ‘helped’ requires to assign dative case, whereas the verb *begrüßte* ‘greeted’ requires to assign accusative case. (Rolf Thieroff, cited in Johannessen 1998:38):

German:

- (27) Maria [begrüsste und half] dem /\*den Mann.  
 María greeted and helped the.DAT/\*the.ACC man  
 ‘María greeted and helped the man.’
- (28) Maria [half und begrüßte] \*dem/ den Mann.  
 María helped and greeted \*the.DAT/ the.ACC man  
 ‘María helped and greeted the man.’

The German examples indicate that the sentences become ungrammatical if we try to use the case marking of the first verbal conjunct. So, the coordination is unbalanced in the assignment of case marking.

#### 4.1.4.1 Yaqui lacks the assigning type of UBC

With respect to the assigning type of UBC, the data indicate that Yaqui does not seem to presents case conflicts. The language marks nominative with a zero marker and non-nominative singular with *--ta* (the plural *--(i)m* never co-occurs with *--ta* ‘NNOM.SG’). Two classes of ditransitive verbs (Escalante 1990) which could potentially enter in conflict were analyzed. Those verbs what requires the object marker with *--ta* ‘NNOM.SG’ vs. those requiring the object marker with *--ta-u* ‘NNOM.SG-DIR’. The contrast is shown below:

- (29) inepo Peo-ta                      bachi-ta                      miika-k.  
 1SG Peter-NNOM.SG              corn-NNOM.SG              give-PST  
 ‘I gave corn to Peter.’
- (30) inepo Peo-ta-u                      bachi-ta                      nenka-k.  
 1SG Peter- NNOM.SG-DIR              corn- NNOM.SG              sell-PST  
 ‘I sold corn to Peter.’

Under coordination each sentence gets its own arguments (i.e. each transitive verb must have its objects). There is never a case where a single object could be “shared” by

both verbs, suggesting that in Yaqui, more than verbal coordination we have clausal coordination (or VP coordination at least). Moreover, the conjuncts could be considered to be balanced:

- (31) inepo [Peo-ta-u                    bachi-ta            nenka-k]            into  
 1SG    [Peter- NNOM.SG-DIR corn- NNOM.SG sell-PST]            and  
 [a-a=miika-k].  
 [3NNOM.SG-3NNOM.SG=give-PST]  
 ‘I sold and gave corn to Peter.’
- (32) inepo [peo-ta                    bachi-ta                    miika-k]            into  
 1SG    [Peter-NNOM.SG            corn- NNOM.SG            give-PST]            and  
 [a-w-a=                    nenka-k]  
 [3NNOM.SG=DIR-3NNOM.SG sell-PST]  
 ‘I gave and sold corn to Peter’

In relation to transitive predicates, the following examples indicate that Yaqui coordinated verbs require both objects. In general, two transitive verbs cannot be coordinated like two intransitives. Each verb requires its own object in overt syntax, hence the following contrast. It shows too that coordination is balanced: each verb requires its own tense marking and its object argument.

- (33) Joan [karo-m            jiinu]            into [am=nenka].  
 John [car-PL            buy.PRS]            and [3NNOM.SG-PL=sell.PRS]  
 ‘John buys and sells cars.’
- (34) \*Joan karom jiinu            into    nenka.  
 John car- PL buy.PRS            and    sell.PRS  
 (‘John buys and sells cars.’)

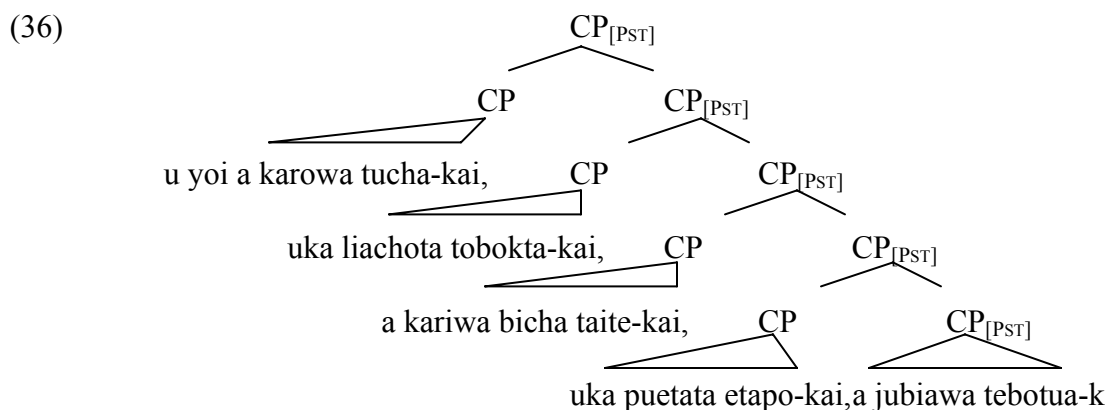
#### 4.1.4.2 Yaqui has a Receiving type UBC

Yaqui has a verbal construction that can be classified as receiving type UBC. It happens in serial verb constructions like the following one. In it, the verbs of the series are marked with the suffix *--kai* ‘SUB’ and only the last one is marked for tense (past

tense in this case). The whole construction is understood as marked with the tense of the final conjunct. Let's call these kinds of examples "--*kai*-constructions".

- (35) [u yoi a= karo-wa tucha-kai],  
 DET (non-Yaqui) man 3SG.POSS= car-POSS stop-SUB  
 [u-ka liacho-ta tobokta-kai],  
 DET-NNOM.SG bag- NNOM.SG take-SUB  
 [a= kari-wa bicha wee-taite-kai]  
 3SG.POSS= house-POSS toward go.SG-begin-SUB  
 [u-ka pueta-ta etapo-kai],  
 DET-NNOM.SG door-NNOM.SG open-SUB  
 [a= jubia-wa tebotua-k].  
 3SG.POSS= wife-POSS greet-PST  
 'The man stopped his car, took the bag, went to his house, opened the door and greeted his wife.'

The structure that I propose for this type of *-kai* chaining structure is the following. As the representation indicates the structure is the adjunction of CP's to a tensed CP which gives the temporal interpretation of the whole sentence:



#### 4.1.4.3 Verbal chaining structures: --*kai*-construction

Because of their status as UBC (Johannessen 1998) or as Pseudo-subordination (Yuasa and Sadock 2002), --*kai*-constructions deserve being described and analyzed for their theoretical implications. For that reason, in what follows it is shown first that the --

*kai* suffix can be considered a subordinator and second, that some constructions where it appears are tied to what can be considered as coordination.

#### 4.1.4.3.1 --*kai* as a subordinating particle

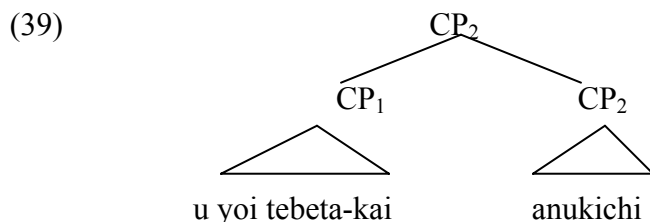
Most researchers of the language (Dedrick and Casad 1999, Escalante 1990, Lindenfeld 1973, among others) treat --*kai* as a subordinating particle. My own data tend to confirm this claim. But there are subtle uses that are important to clarify. The next example indicates a common use of *-kai* as subordinating particle; generally it has a gerundive meaning:

- (37) Maria tajkaim                      ya'a-su-kai                      am=bwa-ka.  
 Maria tortillas                      make-TERM-SUB                      3SG.NNOM.PL=eat-PST  
 'After finishing making tortillas, Maria ate them.'

Even semantic cases where we can talk about pseudosubordination must be treated syntactically as adjoined clauses. Example (38) can be interpreted semantically as coordinate or subordinate, but the syntactic marking is clearly subordinated (the Yaqui language does not have a copulative marker).

- (38) u      yoi                      tebe-ta-kai                      anukichi.  
 The (non-Yaqui) man      tall-NNOM.SG-SUB      liar  
 'That white man is tall and a liar/ that white man, being tall, is a liar.'

The complex sentence (38) is represented in (39). The --*kai* clause is adjoined to the host CP.



The *--kai* clauses have several characteristics that are explored in the following section.

#### 4.1.4.3.2 *--kai*-constructions are coordinate at the semantic level

In this section I show that *--kai*-constructions are coordinate at the semantic level. The criteria used for stating this claim are the following (Yuasa & Sadock 2002): a) The construction is reversible and truth conditions are preserved, b) The construction obeys the Coordinate Structure Constraint (CSC), c) Backward pronominalization is not allowed, d) Any number of conjuncts can occur in coordinated constructions, e) Scope considerations: under semantic coordination both conjuncts are affected (ex. by negation).

##### 4.1.4.3.2.1 Analysis

Because *--kai*-constructions resembles in some aspects the Japanese *-te*-coordination, I applied the semantic criteria used by Yuasa & Sadock (2002) in order to see if the construction can be considered coordinated (at least at the semantic level).

In the first place, I checked if the construction is reversible and truth conditions are preserved. As the following example indicates, it fulfills this requisite. The coordinate complex sentence (40) has the order ( $S_1$ -*kai* &  $S_2$ -TNS), whereas in (41) the order is reversed ( $S_2$ -*kai* &  $S_1$ -TNS):

(40) [u yoi<sup>32</sup> a= karo-wa tucha-kai],

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<sup>32</sup> The concept *yoi* or *yor*i is opposed to the concept *yoeme*. The last one is used for referring to the Yaqui men, whereas the first is used for all non Yaqui men. These were identified first with the white men that arrived first to the Yaqui land. Actually, the term is used for all non-Yaqui persons.



DET (non-Yaqui) man 3SG.POSS= car-POSS stop-SUB  
 [a= jubia-wa tebotua-k].  
 3SG.POSS= wife-POSS greet-PST  
 ‘The man stopped the car and greeted his wife.’

- (41) [u yoi a = jubia-wa tebotua-kai],  
 DET (non-Yaqui)man 3SG.POSS= wife-POS greet-SUB,  
 [a= karo-wa tucha-k].  
 3SG.POSS= car-POSS stop-PST  
 ‘The man greeted his wife and stopped the car.’

Another criterion for deciding if a *--kai*-construction is coordinate, is to observe if it obeys the CSC, This principle states that “in a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct” (Ross 1967:89)<sup>33</sup>. We can take the following *--kai*-sentence and check the results:

- (42) Peo Maria-ta bicha-kai Joana-ta jikaja-k.  
 Peter Maria-NNOM.SG see-SUB Juana-NNOM.SG hear-PST  
 ‘Peter saw Mary and heard Juana.’

As the following ungrammatical sentences indicate, it is not possible to extract any of the objects. The symbol  $\emptyset$  indicates the site of possible extraction:

- (43) \*jabe-ta Peo  $\emptyset$  bicha-kai Joana-ta jikaja-k.  
 Who-NNOM.SG Peter  $\emptyset$  see-SUB Juana-NNOM.SG hear-PST
- (44) \*jabe-ta Peo Maria-ta bicha-kai  $\emptyset$  jikaja-k  
 Who-NNOM.SG Peter Mary-NNOM.SG see-SUB hear-PST

Because there are some exceptions to the CSC<sup>34</sup>, Ross (1967) added the Across the Board Exception (ATB) which allows some specific extractions. So the CSC holds

<sup>33</sup> The CSC has a continuation which masks its violability, the Across the Board Exception (ATB). This hedge allows extraction if the extracted element is moved out of *all* conjuncts: ex. *what did Mary cook and John eat?* In this section it is shown that even these cases are not allowed in the language.

<sup>34</sup> The CSC has been questioned by researchers working in approaches that avoid the use of empty elements (e.g. Sag et al 2003), because it is usually violated. However, in any OT approach violability of



the *-kai*-construction is not particular to it. Rather, it has to be explained by general principles of Yaqui syntax.

- (48) jabe-ta      bicha-k      into      jabe-ta      jikaja-k      ju      Peo?  
 Who-NNOM.SG see-PST      and      who-NNOM.SG hear-PST      DET      Peter  
 ‘Who did Peter see and who did he hear?’

One way to ‘extract’ a non WH-object from a *--kai*-construction is by postposing or preposing it. The canonical position for the object is occupied by a resumptive pronoun. In such cases, we cannot talk about movement.

- (49) jume libro-m,      Joan am=      ji’oste-kai      am=      nenka-k  
 the book-PL,      John 3NNOM.PL=      write-SUB      2NNOM.PL=      sell-PST  
 ‘John wrote the book(s) and sold it (them)’

- (50) aapo am=nenka-kai      juchi aman am=      poa-k  
 3SG 3NNOM.PL=sell-SUB      again there 3NNOM.PL=      pick up-PST  
 jume na’aso-m<sup>36</sup>  
 DET.PL orange-PL  
 ‘The oranges, (s)he sold them and again (come back to) pick up more there’ //  
 ‘The oranges, selling them, he come back to pick up more there’.

But even the use of resumptive pronouns does not improve the grammaticality of a *--kai*-construction (even a coordinate sentence with full tense-marking over the verbs may be ungrammatical) containing an extracted WH-question:

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<sup>36</sup> This construction contains a potential problem for the backward pronominalization test. In order to avoid the problem we must propose that the extraposition ‘movement’ left the nominal in a higher position where it c-commands the pronouns. The next examples support the view that the noun must be in a higher position than the pronoun. The coordinate sentence (i) contains a full NP (*jume librom*) which c-commands the pronoun (*am=*), therefore the sentence is grammatical. However, sentence (ii) has the reverse order and the full NP (*jume librom*) does not c-command the pronoun (*am=*). Therefore, the sentence is predicted as ungrammatical.

- (i) Joan      jume      libro-m      ji’oste-kai      am=      nenka-k  
 John      the.PL      book-PL      write-SUB      them=      sell-PST  
 ‘John wrote the book(s) and sold it (them)’
- (ii) \*Joan      am=      ji’oste-kai      jume      librom      nenka-k

- (51) \*Jabeta<sub>i</sub> Peo a<sub>i</sub>= bicha-kai (into) a<sub>i</sub>= jikaja-k.  
 Who Peter 3NNOM.SG=see-SUB (and) 3NNOM.SG=hear-PST

The analysis of simple sentences of Yaqui indicates that we have a contrast between interrogative and declarative sentences. A preposed object WH-question never combines with a pronoun in the canonical position, whereas in a declarative sentence the postposed or preposed object can be coindexed with such a pronoun. Therefore, the same principles are playing a central role in the coordinate sentences above.

- (52) jabe-ta Joan kesum (\*a=) maaka-k.  
 Who-NNOM.SG John chess (3SG=) give-PST  
 ‘Who does John gave chess.’

Postposed object:

- (53) Joan keesum a<sub>i</sub>= maaka-k [u-ka maria-ta]<sub>j</sub>.  
 John chess 3NNOM.SG= give-PST DET-NNOM.SG Maria-NNOM.SG  
 ‘John gave chess to Maria.’

Preposed object:

- (54) [u-ka maria-ta]<sub>i</sub> Joan keesum a<sub>i</sub>= maaka-k.  
 DET-NNOM.SG Maria-NNOM.SG John chess 3NNOM.SG=give-PST  
 ‘To María, John gave chess.’

The next test is called backward pronominalization. As the name suggests, in a coordinated structure, a nominal referential expression cannot be coindexed with a pronoun in a previous conjunct. The contrast among the sentences below confirms that the principle is respected in Yaqui *--kai* constructions:

- (55) yoeme<sub>i</sub> ye'e-kai, bwika-kai into (aapo<sub>i</sub>)<sup>37</sup> kocho-k  
 Yaqui man drink-SUB sing-SUB and (3SG) sleep-PST  
 u pajko-po.  
 DET feast-LOC  
 ‘The Yaqui man drank, sang, and (he) slept in the feast.’

---

<sup>37</sup> This is a stressed pronoun which seems to add emphasis. Therefore, this sentence could be considered to be marked. In the unmarked case, it is not possible to have a pronoun.

- (56) \*aapo<sub>i</sub> ye'e-kai,      bwika-kai      into      Yoeme<sub>i</sub>      kocho-k u      pajko-po  
 3SG    drink-SUB      sing-SUB      and      Yaqui.man    sleep-PST    the    feast-LOC  
 ('He<sub>i</sub> drank, sang, and the Yaqui man<sub>i</sub> slept in the feast.')

We can see that in this case, the *--kai* construction behaves like a real coordination that disallows backward pronominalization. As expected, that is the case too in full tensed conjoined sentences:

- (57) Peo<sub>i</sub>    aman    siika    into    Aapo<sub>i</sub>    aman    ji'ibwa-k  
 Peter    there    went    and    3SG    here    eat-PST  
 'Peter<sub>i</sub> went there and he<sub>i</sub> ate there'.  
 (58) \*Aapo<sub>i</sub>      aman    siika    Peo<sub>i</sub>    into    aman    ji'ibwa-k  
 3SG    there    went    Peter    and    there    eat-PST  
 (He<sub>i</sub> went there and Peter<sub>i</sub> ate there).

The subsequent criterion that I apply to discover if *--kai* constructions are coordinated requires that the potential number of conjuncts occurring in the construction is unlimited. This is a central property of coordination. As examples (35) and (59) and indicate *--kai*-constructions fulfill this requisite.

- (59) Joan    tienda-u      buite-kai,      biba-ta                      jinu-kai,  
 John    store-to      run-SUB,      cigar-NNOM.SG      buy-SUB  
 (into) pesio-u                                      bicha    siika.  
 and    Hermosillo-DIR      toward go.PST  
 'John run to the store, bought a cigar, and went to Hermosillo.'

Finally, looking at scope considerations, the requirement is that under semantic coordination both conjuncts be affected by negation. In the following sentence the negation affects both conjuncts:

- (60) Ka    tua    ke    kowi-ta      nenka-kai      uka      wakas-ta  
 Not    true    that    pig-NNOM.SG    sell-SUB      DET.NNOM.SG    cow-NNOM.SG  
 jinu-k    ju    Peo.  
 buy-PST    DET    Peter  
 'It is not true that Peter sold the pig and bought the cow.'

Additionally, as in the Japanese *--te*-constructions analyzed by Yuasa and Sadock (2002), when the subordinator *-kai* introduce a real subordinated clause in semantics, the negation does not affect it:

- (61) Kat= nee kokos-ayu-k, weche-kai.  
 Not= 1SG hurt-be-PST fall-SUB  
 ‘I did not hurt, when I felt down.’

This section has shown that the *--kai* construction meets the criteria for being considered semantically coordinated, in spite of the fact that some of the conjuncts are marked with the subordinator *--kai*.

#### **4.1.4.3.3 Characteristics of the *--kai*-construction**

This section describes the characteristics of *--kai*-constructions. The most salient are the following: Tense is marked only in the final conjunct, the order of the conjuncts tends to be fixed, the subject is shared between the conjuncts, the particle *--kai* is obligatory on each verb of the series, the subjects are not repeated in the *--kai*-clause, the particle *--kai* only adjoins to predicates, *--kai*-constructions tend to be interpreted as a single event, the coordinator can not occur between the *--kai*-clauses in a series (except some cases of real subordination that we will describe).

##### **4.1.4.3.3.1 Tense is marked only in the final conjunct**

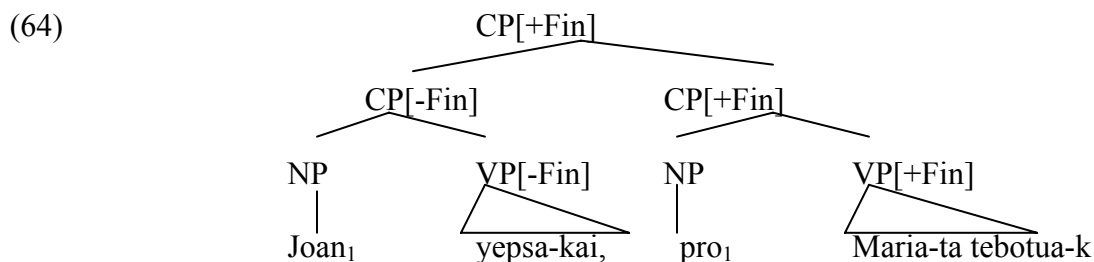
As we can see in the next example, only the final verb is inflected for tense, however, the whole construction is understood as past tense. For Yuasa and Sadock (2002) this is an indication that we have a structure where only the tense feature in the last conjunct percolates up to the mother node.

- (62) U jamut jichi-kai, sankoa-ta nau toja-kai,  
 DET.SG woman sweep-SUB garbage-NNOM.SG together pick.up-  
 kai  
 mekka goota-k.  
 away throw-PST  
 ‘The woman swept, pick up the garbage and throw it away.’

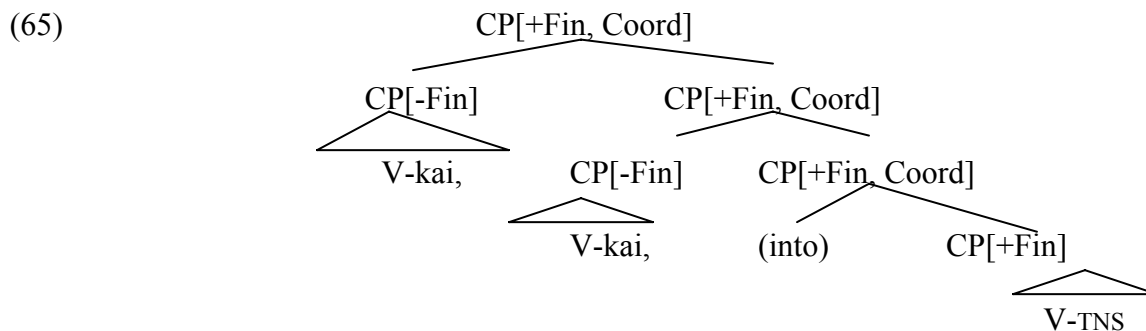
Following Yuasa and Sadock (2002) I agree that pseudosubordination of this type could be explained if we assume that syntactically the *-kai* clauses are subordinated. Tense is in the final conjunct in Yaqui because the head parameter is involved here. Yuasa and Sadock conclude that there are basically two possibilities for structures, depending on whether or not languages are head-left or head-right. Yaqui is OV, therefore, being head-right it is predicted that the tensed clause will be in final position, as it actually is. Languages that are head-left present the tensed clause at the beginning.

The structure of a Yaqui subordinated *--kai* clause like (63) is represented in (64) (adapted from Yuasa and Sadock (2002:98)):

- (63) Joan yepsa-kai, Maria-ta tebotua-k.  
 John arrive-SUB, Maria-NNOM.SG.SG greet-PST  
 ‘John arriving greeted Mary/John arrived and greeted Mary.’



For a chained pseudosubordinated clause, where the *into* ‘and’ particle can optionally occur between the last *--kai* clause and the tensed one, the optimal candidate will have the following structure.



The optionally of *into* ‘and’ indicated in (65) is related to the chain. It can never occur with just one *--kai* clause, but it can occur before the tensed clause with two or more sequential *--kai*-clauses<sup>38</sup>

#### 4.1.4.3.3.2 Tense in final position: an OT analysis

Given that in Yaqui the tensed clause occurs in final position, we need to allow at least the following two closely competing candidates in (66) and to rule out the non-optimal one (66b).

- (66) a) V-kai, V-kai, V-kai V-TNS.  
 b) \*V-TNS, V-kai, V-kai, V-kai.

The constraints responsible for the alternation are head-right and head-left. They are defined as follows.

- (67) HEAD-LEFT: the head of a construction must be at the left edge of it.  
 (68) HEAD-RIGHT: the head of a construction must be at the right edge of it.

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<sup>38</sup> The structure that I am interested here is the one where the coordinator can optionally occur before the tensed clause, as in example (65) (V-kai, V-kai (into) V-TNS). Those are the examples of pseudo-subordination. The *--kai* clauses can be themselves joined by a coordinator, but in that case they are clearly subordinate to the tensed clause ([V-kai into V-kai], V-TNS). In such case, *into* ‘and’ can never occur between the coordinate V-kai and V-TNS clause (\* [V-kai into V-kai] into V-TNS). The subordinated status comes from the evidence that in such cases, the coordinate V-kai clauses are understood as gerundive. They are not interpreted as containing the same tense than the final tensed-clause.



As usual in OT, the input is unordered, and the constraints will evaluate a set of competitors. However, only the two closest competitors are presented in the tableau. Candidate (69a) wins the battle against candidate (69b) because in Yaqui HEAD-RIGHT is over HEAD-LEFT. The inverse order of the constraints will produce the pattern found in HEAD-LEFT languages, i.e. candidate (69b) would be the winner.

The constraints are ranked as indicated; they interact as indicated in (69).

(69) Ranking: Head Right >> Head-left

Input: [V-kai, V-kai, V-kai, V-TNS]	Head-Right	Head-Left
a) $\wp$ V-kai, V-kai, V-kai, V-TNS		*
b) V-TNS, V-kai, V-kai, V-kai.	!*	

#### 4.1.4.3.3 Possibility of inserting *into* ‘and’ in a chain

Remember that one subordinate *--kai* clause cannot co-occur with *into* ‘and’, as illustrated in (70), i.e. *into* ‘and’ can optionally occur before the tense clause if we have a chain. The representation in (70) shows the position of *into* ‘and’.

- (70) a) V-kai (\*into) V-TNS. (subordination)  
 b) V-kai, V-kai, V-kai, (into) V-TNS. (pseudosubordination)

We can see that this alternation really is at the border between subordination and coordination. It could explain too why a *--kai* chain can be considered semantically coordinated but syntactically subordinated. I propose that *--kai* has the features [+SUB, -TNS], so, the non-occurrence of *into* ‘and’ in (70a) is expected (because of the inconsistency of the [+SUB] feature and the [+COORD] feature introduced by *into* ‘and’). However, sentences with the structure (70b) indicate that *into* ‘and’ can occur

before the tensed verb. For that reason, it seems that it can be considered a marker that the chain is about to finish. Then the constraint responsible of this alternation seems to be pragmatic, more than syntactic (i.e. it could be a cooperative Gricean constraint).

(71) COMM(UNICATE): Communicate that you will end your chaining.

The constraint can be fulfilled by the introduction of *into* ‘and’ or by a simple *pause* between the relevant elements. The constraint enters into play when more than two clauses are in the input. I assume that it is violated if *into* ‘and’ is present in a candidate that it is not a chain. As usual in OT, the nature of the input is important for the generation of viable candidates by Gen. An input can either contain a coordinator or not. Therefore, if *into* ‘and’ is in the input, it has to appear in the output (by the Faith-I-O constraint), if it is not, the candidate with the pause will be the winner.

An additional constraint is required for explaining the alternation: the one that avoids incompatible features. This constraint avoids the combination of the features [+SUB] and [+COORD]. It is defined as follows:

(72) AVOID-CONTR(ADICTORY)-FEAT(URES): Don’t mix [+SUB] and [+COORD].

The next tableau explains the subordinated structures as in (70a). Candidate (73a) does not violate any of the three proposed constraints, whereas candidate (73b) violates all of them. For that reason candidate (73b) with the coordinator *into* ‘and’ is not optimal. The winner is candidate (73a):

(73) COMM, FAITH-IO &gt;&gt; AVOID-CONTR-FEAT

Input: [V-kai, V-TNS]	COMM	FAITH-IO	AVOID-CONTR-FEAT
a) ☞ V-kai V-TNS			
b) V-kai into V-TNS	!*	*	*

The next tableau indicates that if we allow *into* ‘and’ in the input, we still have as winner the candidate without a coordinator (74a) because we are using a mechanism for marking a chain where there is not a chain. So the candidate (74b) can never emerge as optimal.

(74) COMM, FAITH-IO &gt;&gt; AVOID-CONTR-FEAT

Input: [V-kai, into, V-TNS]	COMM	FAITH-IO	AVOID-CONTR-FEAT
a) ☞ V-kai V-TNS		*	
b) V-kai into V-TNS	!*		*

The next tableau shows the situation in (70b) when *into* ‘and’ occurs in the candidate. We have to keep in mind that when we have a chain, there are two ways to mark that it is about to be finished: by a pause or by the occurrence of *into* ‘and’ before the final (tensed) clause. The next tableau indicates the competition between both candidates. If *into* ‘and’ is in the input, it appears in the output. In such a case the candidate (75b) with the pause loses in the competition because it violates the FAITH-IO constraint.

(75) COMM, FAITH-IO &gt;&gt; AVOID-CONTR-FEAT

Input: [V-kai, V-kai, V-TNS]	COMM	FAITH-IO	AVOID-CONTR-FEAT
a) ☞ V-kai, V-kai into V-TNS			*
b) V-kai, V-kai, V-TNS		!*	

When *into* ‘and’ is not in the input, the candidate with the pause will be the winner. As the tableau (76) indicates, candidate (76a) violates the constraint FAITH-IO and the constraint AVOID-CONTR-FEAT, whereas candidate (76b) does not violate them. Therefore, it emerges as the optimal one.

(76) COMM, FAITH-IO >> AVOID-CONTR-FEAT

Input: [V-kai, V-kai, V-TNS]	COMM	FAITH-IO	AVOID-CONTR-FEAT
a) V-kai, V-kai into V-TNS		*	!*
b) ☞ V-kai, V-kai, V-TNS		*	
c) V-kai, V-kai V-TNS	!*		

In tableaux (75) and (76) above, both winner candidates satisfy COMM by the introduction of *into* ‘and’ or by a pause. The candidate (76c) without a pause can not emerge as winner because it violates COMM. The pause is introduced by Gen in the candidate (76b). Therefore it violates FAITH-IO but it does not violate AVOID-CONTR-FEAT. For that reason it is optimal.

#### 4.1.4.3.4 The order of the conjuncts tends to be sequential

Because chaining structures usually indicate narrative progression, the order of the conjuncts tends to be fixed; as we can see in the following example, the *--kai*-clauses must antecede the tensed one.

- (77) yoeme            ye’e-kai,            bwika-kai,            jita            je’e-kai            into  
 (Yaqui) man dance-SUB            sing-SUB            something            drink-SUB            and  
 kocho-ka-n            u            pasko-po.  
 sleep-PST-CONT            DET            feast-LOC  
 ‘The Yaqui man danced, sang, drank something and slept in the feast.’

If we try to reverse the order, extraposing the *-kai*-clauses, the sentence becomes highly degraded<sup>39</sup>:

- (78) \*yoeme                      pasko-po      kocho-ka-n,              yi'i-su-kai  
 (Yaqui) man                      feast-LOC      sleep- PST-CONT              dance-TERM-SUB  
 bwik-su-kai,                      into    jita                      je'e-su-kai.  
 sing-TERM-SUB,                      and    something                      drink-TERM-SUB  
 ('The Yaqui man slept in the feast, after finishing dancing, singing and drinking something.')

Even under a split or discontinuous series the sentence is not totally acceptable. Therefore, there must be a pragmatic constraint playing a role in avoiding the common discontinuous coordination (see nominal coordination).

- (79) ?Joan pasko-po      yi'i-su-kai                      kocho-k      into    buik-su-kai,  
 John    feast-LOC      dance-TERM-SUB                      sleep- PST      and    sing-TERM-SUB  
 into    jita                      ji'i-su-kai.  
 and    something                      drink- TERM-SUB  
 'John finished dancing in the feast and slept, and finished singing and finished drinking something.'

The sequentiality is due to the nature of the narration of the events. The chains (initiated by the *--kai* clauses) are conformed by a set of sub-events, where they are

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<sup>39</sup> If the postposed *-kai* clauses are intended to be contemporaneous with the main verb. That is, if they get a 'while' interpretation the sentence is more acceptable. See the following contrast. From these two examples the consultant prefers the *-kai* clause before the tensed verb. The examples with the 'while' interpretation seem to be clear cases of subordination. The cases that we are interested here are the ones with a sequential interpretation. The sequentiality of events is a characteristic of the verbal chains analyzed in this work.

- (i)    Joan    [buika-kai]              yi'i-bae.  
       John    sing-SUB                      dance-INTT  
       'John will dance singing.'
- (ii)    ?Joan    yi'i-bae,                      [buika-kai].  
       John    dance-INTT                      sing-SUB  
       'John will dance, singing.'

presented according to the speaker's intention. The constraint again could be a pragmatic one (again in the Gricean sense):

(80) BE-ORDERED: present eventive information in sequential order.

Sequential order could be interpreted as equivalent to cardinal order, if the input has predicates with indices that indicate the order of the events. (This order could be altered by other constraints that forces changes in the order). The idea here is that we have several sub-events which give rise to an entire eventive set. (Camacho 2003 talks about the coordination of eventive phrases; I propose to talk about eventive features in the predicate, that are brought by the predicates and that have a reflex in the order of them).

So an input would contain the features and indices that will produce the order of the predicates.

In relation to the possibility of reversibility, I assume that it is a logical property of Gen. Gen can posit any structure; therefore, commutation must be a property of it. I did not explore the situation under which a conjunct can be commuted without an apparent change in meaning. There are some sentences where the order of presentation in some contexts does not seem to be important (*John and Mary are tall, Mary and John are tall*). That is a topic which needs to be explored. Right now, I assume that the speaker presents the information by respecting this constraint:

(81) Tableau with the constraint Be-Ordered choosing the optimal candidate.

Input: [V <sub>1</sub> , V <sub>2</sub> , V <sub>3</sub> ]	BE-ORDERED
a) $\curvearrowright$ V <sub>1</sub> , V <sub>2</sub> , V <sub>3</sub>	
b) V <sub>2</sub> , V <sub>1</sub> , V <sub>3</sub>	!*
c) V <sub>3</sub> , V <sub>2</sub> , V <sub>1</sub>	!*

#### 4.1.4.3.3.5 The subject is shared between conjuncts and not repeated

The previous examples, like the next one, show that the suffix *--kai* is only used in subject missing constructions. The subject is understood as the same in the whole complex sentence:

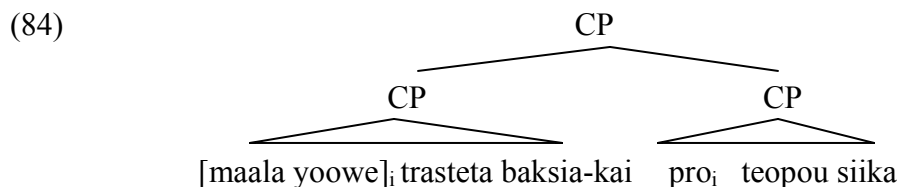
(82) [Maala yoowe traste-ta baksia-kai], [teopo-u siika].  
 Mother old dish-NNOM.SG wash-SUB church-DIR go.SG.PST  
 ‘The grandmother washed the dishes, and went to the church.’

So, the following example containing different subjects cannot get the *--kai* suffix. Each verb is marked obligatorily for tense in the series. The clauses are connected with the coordinator *into* ‘and’.

(83) [Maala yoowe traste-ta baksia- $\{k/*-kai\}$ ], [ume  
 Mother old dish-NNOM.SG wash- $\{PST/*-SUB\}$  DET.PL  
 ili si-m into bu-busa- $\{k/*-kai\}$ ], [into bem  
 small child-PL and RED-get up- $\{PST/*-SUB\}$ , and 2PL.POSS  
 mala-wa into bem= achai-wa teopo-u saja-k]  
 mother-POSS and 3PLPOSS= father-POSS church-DIR go.PL-PST  
 ‘The grandmother washed the dishes, the children got up and their mother and their father went to the church.’

The proposed structure implies then that the subject is missing in each CP. The subject in a higher position binds the null subject in the following clauses. The constraint

DROP TOPIC which requires that topicalized subjects be dropped, explains why the subject is not repeated.



The subject cannot be repeated in the *-kai*-clause; however, if the person has an available clitic pronoun, this can occur (usually in the subject position of the tensed clause).

- (85)    *née*    *yeeप्सा-kai*,    *yeste-kai*,    *nim*            *juubi*  
           1SG   arrive.SG-PST   sit.SG-SUB   1POSS.SG    wife  
           *bitchu-su-kai*,            (*nee*)   a=                    *tebotua-bae*.  
           see-TERM-SUB,            (1SG)   3NNOM.SG=   greet-INTT  
           ‘I will arrive, I will seat down, I will see my wife and I will greet her.’

#### 4.1.4.3.3.6 --*Kai*: a same subject construction, and an OT analysis

As we saw before, *-kai* constructions make reference to the same subject throughout, and the subject may not be repeated in the construction. In what follows, I suggest that we need to use the constraints used by Blutner and Zeevat (2004:4): SUBJ(ECT) and DROP-TOPIC. They are defined as in (86) and (87), respectively. The first one forces the occurrence of the subject in a preverbal position. The second one demands that correfential arguments be unrealized.

- (86)    SUBJ: The highest A-specifier in an extended projection must be filled.

- (87)    DROP-TOPIC: Arguments coreferent with the topic are structurally unrealized.<sup>40</sup>

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<sup>40</sup> Such as it stands, the constraint of DROP-TOPIC implies that if an object is a topic, then the subsequent occurrences of arguments coreferent with the object must be unrealized. For example, in





(89) Tableau that shows the winner in a chain. The ranking is Drop Topic>> Faith-IO

Input: [Joan <sub>i</sub> tucha-kai, Joan <sub>i</sub> tobokta-kai, Joan <sub>i</sub> wee-taite-kai Joan <sub>i</sub> etapo-kai, Joan <sub>i</sub> tebotua-k]	SUBJECT	DROP TOPIC	FAITH-IO
a) $\Rightarrow$ Joan <sub>i</sub> ... tucha-kai, pro <sub>i</sub> ... tobokta-kai, pro <sub>i</sub> ... wee-taite-kai, pro <sub>i</sub> ... etapo-kai, pro <sub>i</sub> ... tebotua-k			*
b) Joan <sub>i</sub> ... tucha-kai, Joan <sub>i</sub> ... tobokta-kai, Joan <sub>i</sub> .. wee-taite-kai, Joan <sub>i</sub> ... etapo-kai, Joan <sub>i</sub> ... tebotua-k		!* !	

One of the advantages of the constraint DROP-TOPIC is that it is not specific for coordinate structures. Then, if we see other sides of the grammar, we expect to find the effects of DROP-TOPIC. The effects are seen in subordinated clauses with a correferential subject. Let's take the next example of Yaqui:

(90) Joan inien ea [kari-ta jinu-pee-sime].  
John this.way think.PRS [house-NNOM.SG buy-DESID-go.SG.PRS]  
'John thinks that he is going to buy a house.'

In the previous sentence, the subject of the subordinated clause does not appear. The account of this could be the same as the one for the coordinated structure. However, a pronoun can appear in that subordinated clause, suggesting that pronoun licensing has to do with pragmatic constraints too.

(91) Joan<sub>i</sub> inien ea [a-u<sub>i</sub> kari-ta jinu-pee-sime].  
John this way think.Prs [him-to house-NNOM.SG buy-DESID-go.SG.PRS]  
'John<sub>i</sub> thinks that he<sub>i</sub> is going to buy a house// to buy a house.'

Although Yaqui does not have infinitive forms (and the pronoun can be licensed in theoretical standard terms). Spanish has constructions with infinitive verbs that can license nominative pronouns, suggesting that the constraint of DROP-TOPIC is violated under certain conditions, as in the following Spanish example (with the pronoun the

sentence has the meaning that he is going to buy it by using his own means or resources, without any help, without using a third person for treading. It is a stressed pronoun.)<sup>41</sup>:

- (92) Juan<sub>i</sub> piensa ir a comprar (él<sub>i</sub>) / una casa.  
 John thinks to.go to to.buy (he) / a house  
 ‘John thinks about going to buy (himself) a house.’

#### 4.1.4.3.3.7 The particle *--kai* is obligatory on each verb of the series.

The next example indicates that the particle *-kai* is obligatory over each clause. An uninflected verb is not acceptable.

- (93) Joan Peo-ta ji’osia-m jinu-ria-\*(kai)  
 John Peter-NNOM.SG book-PL buy-BENEF-SUB  
 a-w-am bit-tua-k.  
 3NNOM.SG-DIR-3NNOM.SG.PL see-CAUS-PST  
 ‘John bought a book for Peter and sent it to him.’

I suggest that this is a property of the input. I assume that *--kai* must be in the input, as are other affixes in Yaqui. Therefore, the constraint of FAITH-IO rules out candidates without the suffix *--kai*. Another required constraint is \*SUB(ORDINATE)-MARKING which shows an aversion to mark subordinate elements. The ranking is the following.

- (94) \*SUB-MARKING: do not mark subordination.

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<sup>41</sup> This behavior of Spanish is not weird, even an interrogative main clause can license a nominative pronoun, as illustrated (the tensed version is available too):

- i. Ganar-le tú a Michael Jordan? No lo creo.  
 To win-him you to Michael Jordan? Not it believe  
 Will you beat Michael Jordan? I do not believe it.

Because this issue is beyond of coordination, I just point out that an infinitive form in Spanish does not block nominative licensing. Other factors are present here and need to be analyzed (for example, the verb must be fronted).

(95) FAITH-IO >> \*SUB-MARKING.

(96) Input: {V-kai, V-kai, V-TNS}	FAITH-IO	*SUB-MARKING.
☞ a) V-kai, V-kai, V-TNS		**
b) V, V, V-TNS	**	

Candidate (96a) is optimal because it does not violate the constraint Faith-IO which is highly ranked in the language. Candidate (96b) violates it twice and is non-optimal.

#### 4.1.4.3.3.8 The particle *--kai* only adjoins to predicates

The particle *--kai* can be added to lexical words functioning as predicates. It is important to note that only verbal constructions give rise to UBC, other *-kai*-predicates seem to function like adjuncts. Examples:

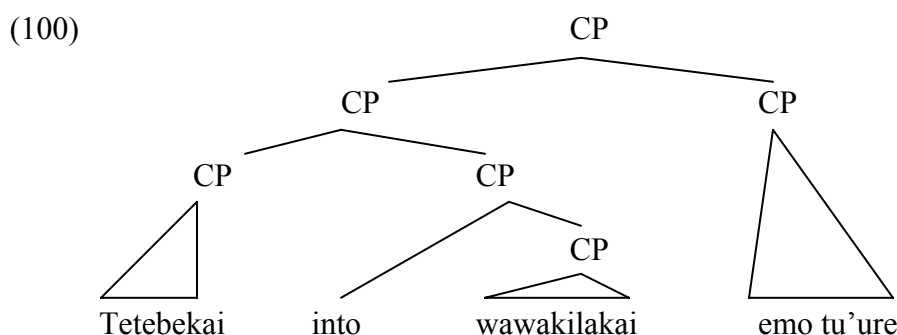
(97) Verbal	bwiika-kai	‘singing’
Adjetival	teebe-kai	‘being tall’
Nominal	chu’u-ta-kai	‘being a dog’
Numeral	goi-kai	‘being two’
Adverbial	mekka-kai	‘being far away’
Determiner	*hu’u-kai	
Pronominal	*bempo-kai	

The following example contains two adjectival *--kai*-clauses. As we can see, a coordinator is possible between those *--kai* clauses. That is not an allowed pattern in verbal *--kai*-chaining. Additionally, the tense interpretation in (98) does not depend of the tensed verb; it has a gerundive meaning as usual in subordinated *--kai*-constructions.

(98) Te-tebe-kai	into	wa-wakila-kai	emo	tu’ure.
RED.PL-tall-SUB	and	RED.PL-thin-SUB	3REFL	like.PST
‘Being tall and thin they believe that they are beautiful’				

- (99) Aman mekka-le-kai            into    a=            obiachi-le-kai            kaa  
 There far away-believe-SUB and    3NNOM.SG=    difficult-believe-SUB not  
 aman wee-bae.  
 there go.SG-INTT  
 ‘Believing that it is far away and believing that it is difficult, he will not want to go there.’

I suggest that the coordinator *into* ‘and’ in (98) joints two *--kai* clauses as in the following representation:



#### 4.1.4.3.3.9 *--kai*-constructions interpreted as sequential events

In the next example, where a clause is marked with *--kai* ‘SUB’ (and there is not an open coordinator) it is one event composed of two single sub-events. They are seen as occurring at the same time or one immediately after the other. This seems to be a case of real subordination.

- (101) Diana chu’u-ta                    ibakta-kai            a=muk-tua-k.  
 Diana dog-NNOM.SG            embrace-SUB    3NNOM.SG=die-CAUS-PST  
 ‘Diana embracing the dog left it dead.’

However, examples like the following contrast with the previous situation. In the following example the events do not occur at the same time. They only express sequentiality of events. Because of that, the sentence can be translated as a coordinate structure in English and Spanish. In other words, we have a different degree of union

between clauses (co-occurring/sequential). The status of subordinated is not easy to maintain in the next example.

- (102) Diana chu'u-ta      bicha-kai      a=ibakta-kai  
 Diana dog-NNOM.SG see-SUB      3NNOM.SG=embrace-SUB  
 into a=muk-tua-k.  
 and 3NNOM.SG=die-CAUS-PST  
 'Diana saw the dog, embraced it and left it dead.'

There are examples where formally, the clause marked with *--kai* is subordinated, but semantically seems to be coordinated, giving rise to what Yuasa and Sadock (2002) call pseudosubordination:

- (103) Aapo jita                  jikkaja-kai      Maria-ta                  bitchu.  
 3SG something hear-SUB      Maria-NNOM.SG      stare.PRS  
 '(S)he hears (something) and stares at Mary.'

#### 4.1.4.3.3.10 The construction makes reference to a single event

In this section, following Progovac (1999) I assume that "single coordinations (with *and*) are unspecified with respect to single vs. multiple event readings, rather than being specified for a single event interpretation" (144, note 3). The assumption seems necessary given the following contrast:

A balanced coordination could be one event or two events, with SS or DS.

SS, one event/two events

- (104) Joan buika-k      into ye'e-ka.  
 John sing-PST      and dance-PST  
 'John sang and danced.'

DS, one event/two events

- (105) Joan buika-k      Maria into ye'e-ka.  
 John sing-PST      María and dance-PST  
 'John sang and Maria dance.'

SS, two events (only reading)

- (106) Joan tuuka buika-k into yooko yi'i-bae.  
 John yesterday sing-PST and tomorrow dance-INTT  
 'John sang yesterday and will dance tomorrow.'

DS, two events (only reading)

- (107) Joan tuuka buika-k Maria into yooko yi'i-bae.  
 John yesterday sing-PST María and tomorrow dance-INTT  
 'John sang yesterday and Maria will dance tomorrow.'

With SS subordination and pseudosubordination (*-kai* construction), the reading may be either a co-occurring or sequential events:

SS, Subordination, sequentiality of events

- (108) María tajkaim ya'a-su-kai am bwa-ka.  
 María tortillas make-TERM-SUB 3NNOM.PL eat-PST  
 'Doing tortillas, María ate them.'

SS, Pseudosubordination, sequentiality of events; example (35) is repeated here as

(109).

- (109) [u yoi a= karo-wa tucha-kai],  
 DET (non-Yaqui).man 3SG.PL car-POSS stop-SUB  
 [u-ka liacho-ta tobokta-kai]  
 DET-NNOM.SG bag- NNOM.SG take-SUB  
 [a kari-wa bicha wee-taite-kai]  
 3SG.POSS house-POSS toward go.SG-begin-SUB  
 [u-ka pueta-ta etapo-kai],  
 DET-NNOM.SG door-NNOM.SG open-SUB  
 [a jubia-wa tebotua-k].  
 3SG.PL wife-POSS greet-PST  
 'The man stopped his car, took the bag, went to his house, opened the door and greeted his wife.'

In the previous example, the events form a complex event. It is formed by five predicates, but they have a sequential reading.

Therefore, it seems that Progovac's (1999) claim about unspecification is correct. In OT we can consider that the input is unspecified, and that the constraints will give the available reading(s).

With respect to nominal conjunction, Progovac concludes that "what gives rise to a multiple-event interpretation is the physical presence of an extra conjunction marker" (1999:145). For her the "multiplicity of events is encoded syntactically; moreover, it is actually encoded in an iconic way, by an increased number of conjunction markers" (145).

In a more recent paper, De Vries assumes "that every coordinate structure has DistP as its maximal projection, for the simple reason that every coordination is interpreted either collectively or distributively" (2005: 87).

It seems that actually every NP (maybe every CP) must have a DistP. It is unspecified in the input and it is specified by semantic (as when adverbials are introduced in sentence conjuncts, as in (109) or by pragmatic constraints (as when the background specifies if the conjuncts must be understood as distributed or not). The next example indicates that a single sentence with a plural subject is unspecified for the distributive feature:

- (110) Ju-me            maejto-m        libro-m            jinu-k.  
           DET-PL        teacher-PL      book-PL            buy-PST  
           'The teachers bought a book.' (collectively/distributively)

But it can get the specification from a quantifier adverbial:

- (111) Chikti maejto-m    libro-m            jinu-k.  
           Each teacher-PL    book-PL            buy-PST  
           'Each teacher bought a book.' (distributively)



In order analyze of *--kai* constructions, I assume that DistrP's are in the input. The proposed constraints are the following. The first one will force the appearing, if possible, of unspecified forms. It is defined as follows:

(112) \*EVENT-SPECIFICATION: Avoid event specification.

However, specification will emerge if adverbials, different grammatical tenses or other factors force the specification of the DistPs. Let's call this constraint EVENT INTERPRETATION. It is defined as indicated next:

(113) EVENT-INTERPRETATION: Distributive phrases must be specified.

Another constraint is Adverbial-Interpretation. Its definition is shown in (114):

(114) ADV-INTERP: Adverbials with different tense reference are distributed.

The interaction of these constraints is shown in table (115). In it the candidate (115a) has a violation of EVENT-INTERPRETATION, but because it is unranked with \*EVENT-SPECIFICATION, nothing is decided until the constraint Faith-IO, which decides as winner candidate (115a). Candidates (115b) and (115c) do not emerge as optimal because they violate FAITH-IO.

(115) Ranking: EVENT-INTERPRETATION,\*EVENT-SPECIFICATION>>FAITH-IO.

Input: [Joan, buikak, into, ye'e-ka <DISTR: __>] (See ex. 101)	EVENT- INTERPRETATION	*EVENT- SPECIFICATION	FAITH-IO
☞ a) <DISTR: > unspecified	*		
b) <DISTR: +> (disjoint)		*	!*
c) <DISTR: -> (joint)		*	!*

The following tableau indicates that the winner is candidate (116b). This is so because candidate (116b) respects the constraint Adv-Interpretation which is higher in the hierarchy. Candidates (116a) and (116c) violate it and cannot be optimal.

- (116) Ranking: ADV-INTER(PRETATION) >> EVENT INTER(PRETATION),  
\*EVENT-SPEC(IFICATION) >> FAITH-IO.

Input: [Joan, tuuka, buikak, into, yooko, yi'i-bae <DISTR: __>] See ex. (106)	ADV-INTER(PRETATION)	EVENT-INTER(TATION)	*EVENT-SPEC	FAITH-IO
a) <DISTR: > unspecified	!*	*		
b) <DISTR: +> disjoint			*	*
c) <DISTR: -> joint	!*		*	*

#### 4.1.4.3.3.11 CSC is respected

We saw before that the CSC is highly respected in Yaqui. Therefore, the constraint must be ranked high. The constraint was defined as a ban on extraction. If extraction from a conjunct happens, the constraint is violated. The explanation is summarized here:

- (117) \*EXTRACTION: Extraction from a conjoined structure is not allowed.


Because Yaqui has a syntactic requirement that heads cannot be conjoined, the constraints were defined as follows:

- (118) \*Coordination of non-maximal projections (\*Coord-non-max). Coordination of heads is not allowed.

(119) DGF (Distribution of grammatical functions). The attributes of grammatical functions must be distributed in a coordinate structure.

Candidate (120a) is optimal because it does not violate the higher ranked constraint \*Extraction, whereas candidates (120b) and (120c) do.

(120) Tableau with the ranking \*Extraction >> DGF, \*Coord-non-max

Input: {... jabeta, Joan, atekai, into, jabeta, a, tebotuak}	*EXTRACTION	DGF	*COORD-NON-MAX
a.  ... jabeta Joan atekai into jabeta a tebotuak		**	
b. ... jabeta Joan atekai into tebotuak	!*		*
c. ... jabeta Joan atekai into a tebotuak	!*	*	

#### 4.1.4.3.3.12 Interaction of *-kai* and the particle *into* ‘and’

It is very common to have only the juxtaposition of *--kai* clauses, without the use of the particle *into* ‘and’. The next example is a case where the particle *into* ‘and’ cannot occur between them. As we saw before, the construction is grammatical only if the subject is the controller of the series.

(121) u    ili    jamut            yepsa-kai    jichik-taite-k.  
 DET   small woman                    arrive-SUB    browse-INCEP-PST  
 ‘The woman, (after) arriving, began to browse.’

The sentence becomes ungrammatical if *into* ‘and’ appears between both verbs:

(122) \*u    ili    jamut            yepsa-kai    into    jichik-taite-k.  
 DET   small woman                    arrive-SUB    and    browse-INCEP-PST  
 (‘The woman arrived and began to browse.’)

However, in serial constructions, when two or more sentences with *--kai* ‘SUB’ are put together the particle *into* ‘and’ can appear optionally between the final *--kai* clauses and the finite verbs.

- (123) u      achai jibwa-kai,      joboa-kai,      mam-baksia-kai (**into**) a =  
 DET    father eat-SUB,      full-SUB      hand-wash-SUB (and) 3SG.POSS  
 ili      usi-mme-u      etejo-taite-k.  
 small child-PL-to      talk-begin-PST  
 ‘The father ate, (became) full, washed his hands and began to talk to his children.’

Even with the same subject the language has the option of marking each verb for tense, but in that case *--kai* cannot appear, and *into* ‘and’ can appear between each conjunct. The tendency is to have in overt syntax only the last *into* ‘and’ in the series. The suffix *--kai* cannot co-occur with any other tense marker, *-k* ‘PST’ for example.

- (124) u      achai jibwa-k(\*-kai)(**into**) joboa-k      (**into**) mam-baksia-k  
 DET    father eat-PST(\*-SUB) (and) full-SUB      (and) hand-wash-SUB  
**into**    a =      ili      usi-mme-u      etejo-taite-k.  
 and    3SG.POSS      small child-PL-to      talk-begin-PST  
 ‘The father ate, (became) full, washed his hands and began to talk to his children.’

#### 4.1.4.3.4 Some *-kai* clauses are adjoined in Yaqui

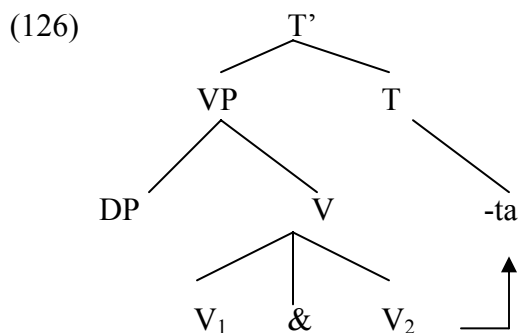
At the syntactic level, *-kai* constructions are subordinated (Takano 2004: 171 reaches the same conclusion for similar constructions in Japanese), but as Yuasa and Sadock (2002) point out, they are coordinated at the semantic level.

Takano shows that English verbal coordination poses a problem for an analysis where the verbal inflectional morpheme is located in T in syntax and merged with the adjacent verb in the phonological component, because it predicts that only the adjacent verb will fuse with the inflectional morpheme. This situation favors the idea that the inflectional morpheme is part of V (i.e. his explanation follows the Checking Theory of

Chomsky 1995). However, Takano considers that both types of verbal inflection happen in languages. The contrast between the next two sentences shows that in the first case the construction involves a bare verb and an inflected one. The second case has the first verb affixed with a gerundive particle whereas the second verb is inflected with *-ta*. Takano (2004:171):

- (125) a. John-ga sono ronbun-o kopiisi fairusita.  
 John-NOM that paper-ACC copy filed  
 b. John-ga sono ronbun-o kopiisi-te fairusita.  
 John-NOM that paper-ACC copy-ing filed  
 ‘John copied and filed the paper.’

So for Japanese, after his analysis, he concludes that only sentence (125a) is an actual coordination, while sentence (125b) is an example of a subordinated one. He suggests that bare verbs are conjoined as follows:



In the representation  $V_1$  and  $V_2$  are bare verbs, and  $\&$  is a phonetically null conjunction. Since the tense morpheme is located in T, it will be attached to  $V_2$  and  $V_1$  will remain bare, given as output the sentence (125a).

The analysis of Yaqui indicates that it is not possible to have a coordinated bare verb plus a verb marked morphologically for tense where the marked one gives the tense reading for the whole construction:

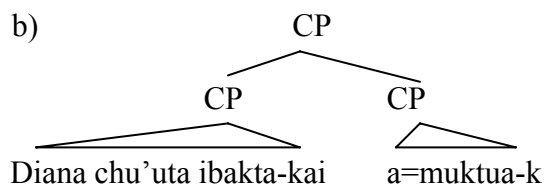
(127) u ili uusi buite-k into chepte-k.  
 DET small boy run-PST and jump-PST  
 ‘The child ran and jumped.’

(128) \*u ili uusi buite into chepte-k.  
 DET small boy run and jump-PST  
 (‘The child ran and jumped.’)

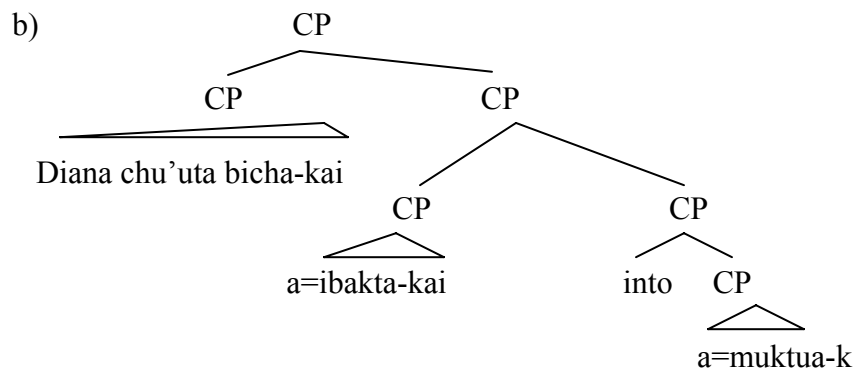
As we saw before, serial verbs are marked with *--kai* and only the final verb is marked for tense, giving the tense interpretation for all the verbs. Those cases can be treated as adjoined clauses, similar to (125b). The use of *--kai*, or *into* or both: *-kai* and *into* seem to be related to event codification. They are ways in which Yaqui indicates separateness of events.

I repeat the following examples in order to show the separateness of the events. In the first example, the two events are more closely tied than the second one, as the glosses indicate. The first example can be a clear example of an adjoined subordinated clause, whereas the second one is an example of a coordinated one. The structure of each sentence is represented in (129b and 130b) respectively.

(129) a) Diana chu’u-ta ibakta-kai a=muk-tua-k.  
 Diana dog-NNOM.SG embrace-SUB 3NNOM.SG=die-CAUS-PST  
 ‘Diana embracing the dog, left it dead.’



(130) a) Diana chu’u-ta bicha-kai, a=ibakta-kai  
 Diana dog-NNOM.SG see-SUB 3NNOM.SG=embrace-SUB  
 into a=muk-tua-k.  
 and 3NNOM.SG=die-CAUS-PST  
 ‘Diana saw the dog, embraced it and left it dead.’



#### 4.1.4.3.5 Some *-kai* clauses are coordinated in Yaqui

There is evidence that some *--kai* clauses are coordinated. The suffix *--kai* in this case marks the jointness (cotemporaneousness) of the event. Let's take the following example that indicates that the coordination of two relative subordinated clauses can not be discontinuous:

- (131) \*Joan [bocha-reo-ta            bicha-ka-me] o-'omte-k  
 John [shoe-NMLZ-NNOM.SG see-PST-NMLZ] RED-angry-PST  
 [into maejto-ta            bicha-ka-me].  
 [and teacher- NNOM.SG    see-PST-NMLZ]  
 ('John who saw the shoemaker and who saw the teacher was angry.')

However, if we use the *--kai* 'SUB' marker instead of *--me* 'NMLZ' used for introducing relative clauses, the sentence becomes grammatical. It has in addition the adverb *ketchia* 'too'. In this case, it is hard to maintain that we have the extraposition of a coordinated relative phrase. Instead of that, we can claim that we have the coordination of two clauses.

- (132) Joan [bocha-reo-ta            bicha-ka-me o-'omte-k]  
 John [shoe-NMLZ-NNOM.SG see-PST-NMLZ RED-angry-PST]  
 [into maejto-ta            bicha-kai    ketchia].  
 [and teacher-NNOM.SG    see-PST-SUB too]  
 'John who saw the shoemaker was angry and (he) saw the teacher too.'

In this case, the *into* ‘and’ particle can occupy other positions: the coordinator could be after a topicalized object in the second conjunct, or it could be even in final position. Those patterns are attested in actual sentence coordination. The occurrence of the adverbial *kechia* ‘too’ supports the idea that we have a coordinated sentence.

- (133) Joan [bocha-reo-ta            bicha-ka-me o-’omte-k]  
 John [shoe-NMLZ-NNOM.SG see-PST-NMLZ RED-angry-PST]  
 [maejto-ta            **into** bicha-kai    ketchia].  
 [teacher-NNOM.SG    and    see-PST-SUB    too]  
 ‘John who saw the shoemaker was angry and (who) saw the teacher too.’

- (134) Joan [bocha-reo-ta            bicha-ka-me o-’omte-k]  
 John [shoe-NMLZ-NNOM.SG see-PST-NMLZ RED-angry-PST]  
 [maejto-ta            bicha-kai    **intoko**<sup>42</sup>].  
 [teacher-NNOM.SG    see-PST-SUB    and]  
 ‘John who saw the shoemaker was angry and (who) saw the teacher too.’

Another set of sentences that indicates that *--kai* constructions can be coordinated is the following. In it the order of the conjuncts tends to be fixed. It is not possible to switch places between conjuncts: *-kai* is always before *into* ‘and’. The coordinator in these cases is obligatory:

- (135) Malia [mala-wa-ta-kai            into papá-wa-i] Diana-ta    betchi’ibo  
 Mary [mother-POSS-NNOM.SG-SUB and father-POSS-i] Diana-NNOM.SG for  
 ‘Mary is mother and father for Diana.’
- (136) Malia a-u            achai-ta-kai            into    a-u            mala-wa-i.  
 Mary 3NNOM.SG-DIR father-NNOM.SG-SUB and    3NNOM.SG-DIR mother-POSS-i  
 ‘Mary is father and mother for him/her.’

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<sup>42</sup> *Intoko* ‘and’ is taking the place of *ketchia* ‘too’. This is an indicative of the double life of the particle *into(ko)* ‘and’ as a coordinator and as an adverbial.



#### 4.1.5 Reflection about pseudo-coordination, -subordination, and coordination

In this section I present a reflection about the field of coordination which in the literature can be found split into these three areas of research: pseudocoordination, pseudosubordination and coordination.

Pseudocoordinations are constructions that look like VP coordinations, as in The next example from Lødrup (2002:121):

- (137) Han   sitter   og    skriver dikt.  
       he    sits    and   writes poems.  
       ‘He is writing poetry.’

And it is usual that in these constructions the Coordinated Structure Constraint (CSC) be violated (Lødrup (2002:122):

- (138)    Hva       sitter   han    og    skriver?  
           What    sits    he    and   writes?  
           ‘What is he writing?’

Therefore, their status as coordinate constructions has been questioned. For Lødrup (2002) a group of what is called pseudocoordination (PCO) must be treated as biclausal subordination whereas another grup must be analyzed as monoclausal structures. This position is contrary to De Vos (2004) who claims that PCO is coordination. One characteristic of the construction is that “truth conditional semantics of pseudocoordination is the semantics of coordinations. *Han sitter og skriver dikt* ‘he sits and write poems’ is true iff he sits and he writes poems” (Lødrup (2002, fn.3: 127)

Lødrup’s (2002) analysis of PCOs states that they are grammatically diverse: control, raising and monoclausal constructions. A simplified monoclausal functional

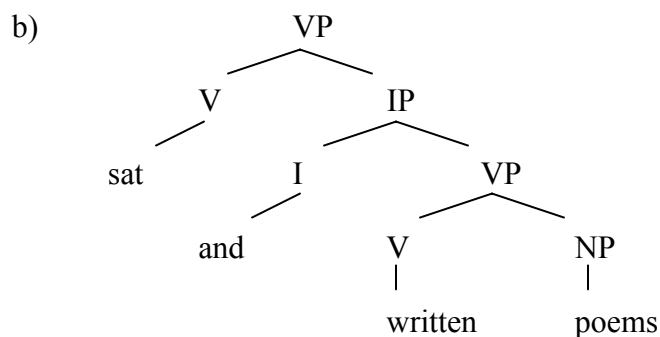
structure is given in (139). The two verbs together constitute one predicate that takes one set of syntactic arguments within one clausal domain (Løudrup 2002:125).

- (139) En    mann   sitter   og    skriver   dikt.  
 A     man    sits     and    writes   poems

(    SUB “man”  
 PRED “sit-and-write”  
 OBJ “poems”    )

And a constituent structure is shown in (137a-b):

- (140) a) (han har)    sittet    og    skrevet                    dikt.  
           (he has)    sat        and    written                poems



In his account, Løudrup (2002) assumes that the grammatical marker *og* ‘and’ heads the IP and that all pseudocoordination has the same basic constituent structure, which they share with (ordinary) control and raising constructions.

On the other hand, De Vos (2004) states the following properties for PCO (in English): a) the first conjunct is restricted to limited number of verbs, b) it allows systematic violations of CSC, c) it yields aspectual interpretations (notably durativity), as well as ‘surprise’ and pejorative readings, d) both verbs must have the same morphological form (De Vos 2004:112).

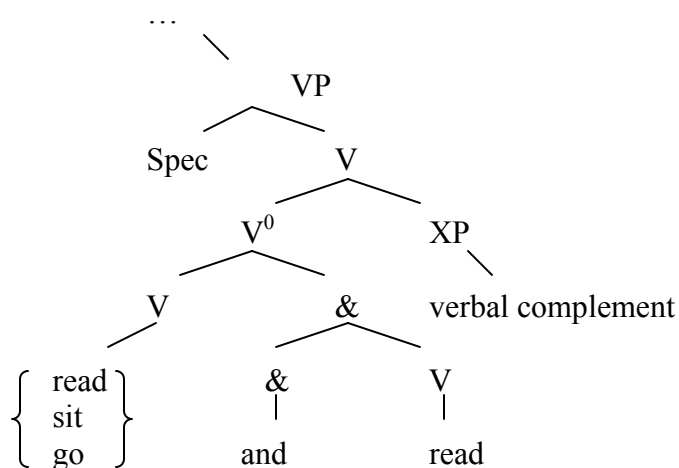
According to De Vos (2004), PCO is not subordination for the following reasons: a) coordinated verbs do not behave like auxiliaries (Pollock 1994): they can not be modified by a *both* and they can not raise across negation to T, b) the subject of the embedded clause cannot be licensed: it can not be *PRO* because V is not an infinitive; it can not be *pro* because English is not a pro-drop language (to propose *pro* for English would be counterintuitive); it is not a trace of raising because the V can assign case to the “moved” NP and the expletive can not occur with it; it is not a trace of ATB because PCO would be a garden-variety-coordination.

The proposal of De Vos (2004) states that PCO are complex heads derived in the syntax itself (i.e. the construction is not a compound). The account unifies the behavior of PCO and what he calls Reduplicative Coordination (ReCo). An example of ReCo is given in (141) De Vos (2004:185):

(141) What did John read up and read up on?

The proposed structure is the following (De Vos 2004:189):

(142)



This proposal, according to De Vos (2004), has the following advantages: a) extraction is allowed, therefore, not CSC violation happens, b) only a single subject is projected by the complex predicate, c) V&V PCO and ReCo pattern alike with lexical verbs in subject-aux-inversion and V to T raising, d) *both* is not tolerated in PCO and ReCo because it contrasts two entire events.

For De Vos the particle *and* marks a transition between the two stages and it is a two-place ‘sameness’ operator. In addition, “ReCo/PCO *and* is identical in its lexical specifications to the garden-variety coordinator *and*” (De Vos 2004: 189). Therefore, at the semantic level *and* takes ‘same’ categories and at syntactic level “the sole difference between them is that garden variety *and* projects an entire XP of its own, ReCo/PCO *and* projects only a head label” (De Vos 2004: 189).

Yaqui does not have pseudocoordinate structures. The language only has, in terms of De Vos (2004), garden-variety-coordination and pseudosubordination. However, it is interesting to analyze why Yaqui lacks that kind of structures and it is important to analyze the structures used for coordination.

First, Yaqui does not have PCO because conjoined transitive verbs must have their objects in overt syntax:

- (143) u    ili    jamut lapis-ta    jinuk    into    a=nenka-k.  
       DET   small woman       pencil    buy-PST    and    3NNOM.SG=sell-  
           PST  
       ‘The girl bought a pencil and sold it.’

Second, it is not possible to extract the object from a conjunct; therefore, there is no CSC violation. The next example of ReCo shows that we must repeat the WH-question in each conjunct if we want to have a grammatical coordinate sentence:

- (144) Jitá bwiika into jitá bwiika ju Joan?  
 What sing.PRS and what sing.PRS DET John  
 ‘What does (the) John sings and sings?’
- (145) \*Jitá bwiika into bwiika ju Joan?  
 What sing.PRS and sing.PRS DET John  
 ‘What does (the) John sings and sings.’

There are alternative resources for expressing repetition (i.e. alternatives to ReCo).

The main one is reduplication.

- (146) Aapo ji-ji’oste-kai-su lotte-k.  
 3SG RED-write.book-SUB-TERM be tired-PST  
 ‘He wrote and wrote (book(s)) until he was tired’// ‘He is tired after being writing  
 and writing (book(s)).’

But, we have too the conjunction of reduplicated verbs, as indicated in the next example:

- (147) Malia jitá ji-jinu-ka-n into jitá ji-jinu-ka-n.  
 Mary what RED-buy- and what RED-buy-PST-CONT  
 ‘What did Mary buy and buy?’

Another resource in the language is the repetition of the object:

- (148) Joan dulsem into dulsem jiba bwa-bwae.  
 John candies and candies always RED-eat  
 ‘John always eats candies and candies.’

The previous data indicates that PCO was not attested (nor ReCo) in Yaqui. However, the literature shows that we have to look at Pseudocoordination, Garden Variety-Coordination and Pseudosubordination if we want to have a better explanation of coordination phenomenon.

In the first place, we have the observation that this classification lies mainly in two parameters: a syntactic and a semantic one. Syntactically, pseudocoordination emerges with two (or more) conjuncts joined by a coordinator, but semantically it violates the

CSC (Munn 1993, suggests that the CSC is a semantic constraint), although the truth conditions are those of coordinated structures (Løudrup 2002, fn.3: 127). Pseudocoordination, syntactically is a subordinated clause, but semantically it behaves as a coordinated one: it respects the CSC (Yuasa and Sadock 2002). A garden-variety-coordination syntactically has two (or more) conjuncts joined by a coordinator and syntactically tends to respect the CSC.

Table 4.1 shows that the CSC is a violable constraint in some languages like Spanish but not in languages like Yaqui. Therefore, if it exists, the CSC must be a soft constraint:

Table 4.1. Violability of the CSC

	Pseudocoordination		Garden-Variety Coordination	Pseudo-subordination
	PCO	ReCo		
Obey the CSC? (Yaqui)	Not attested	Not attested	Yes	Yes
Obey the CSC? (English)	No	No	Yes/no	Not attested
Obey the CSC? (Spanish)	No	No	Yes/no	Not attested

Examples:

In Yaqui: PCO and ReCo were not attested. But garden-variety-coordination respects the CSC:

(149) Jabe-ta        bicha-k        into        jabe-ta jikkaja        ju        Peo.  
 Who-NNOM.SG see-PST        and        who-NNOM.SG hear.PST        DET        Peter  
 ‘Who did Peter see and who did he hear?’

(150) \*Jabe-ta        bicha-k        into        jikka        ju        Peo.  
 Who-NNOM.SG see-PST        and        hear.PST        DET        Peter  
 (‘Who did Peter see and hear?’)

A pseudosubordinated construction respects too the CSC:

- (151) Jabe-ta            bicha-kai    jabe-ta        into    jikaja-k ju    Peo?  
 Who-NNOM.SG see-SUB        who-NNOM.SG and    hear-PST DET Peter?  
 ‘Who does Peter saw and who does (he) heard?’
- (152) \*Jabeta<sub>i</sub>        Peo    bicha-kai        (into) jikaja-k.  
           Who        Peter see-SUB        (and) hear-PST
- (153) \*Jabeta<sub>i</sub>        Peo    a<sub>i</sub>=                bicha-kai        (into) a<sub>i</sub>=                jikaja-k.  
           Who        Peter 3NNOM.SG=    see-SUB        (and) 3NNOM.SG=    hear-PST

In English: Both PCO and ReCo violate the CSC<sup>43</sup>, as indicated below:

PCO        (De Vos 2002:112):

- (154) What has John sat and done all day?

ReCo        (De Vos 2002:185):

- (155) What did John read up and read up on?

A garden-variety-coordination does not violate the CSC:

- (156) John saw Maria and Peter heard Juana’
- (157) \*Whom did John see and Peter hear Juana?
- (158) \*Whom John saw Mary and did Peter hear?

But ATB extraction is possible, therefore the CSC is violated:

- (159) Whom did John see and Peter hear?

Also if the conjuncts make reference to a single object, the CSC is violated:

- (160) What does Maria buy and sell?

---

<sup>43</sup> Recall that the CSC is seen here as a violable constraint. It bans extraction from any coordinate structure. The Across the Board principle is not a way to keep the CSC inviolable. We can dispense with it.

If we look at chaining structures, we can say that English does not have pseudosubordination. The following chaining structure (161) contains conjoined gerundive verbs that do not allow extraction from them (as indicated in (162)) but allow extraction from the tensed clause (as seen in example (163)):

(161) ‘Looking at Maria, listening to Juana, the husband knew the secret.’

(162) \*Whom looking at, listening to, the husband knew the secret?

(163) What, looking at Maria, listening to Juana does the husband knew?

On the other hand, it is not clear that Spanish has PCO because the attested examples do not fit to the characteristics of English PCO (De Vos 2004). In Spanish the first conjunct is not so restricted to a limited number of verbs, it does not yield special aspectual interpretations nor have it ‘surprise’ and pejorative readings. However the following kind of Spanish examples share the following properties with the PCO in English: it violates the CSC, it shows too systematic violations of the CSC and it requires that both verbs have the same morphological form. The next example could be placed in the Garden-variety-coordination category.

PCO

(164) ¿Qué pensó e hizo Juan todo el día?  
 What thought and did John all the day  
 ‘What did John think and do all day?’

ReCo

(165) ¿Qué leyó y leyó Juan?  
 What read and read John?  
 ‘What did John read and read?’

A garden-variety-coordination does not violate the CSC. The next examples indicate that extraction is not possible, if the sentences contain different subjects:



- (166) Juan vio a María y Pedro escuchó a Juana.  
 John saw to María and Peter heard to Juana  
 ‘John saw Maria and heard Juana.’
- (167) \*¿A quien vio Juan y Pedro escuchó a Juana.  
 To whom saw John and Peter heard to Juana  
 (‘Who did John see and Peter heard Juana?’)
- (168) \*¿A quien vio Juan a María y escuchó Pedro?  
 (‘Who did John see Mary and Peter heard?’)

But ATB extraction is possible, therefore the CSC is violated:

- (169) ¿A quien vio Juan y escuchó Pedro?  
 To whom saw John and heard Peter?  
 ‘Who did John see and Peter hear?’

But if the conjuncts make reference to a single subject, the CSC is violated:

- (170) ¿Qué compra y vende Maria?  
 What buy and sell Maria?  
 What does Maria buy and sell?

It seems that Spanish does not have pseudosubordination. The following chaining structure contains conjoined gerundive verbs that do not allow extraction from them but allow extraction from the tensed clause:

- (171) Analizando a María, oyendo a Juana,  
 Looking to María, hearing to Juana  
 el marido supo el secreto.  
 the husband knew the secret.  
 ‘Looking Maria, listening Juana, the husband knew the secret.’

Extraction from an adjunct:

- (172) \*A quien analizando, oyendo a Juana,  
 To whom looking, listening to Juana  
 el marido supo el secreto.  
 the husband knew the secret.  
 (‘Whom looking, listening Juana, did the husband know the secret?’)

Extraction from the main clause:  
 (173) Qué, analizando a Maria, oyendo a Juana,  
 what looking to Maria, listening to Juana  
 supo el marido.  
 knew the husband.  
 ‘What, looking Maria, listening Juana, did the husband know?’

#### 4.1.5.1 Insights

The CSC is used as a test for coordinated constituency. It is central in the above classification. However, the data shows that CSC is just one of several constraints interacting in the make up of coordinate constructions. In addition, the data shows that is not easy to establish the line between coordination and subordination.

The occurrence of PCO is an argument against conjunction reduction because we can not say that sentence (174a) is the source of sentence (174b):

- (174) a) John went and John drank beer.  
 b) John went and drank beer.

The semantic distinction is a reflex of a syntactic distinction.

Another characteristic that is worth noticing is that pseudocoordination is reduced to sentences in which the same subject (grammatical or logical) is involved; the same happens in Yaqui with pseudosubordination. (This fact is different for Japanese because the *te*-constructions can contain different subjects (Yuasa and Sadock 2002): they are control structures.) The same subject is understood in all the clauses of the chain, as shown in Table 4.2.

Table 4.2. The same subject requirement of Pseudocoordination and Pseudosubordination

	Pseudocoordination		Garden-Variety Coordination	Pseudosubordination
	PCO	ReCo		
<b>Same subject</b>	SS *DS (English) (Spanish?)	SS *DS (English) (Spanish)	SS, DS (Yaqui) (English) (Spanish)	SS, *DS (Yaqui)

Other characteristics of these constructions in English, Spanish and Yaqui are summarized in Table 4.3. The table summarizes various observations:

- (175) a) The three languages have garden-variety-coordination.
- b) English and Spanish have PCO whereas Yaqui does not have it.
- c) English and Spanish does not have pseudosubordination, whereas Yaqui has it.
- d) There are several aspects that occur cross linguistically: Any number of conjuncts can occur, reversibility, scope of negation and the sameness constraint.

Table 4.3: Some contrasts between Pseudosubordination, Garden Variety Coordination and Pseudosubordination

		Pseudocoordination		Garden-Variety Coordination	Pseudosubordination
		PCO	ReCo		
*Backward pronominalization		Yes: * Has he <sub>i</sub> sat and has John <sub>i</sub> done all his homework?	Yes: *Did he <sub>i</sub> read up and did John <sub>i</sub> read up on?	Yes: (English) (Spanish) (Yaqui)	Yes: (Yaqui)
Any number of conjuncts can occur		<b>No</b> (English) <b>Yes</b> (Spanish) Que pensó, dijo e hizo Juan todo el día?	Yes: (English) (Spanish) Juan rezó, rezó y rezó hasta que se cansó.	Yes: (English) (Spanish) (Yaqui) Pedro trabajó, estudió, e hizo la tarea.	Yes (Yaqui)
Reversibility		<b>No</b> English <b>Yes:</b> (Spanish) Qué hizo, dijo y pensó Juan todo el día?	Yes (English) (Spanish) ??	Yes (English) (Spanish) (Yaqui)	Yes (Yaqui)
Scope (both affected by negation)		Yes (English?) (Spanish) No es cierto que compró y vendió el burro.	Yes (English) (Spanish) Es falso que leyó y leyó hasta que se cansó.	Yes (English) (Spanish) (Yaqui)	Yes (Yaqui)
Sameness Constraint		Semantic Sort	Reduced to some verbs in English. Common coordination in Spanish	Any verb can be coordinated in this way (English) (Spanish)	Any verb (English) (Spanish) (Yaqui)
Syntactic structure	Categorial Sort	Main verbs (English) (Spanish)	Main verbs (English) (Spanish)	Main and auxiliary verbs (English) (Spanish)	Any verb (Yaqui)
	coordinate	coordinate	coordinate	subordinated	Main verbs. (Yaqui)

In (120), repeated here, I showed that in Yaqui, the CSC is always satisfied because of the ranking \*EXTRACTION >> DGF, \*COORD-NON-MAX.

(176) Tableau with the ranking \*EXTRACTION >> DGF, \*COORD-NON-MAX (= 120)

Input: {jabeta, Joan, atek, into, jabeta, a, tebotuak}	*EXTRACTION	DGF	*COORD-NON-MAX
a. $\leftarrow$ jabeta Joan atek into jabeta a tebotuak		**	
b. jabeta Joan atek into tebotuak	!*		*
c. jabeta Joan atek into a tebotuak	!*	*	

For languages like English and Spanish, where we have reduction of grammatical roles and coordination of heads is allowed, the ranking will be reversed. In such cases the candidate with the structure of (167b) or (167c) will emerge as optimal, depending on the nature of the input and the interrelation within other ranked constraints.

One aspect of PCO is that it seems to be licensed by the coordination of heads. This aspect is related too to the possibility of having RNR structures in those languages.

We saw that it would be difficult to say that Yaqui has PCO. In a similar way, we predict that Yaqui will not have RNR structures. At first sight, that seems to hold in Yaqui, however, if we compare the kind of data introduced by Cann et al (2005) with similar constructions in Yaqui, we find that similar problems are recreated.

The next example shows a typical example of RNR. But in Yaqui, an overt pronoun is required in the canonical position, whereas in English and Spanish it is not required:

- (177) ume ili usim ka=a<sub>i</sub> tu'ure amako, into  
 DET.PL small boy not=it like sometimes, and  
 ket ka=a<sub>i</sub> wantaroa [ame-u o'omti-wa-ko]<sub>i</sub>  
 too not=it support 3PL.OBL-DIR angry-PASS-when  
 'Children do not like and sometimes they do not support the anger towards them'

The following example shows that there can be more than one right dislocated expression giving rise to apparent non-constituent coordination.

- (178) Joan yew=am go'ota-k, Peo into ye=am  
 John out=3NNOM.PL throw-PST Peter and HO=3NNOM.PL  
 maka-k ume maestro-ta ji'oste-im jabe-ta  
 make-PST DET.PL teacher-NNOM.SG writing-PL who-NNOM.SG  
 ama a= wanta juni'i.  
 there 3NNOM.PL= like even  
 'John copied and Peter gave the teacher's writings to whoever asks for them.'

The following example shows that the dependency occurs into a strong island:

- (179) Joan a= jinu-pea Peo into junea  
 Joan 3NNOM.SG= buy-want Peter and know  
 jaisa teak uka karro-ta 1980 ne-nenka-me.  
 how name the.NNOM.SG car-NNOM.SG 1980 RED-sell-SUBJ.REL  
 'John wants to buy and Peter knows the name of the person who sells a 1980 car.'

But not every pronoun could give rise to a structure that we can consider RNR. The following example has translations that indicate that they are grammatical in English and Spanish and are not RNR.

- (180) Jose aman pasiyaloa-pea ta a beas  
 Jose there visit-DES but 3SG really  
 kopti-la-wa a= samai-wa-ta jo'aka-po.  
 forget-PFV-PASS 3SG.POSS= aunt-POSS-NNOM.SG live-LOC  
 'Jose wants to visit there, but he really forgot where his aunt lives'

- (181) Jose a-u pasiyaloa-pea ta a beas  
 Jose 3NNOM.SG-DIR visit-DES but 3SG really  
 kopti-la-wa [a= samai-wa-ta] jo'aka-po  
 forget-PFVA-PASS [3SG.POSS= aunt-POSS-NNOM.SG] live-LOC  
 'Jose wants to visit her, but he really forgot where his aunt lives'

I don't cover this topic in the OT framework, but instead point it out as an interesting area for future research into the Yaqui language. It is clear that it is not by accident that Yaqui does not allow pseudocoordination. The explanation of the three phenomena by using the same set of constraints with different ranking seems to be promising.

## 4.2 Conclusion

In this chapter I presented the main properties of verbal coordination. The focus was the *--kai* construction because it has subordinating and coordinating characteristics.

This section presents an analysis of the main properties of Yaqui verbal coordination. The characteristics that are described and explained are summarized here: a) related to balanced coordination: Balancedness for Tense, Number and Mood and non-violation of CSC; b) related to unbalanced coordination (pseudosubordination): The tense marking occurs in the final conjunct; the order of the conjuncts tends to be sequential, but reversibility is possible; the construction makes reference to a same subject and it is not repeated; the suffix *-kai* appears on each verb; the construction makes reference to a sequential event; in a semantic coordinated chain, *into* 'and' can not occur between *--kai* clauses. This chapter uses the notion of a coordinator like an adjunct which attaches to a host CP and licenses the addition of a new CP (the first coordinator). We saw too that in Yaqui the CSC is respected. In the final part of this chapter I have presented an overview of pseudocoordination, pseudosubordination and coordination.

## 5 NOMINAL COORDINATION

This chapter is about Yaqui nominal coordination. However, in order to have a better understanding of the principles that regulate Yaqui nominal coordination, it is necessary to describe first the morphology of nouns and verbs. So, the reader will find first a description of nominal and verbal classes and, after that, an explanation about how the number morphology of coordinated nouns interacts with verbal number requirements. In the final part, I analyze in the OT framework some challenging asymmetries in agreement that can be problematic for an LFG account along the lines of Halloway King & Dalrymple (2004). Those researchers split number features into two types: CONCORD features and INDEX features. This partition allows them to explain agreement facts between coordinated nouns and determiners in English. I apply those ideas to the agreement between coordinated nouns and verbs and show that the idea of two number features is useful but that there are some unexpected patterns that can be explained using the OT framework.

### 5.1 Background on Nominal and verbal classes

#### 5.1.1 Number in nouns and in verbs

In this section I show first that nouns are subject to morphological requirements and they form three classes based on their ability to take a singular or plural marker. After that, I show that verbs form three classes too, according to their requirements of singular or plural arguments. Finally I analyze the interaction between morphological



requirements of nouns and morphological requirements of verbs in connection with coordination of nouns.

### 5.1.1.1 Nominal classes

Nouns are subject to different morphological requirements for inflection. They can be divided into three groups: nouns that can be marked for both singular and plural, nouns that can only be marked for singular, and nouns that can only be marked with plural. Let's call them class one (N1), class two (N2) and class three (N3). The classes can be seen below, where the symbol (-) indicates that the noun cannot take the indicated marker: plural or singular.

(1)	Class one (N1)	Class two (N2)	Class three (N3)
	SG	SG	(-)
	PL	(-)	PL

Examples from each class are given in what follows. The singular is indicated by the zero marker in nominative, whereas the plural is the marker *-(i)m*. When the noun is non-nominative, the singular is marked with *--ta* and the plural is again marked with *-(i)m*. The markers *--ta* and *-(i)m* are mutually exclusive.

- (2) Class one: nouns that take both singular and plural. The examples are in non-nominative form.

Singular	Plural	Gloss
kawis-ta	kawis-im	'fox'
ousei-ta	ousei-m	'lion'
koowi-ta	koowi-m	'pig'

- (3) Class two: nouns that take only singular. The examples are in non-nominative form.

Singular	Plural	Gloss
naposa-ta	*naposa-m	‘ash’
seberia-ta	*seberia-m	‘cold’
seé’e-ta	*seé’e-m	‘sand’

- (4) Class three: nouns that take only the plural marker. As indicated by the asterisk, they can not be marked singular (nominative or non-nominative), they require to be marked always with *--(i)m* ‘PL’. However, in spite of this marking, their meaning could be singular or plural (in other words, they are unspecified for number).

Singular	Plural	Gloss
*supe/ *supe-ta	supe-m	‘shirt(s)’
*puusi/ *pusi-ta	puusi-m	‘eye(s)’
*boocha/ *bocha-ta	boocha-m	‘shoe(s)’

The semantics of these nouns (N3) have been explored by Buitimea Valenzuela (2003), who concluded that they make reference to body parts, instruments, large objects, some reptiles (“medium size”, with legs), clothing, food, diseases, some collectives, and nouns that express volume. Some examples are given next Buitimea 2003:16-32):

(5) Noun	Gloss: SG/PL
mamam	‘hand(s)’
jeemam	‘liver(s)’
tepuam	‘ax(es)’
kuetem	‘sky rocket(s)’
sakkaom	‘gila monster(s)’
bejo’orim	‘lizard(s) (kind of)’
piisam	‘blanket(s)’
bwajim	‘underpants’
nojim	‘tamale(s)’
keesum	‘cheese(s)’
keekam	‘mange(s)’
kapichooram	‘smallpox(es)’
bwassumiam	‘tress(es)’

opoam	‘tear(s)’
jaakam	‘phlegm(s)’

The N3 class can never be marked with *-ta* ‘NNOM.SG’ because this suffix is mutually exclusive with *--(i)m* ‘PL’ (Escalante 1990, Dedrick and Casad 1999). The exclusion relation is illustrated below:

- (6)    nem            juubi    **chu’u-ta**        tu’ure.  
 1SG.POSS        wife    dog-NNOM.SG    like.PRS  
 ‘My wife likes the dog.’
- (7)    nem            juubi    **chu’u-m**            tu’ure  
 1SG.POSS        wife    dog-PL            like.PRS  
 ‘My wife likes the dogs.’
- (8)    \*nem            juubi    **chu’u-m-ta**            tu’ure.  
 1SG.POSS        wife    dog-PL-NNOM.SG    like.PRS  
 (‘My wife likes the dogs.’)

Based on the collected data, we can establish that class one is the most abundant and probably the unmarked case: it can host singular and plural markers. Class two and class three are the marked ones; they only accept one number marker.

(9)	Class one (N1)	Class two (N2)	Class three (N3)
	SG	SG	(-)
	PL	(-)	PL
	unmarked	marked	marked

The morphological requirements of noun classes seen above interact with the morphological requirements of verbs. The verbal classes are shown below:

### 5.1.1.2 Verbal classes

Looking at number, Yaqui verbs can be classified in three classes too: the verbs that can take a singular or plural noun, those that take only singular nouns, and those that take

only plural nouns. They can be intransitives or transitives. Although case marking does not relate in Yaqui to argument structure, the exploration of transitives and intransitives will be done further because it is relevant for the coordination patterns. We will see a set of suppletive verbs that have different patterns of coordination when they agree with the subject (intransitives) than when they agree with the object (transitives).

(10)	Class one (V1)	Class two (V2)	Class three (V3)
	SG	SG	(-)
	PL	(-)	PL

Exemplification of each class is given in what follows:

- (11) Class one (V1): verbs that take either a singular or plural noun. They are not marked for singular or plural agreement.

Singular

- a) Wiikit aa nen-ne'e.  
 Bird can RED-fly.PRS  
 'The bird can fly.'

Plural

- b) ju-me wiikich-im nen-ne'e.  
 DET.PL bird-PL RED-fly.PRS  
 'The birds are flying.'

- (12) Class two (V2): verbs that take only singular nouns (suppletive verbs).

Singular

- a) Uusi Vicamme-u siika.  
 Boy Vicam-DIR go.SG.PRS  
 'The boy is going to Vicam.'

Plural

- b) \*Uusi-m Vicamme-u siika.  
 Boy-PL Vicam-DIR go.SG.PRS  
 ('The boys go to Vicam.')

- (13) Class three (V3): (suppletive) verbs that take only plural nouns as argument. As asterisks indicate, the nouns cannot be singular, they are required to be always be understood as plural.

	Singular		
a)	*Peroon-im	pesio-u	siika.
	Soldier-PL	Hermosillo-DIR	go.SG.PRS
	('The soldiers are going to Hermosillo.')		
	Plural		
b)	Peroon-im	pesio-u	sajak.
	Soldier-PL	Hermosillo-DIR	go.PL.PRS
	'The soldiers are going to Hermosillo.'		

According to this classification, we can again establish that class one (V1) is the unmarked situation: it can take both singular and plural nouns as arguments. Class two (V2) and class three (V3) probably are the marked ones, they only accept singular or plural nouns.

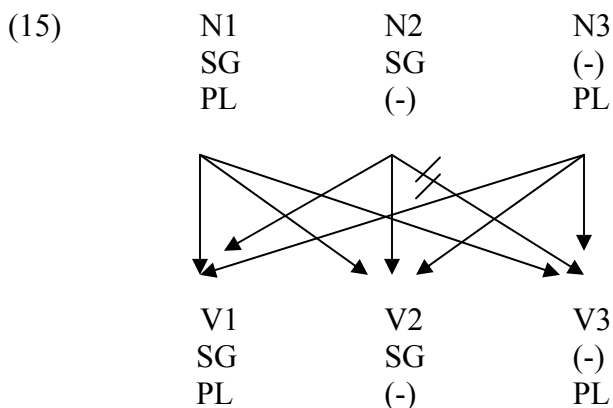
(14)	Class one (V1)	Class two (V2)	Class three (V3)
	SG	SG	(-)
	PL	(-)	PL
	Unmarked	marked	marked

Classes V2 and V3 are composed of suppletive verbs, they can be intransitives or transitives. The intransitive ones show agreement with the subject whereas the transitive ones agree with the object of the sentence. Because they behave differently in relation with coordinated nouns, they are described separately in this work. Now, I want to show that nominal and verbal classes interact in interesting ways. Let's analyze this kind of interaction:

### 5.1.2 Interactions between nouns and verbs

In what follows, the continuous arrows indicate that the noun combine with the signaled verb: the N1 combine with all verbs, N2 only combine with V1 and V2, and N3 combine with all verbs too.

There are several things to see in this picture. First, why can N3 (plural) combine with V2 (singular), contrary to what was seen before? And second, why do N2 (singular) and V3 (plural) not combine in a similar fashion? Another question that needs clarification is the underspecification for number found in N3 when combined with V1 (see example (22)).



The following examples indicate that N1 combine with all verbal classes:

(16)

N1		V1
buuru	bachi-ta	bwa-ka.
donkey	corn-NNOM.SG	eat-PST

‘The donkey ate corn.’

(17)

N1		V2
buuru	aman	buite.
donkey	there	ran.SG.PRS

‘The donkey ran there.’







features in the sense of the Hallaway King and Dalrymple 2004) which give rise to the patterns found in Yaqui.

Some of these constraints in table (25) will be used in the final part of this section where agreement patterns are analyzed. For now, because in this work the interest is centered on coordination, the next section explores the behavior of nouns and verbs under coordination.

## 5.2 Noun coordination and verbal agreement

### 5.2.1 Noun coordination and intransitive suppletive verbs

This section illustrates the behavior of suppletive intransitive verbs. These function in a different way than transitive verbs with respect to noun coordination. As we saw earlier, most verbs in Yaqui don't give information about number; however, there are some intransitive Yaqui verbs which are suppletive for singular and plural<sup>44</sup>. The following examples in (26a) are the intransitive counterparts of the transitive verbs described in the next section.

(26)	Singular	Plural	Gloss
	a) yejte	jo'ote	'to sit, to stand up'
	kikte	ja'abwe	'to stop', 'to get up', 'to put up'
	bo'ote	to'ote	'to lie down'

---

<sup>44</sup> There are some suppletive forms for past and stative meaning too. For example, the following singular verbs (and the plurals too) vary according to this aspect. Because this issue is not relevant for coordination, I leave this aside here.

Singular/Plural	
Past/Stative	
yejte/katek	'to sit, to stand up'
kikte/japtek	'to stop', 'to get up', 'to put up'

b) buite	tenne	‘to run’
siika	sajak	‘to arrive’
weeye	kaate	‘to go’

Coordination of two (or more) singular nouns requires a plural verb (this is contrary to transitive verbs agreeing with the object: two coordinated singular nouns require a singular verb). In the following example, we can see that nominative case is recognized because of the lack of morphological marking.

(27) yooko [Joan into Peo] tenni-bae  
 tomorrow John and Peter run.PL-INTT  
 ‘John and Peter will run tomorrow’

(28) \*yooko [Joan into Peo] buiti-bae.  
 Tomorrow John and Peter run.SG-INTT  
 (‘John and Peter will run tomorrow’)

A singular noun coordinate with a plural noun (class 1) combine with a plural verb. The next example shows that the order of the conjuncts does not matter for the verbal requirements:

(29) jume uúsi-m into ju’u maejto aman saja-k.  
 DET.PL child-PL and DET.SG teacher there go.PL-PST  
 ‘The children and the teacher went over there.’

(30) ju’u maejto into jume uúsi-m aman sajak.  
 DET.SG teacher and DET.PL child-PL there go.PL.PST  
 ‘The teacher and the children went over there.’

More interesting are the requirements found with nouns of the class 3 (the ones that must be always marked with *--(i)m* ‘PL’). A non-coordinate noun combined with a singular verb is interpreted as singular; if the verb is plural it is interpreted as plural. If the verb does not mark number, depending of the context, it can be interpreted as singular or plural:

- (31) bejo'ori-m nas bui-buite  
 lizard-PL DIR RED-run.SG.PRS  
 'The lizard is running (without a specific direction).'
- (32) bejo'ori-m nas tet-tenne.  
 lizard-PL DIR RED-run.PL.PRS  
 'The lizards are running. (without a specific direction)'
- (33) bejo'ori-m yumjoe-(mme).  
 lizard-PL rest.PRS-(3PL)  
 'The lizard(s) is/are resting.'

When the coordinate nouns combine with a verb that does not indicate number, the nouns can be interpreted as singular or plural. There is uniformity in the interpretation; both conjuncts must be interpreted as singular or both as plural.

- (34) bejo'ori-m into sakkao-m inim yumjoe.  
 lizard-PL and gila.monster-PL here rest.PRS  
 'The lizards and the gila monsters are resting here.'  
 'The lizard and the gila monster are resting here.'  
 \*'The lizard and the gila monster are resting here.'  
 \*'The lizard and the gila monster are resting here.'

The use of numerals allows expressing the number of the conjunct:

- (35) wepul bejo'ori-m into wepul sakkao-m inim yumjoe.  
 one lizard-PL and one gila.monster-PL here rest.PRS  
 'One lizard and one gila monster are resting here.'
- (36) bejo'orim into wepul sakkaom yumjoe.  
 'The lizard and one gila monster are resting.'
- (37) Wepul bejo'orim into sakkaom yumjoe.  
 'One lizard and the gila monsters are resting.'

Two plural nouns of the N3 class require a plural verb too. The same happens with the combination of a singular and a plural noun.

### 5.2.2 Summary

The next table summarizes the patterns of nominal coordination combined with an intransitive verb. We can see that all combinations result in a plural agreement. Therefore, our explanation must allow the generation of these candidate structures too.

(38)	[N + N]	V <sub>INTR</sub>	Interpretation	
	SG+SG	PL		PL
	PL+PL		PL	PL
	SG+PL	PL		PL
	PL+SG	PL		PL

And we need to rule out the following unattested patterns.

(39)	[N + N]	V <sub>INTR</sub>	Interpretation	
	SG+SG	SG		*
	PL+PL	SG		*
	SG+PL	SG		*
	PL+SG	SG		*

Discontinuous coordination occurs with intransitives too, as the following example indicates the verb must be singular if the preverbal subject is singular.

(40)	Yoeme	juya-u	siika	into	uusi-m(ketchia).
	Man	forest-DIR	go.SG	and	boy-PL (too)
	'The man went to the forest and the boys (too).'				

But this example might not be a real discontinuous coordination; it might be analyzed as an example of sentence coordination. If it were a real nominal coordination, the following sentence would be grammatical because in Yaqui preverbal coordinated nouns require a plural verb, if it were a split coordinate subject, the occurrence of a plural verb would be expected:

(41)	*Joan sajak	into	Peo	(ketchia).
	John go.PL.PST	and	Peter	(too)
	('John went and Peter (too)').			

### 5.2.3 Analysis

The following section explores the morphological features present in the intransitive verbs and in the nominal classes. This section is the background for the explanation of an asymmetry in agreement between conjoined nominals and verbs: conjoined singular nominals as subjects of intransitive verbs require a plural verb whereas conjoined singular nouns functioning as object of a transitive verb requires a singular verb.

### 5.2.4 Analysis of the interaction between coordinate nouns and verbs

This section focuses on the OT analysis of the agreement patterns emerging between coordinate nouns and verbs. The first part presents some background about the number system of features proposed by Halloway King and Dalrymple (2004) and in the final part I present my own analysis.

#### 5.2.4.1 The system of concord and index features

Within the framework of the Lexical-Functional Grammar (LFG), Halloway King and Dalrymple (2004) propose that there are two types of features active in coordinate structures: CONCORD features and INDEX features. They use this distinction for explaining noun agreement in English. I introduce the concepts by looking at the Yaqui examples.

Determiner noun agreement in Yaqui seem to be straightforwardly describable: a singular determiner goes with a singular noun and a plural determiner goes with a plural noun.

- (42) Ju'u wiikit ne-ne'e.  
 DET.SGbird RED-fly  
 'The bird flies.'

- (43) Jume wikich-im ne-ne'e.  
 DET.PL bird-PL RED-fly  
 'The birds fly.'

Holloway King and Dalrymple (2004), following Wechsler & Zlatić (2000) suggest that there are two types of agreement features associated with nouns, CONCORD features and INDEX features. The first ones are closely related to the declension class of a noun and generally control agreement between a noun and its determiners and adjectives. The second ones are closely related to the noun's semantics, control agreement between a noun phrase and a bound pronoun and often control verb agreement (Holloway King & Dalrymple 2004:71).

These researchers exploit the distinction between nondistributive and distributive features. CONCORD features are treated as distributive (each conjunct must bear it) whereas INDEX features are taken as nondistributive (i.e. they are carried by the entire set, in LFG terms). Distributive features allow an explanation of the agreement inside a coordinate phrase (as, for example, between a singular determiner and a singular noun).

On the other hand, nondistributive features allow us to explain, for example, agreement between a coordinate phrase as a whole with a verb. The next example illustrates the idea about CONCORD and INDEX features. I use a different representation than that used for Holloway King & Dalrymple (2004) because I am not assuming the LFG framework nor the functional representation proposed by them. We can see that the CONC(ORD) singular features in the next example license the agreement inside the coordinate phrase, while the IND(EX) feature corresponding to the coordinate structure as a whole agrees with the plural verb. The representation only intends to show the idea of

how those features work. It does not reflect the use of these features in the LFG framework. In order to facilitate the reading, CONCORD features are represented as subindices whereas INDEX features are represented as superindices.

- (44) [Ju jamut<sub>CONC:SG</sub> into ju yoeme<sub>CONC:SG</sub>]<sup>IND:PL</sup> sajak.<sub>CONC:Ø</sub><sup>IND:PL</sup>  
 DET.SG woman and DET.SG man left.PL  
 ‘The woman and the man left.’

The system proposed by Holloway King & Dalrymple (2004) predicts that there would be, at least, four types of verbs:

- (45) a) V            b) V            c) V            d)  $\left( \begin{array}{c} V \\ \text{CONCORD} \\ \text{INDEX} \end{array} \right)$   
           [INDEX]        [CONCORD]        [Ø]

The analysis of Yaqui indicates that the verbs respond to the following representations:

For class-1 Verbs (the ones that do not mark number) the representation is that of (45c), repeated here as (46):

- (46) tekipanoa    ‘work’  
           V  
           [Ø]

The predictions generated by the representation of this type of verbs are correct. First, it predicts that the verb can combine with singular or plural nouns (see examples (47) and (48)). I assume that nouns carry CONCORD and INDEX number features. The CONCORD feature is represented attached to the noun whereas INDEX feature is attached to the whole parenthesis. The verb does not carry any number information. I use the symbol Ø for representing the idea that the verb does not have any CONCORD/INDEX number

information. However, in the last part of this section, I suggest that the verb is underspecified for number.

(47) [Uusi<sub>CONC:SG</sub>]<sup>IND:SG</sup>                      tekipanoa<sub>CONC:Ø</sub>/<sup>IND:Ø</sup>  
 Boy    work.PRS  
 ‘The boy is working.’

(48) [Yoeme-m<sub>CONC:PL</sub>]<sup>IND:PL</sup>                      tekipanoa<sub>CONC:Ø</sub>/<sup>IND:Ø</sup>  
 Man-PL    work.PRS  
 ‘The men are working.’

Second, it predicts that this type of verb can combine with coordinate singulars. Such a prediction is confirmed in the following example (49):

(49) [Uusi<sub>CONC:SG</sub> into yoeme<sub>CONC:SG</sub>]<sup>IND:PL</sup>                      tekipanoa<sub>CONC:Ø</sub>/<sup>IND:Ø</sup>  
 Boy                      and                      man                      work:..PRS  
 ‘The boy and the man are working.’

Third, it is predicted their combination with coordinated singular and plural nouns.

(50) [Maejto<sub>CONC:SG</sub> into jaamuch-im<sub>CONC:PL</sub>]<sup>IND:PL</sup>                      tekipanoa<sub>CONC:Ø</sub>/<sup>IND:Ø</sup>  
 Teacher                      and                      woman-PL                      work.PRS  
 ‘The teacher and the women are working.’

Finally, the prediction is that it can appear too with coordinate plurals:

(51) [Uusi-m<sub>CONC:PL</sub> into jaamuch-im<sub>CONC:PL</sub>]<sup>IND:PL</sup>                      tekipanoa<sub>CONC:Ø</sub>/<sup>IND:Ø</sup>  
 Boy-PL                      and                      woman-PL                      work.PRS  
 ‘The boys and the women are working.’

Verbs of class V2 have the following representation:

(52)                      siika    ‘go.SG’  
                                     V  
                                     (CONCORD: SG)  
                                     (INDEX: SG)

For that reason, the predictions are the following ones: they can be used with singular nouns. As before, in the representation, CONCORD features are attached to the noun,



whereas INDEX features are attached to the whole unit (to the parenthesis in the representation). The verb carries both features. The first one is the CONCORD feature and the last one the INDEX feature. The next sentence shows that both type of number features match, therefore, the sentence is predicted to be grammatical.

- (53) [[uusi]<sub>CONC:SG</sub>]<sup>IND:SG</sup>                      siika<sub>CONC:SG/</sub><sup>IND:SG</sup>  
       boy    leave:SG.PST  
       ‘The boy left’

Because the INDEX feature in the verb is singular, it cannot combine with conjoined singular nouns (which have a plural INDEX feature). So the following sentence is correctly ruled out as ungrammatical:

- (54) \*[uusi]<sub>CONC:SG</sub>                      into                      [jamut]<sub>CONC:SG</sub><sup>IND:PL</sup>                      siika<sub>CONC:SG/</sub><sup>IND:SG</sup>  
       boy    and                      woman    leave.SG.PST  
       (‘The boy and the woman left.’)

It is predicted too that the verb cannot be used with mixed conjoined singular and plural nouns (the order of the conjuncts does not matter). The verbal CONCORD singular feature does not combine with the CONCORD plural feature of the plural conjunct.

- (55) \*[jamut]<sub>CONC:SG</sub>                      into                      uusi-m<sub>CONC:PL</sub><sup>IND:PL</sup>                      siika<sub>CONC:SG/</sub><sup>IND:SG</sup>  
       woman    and                      boy-PL    leave.SG.PST  
       (‘The woman and the children left.’)

- (56) \*[uusi-m]<sub>CONC:PL</sub>                      into                      jamut<sub>CONC:SG</sub><sup>IND:PL</sup>                      siika<sub>CONC:SG/</sub><sup>IND:SG</sup>  
       boy-PL    and                      woman    leave.SG.PST  
       (‘The children and the woman left.’)

The most restrictive situation is when both features (CONCORD and INDEX) are imposed in the system. So, if we have a coordinate structure with a CONCORD singular feature, it is predicted that the coordination will be singular. That is, it must refer to a single individual. This prediction holds in Yaqui. The following example could be

considered a coordinate structure in spite of the fact that it does not bear in open syntax a coordinator. The coordinate nouns make reference to a single individual:

- (57)   nim                   [compai<sub>CONC:SG</sub>           jalai<sub>CONC:SG</sub>]<sup>IND:SG</sup>       siika<sub>CONC:SG/IND:SG</sub>  
          1SG.POSS           fellow parent           friend                   leave.SG.PST  
          ‘My fellow parent and friend left.’

Intransitive verbs of the V3 class have the following representation. In it, the CONCORD feature is irrelevant. The INDEX feature must agree with a plural subject.

- (58)           sajak       ‘go.PL’  
                   V  
                   ( CONCORD: Ø )  
                   ( INDEX: PL )

Therefore, these verbs can combine with a single plural noun but they never combine with a single singular noun. In (59) the verbal INDEX feature match the nominal INDEX feature, for that reason the sentence is grammatical, whereas in (60) the verbal plural INDEX feature does not match the nominal singular INDEX feature. Therefore, the sentence is ungrammatical.

- (59)   [samireo-m<sub>CONC:PL</sub>]<sup>IND:PL</sup>       sajak<sub>CONC:Ø/IND:PL</sub>  
          adobe.maker-PL               leave.PL.PST  
          ‘The adobe makers left.’
- (60)   \*[samireo<sub>CONC:SG</sub>]<sup>IND:SG</sup>       sajak<sub>CONC:Ø/IND:PL</sub>  
          adobe.maker                   leave.PL.PST  
          (‘The adobe maker left.’)

It is predicted that the verb must be compatible with conjoined singular nouns if and only if the resulting phrase refers to more than an individual. The example (60) shows that the prediction holds in Yaqui. On it, both INDEX features match. If the structure refers to just one individual, as in (61), the INDEX features do not match and the sentence is ungrammatical.

- (61) [nim uusi<sub>CONC:SG</sub> into nim juubi<sub>CONC:SG</sub>]<sup>IND:PL</sup> sajak<sub>CONC:Ø/</sub><sup>IND:PL</sup>  
 1SG.POSS boy and 1SG.POSS wife leave.PL.PST  
 ‘My son and my wife left.’
- (62) \*nim [compai<sub>CONC:SG</sub> jalai<sub>CONC:SG</sub>]<sup>IND:SG</sup> sajak<sub>CONC:Ø/</sub><sup>IND:PL</sup>  
 1SG.POSS fellow parent friend leave.PL.PST  
 (‘My fellow parent and friend left.’)

Because only the INDEX feature is relevant for this type of verb, they can appear with coordinated plural nouns. The next example shows that the INDEX feature of the conjoined nominal matches the plural INDEX feature of the verb. Therefore, the sentence is grammatical:

- (63) [uusi-m<sub>CONC:PL</sub> into ili jaamuchi-m<sub>CONC:PL</sub>]<sup>IND:PL</sup> sajak<sub>CONC:Ø/</sub><sup>IND:PL</sup>  
 boy-PL and small woman-PL leave.PL.PST  
 ‘The boys and the girls left’

These types of verbs can be used too with coordinate singular and plural nouns. As we see in example (63), the INDEX feature of the nouns as a whole match the INDEX feature of the verb and grammaticality is predicted:

- (64) [uusi<sub>CONC:SG</sub> into ili jaamuchi-m<sub>CONC:PL</sub>]<sup>IND:PL</sup> sajak<sub>CONC:Ø/</sub><sup>IND:PL</sup>  
 boy and small woman-PL leave.PL.PST  
 ‘The boy and the girls left.’

We have seen that the behavior of intransitive verbs is explained under the assumption that there are two types of features involved in noun-verb agreement. However, the picture seen until now is not so clear when we analyze the relation held between the N-3 class and suppletive verbs. Before analyzing this relation, let’s look at the suppletive transitive verbs.

### 5.2.5 Noun coordination and transitive suppletive verbs

Consider the following set of verbs which agree with the sentence's object. The verbs are suppletive for number: the paradigm is shown in (65):

(65)	Singular object	Plural object	Gloss
	yecha	joá	'to sit, to put upon'
	kecha	ja'abwa	'to get up, to put up'
	teeka	to'a	'to put down'
	me'a	sua	'to kill'

The following examples illustrate the verbal requirements for a singular and a plural NP respectively:

(66) inepo yoem-ta                      kecha-k.  
 1SG man-NNOM.SG                      get.up.NNOM.SG-PST  
 'I got the man up.'

(67) inepo yoeme-m                      ja'abwa-k.  
 1SG man-PL                              get.up.NNOM.PL-PST  
 'I got the men up.'

When we have the coordination of two singular NP's, functioning as an object, the verb must be singular. This is an unexpected behavior if we consider that the union of two singular nouns should be interpreted as plural:

(68) Maria yoem-ta                      into usi-ta                      kecha-k.  
 Maria man-NNOM.SG and                      child-NNOM.SG                      get.up.NNOM.SG-PST  
 'Maria got up the man and the child.'

(69) \*Maria yoem-ta                      into usi-ta                      ja'abwa-k  
 Maria man-NNOM.SG and                      child-NNOM.SG                      get.up.NNOM.PL-PST  
 ('Maria got up the man and the child.')

Recall that the coordination of the object can be discontinuous, as the following example indicates, and the singular verb still requires two singular coordinated NPs.

- (70) inepo yoem-ta kecha-k into usi-ta.  
 1SG man-NNOM.SG get.up.NNOM.SG-PST and child-NNOM.SG  
 ‘I get up the man and the child.’

We can ask if the marked pattern above could be derived from the coordination of two sentences each containing a singular verb and a singular object, as in the following example:

- (71) inepo yoem-ta kecha-k into usi-ta kecha-k  
 1SG man-NNOM.SG get.up.NNOM.SG-PST and child-NNOM.SG get.up.SG-PST  
 ‘I get up the man and get up the child.’

Even so, we have to decide if the following example is a kind of discontinuous coordination or instead sentence coordination:

- (72) inepo yoem-ta kecha-k into usi-ta kechia.  
 1SG man-NNOM.SG get.up.SG.OBJ-PST and child-NNOM.SG too  
 ‘I get up the man and (to) the child too.’

The next examples show that if the verb is plural, the objects can not be marked with *-ta* ‘NNOM.SG’. It doesn’t matter what the position of the object is. In other words, this kind of verb requires a plural noun as complement:

- (73) \*inepo ja’abwa-k yoem-ta into usi-ta.  
 1SG get.up.PL.OBJ-PST man-NNOM.SG and child-NNOM.SG  
 (‘I get up the man and the child.’)
- (74) \*inepo yoem-ta ja’abwa-k into usi-ta (ketchia)  
 1SG man-NNOM.SG get.up.PL.OBJ-PST and child-NNOM.SG (too)  
 (‘I get up the man and the child too.’)

Another pattern shows the interaction of verbal requirements and morphological requirements of the Yaqui NPs. The following nouns belong to N3 class (Buitimea 2003:16-17). We have to remember that these nouns are always required to be marked for

plural; it doesn't matter if they are understood in a singular sense. I illustrate the paradigm with the following examples. I will refer to these as "morphological plurals".

- (75) puúsi-m 'eye/eyes'  
 naka-m 'ear/ears'  
 tono-m 'knee/knees'  
 boócha-m 'shoe/shoes'  
 réépa-m 'earring/earrings'

When these kinds of nouns are the object of verbs like those seen above, the interpretation of plural or singular is indicated by the verb, as shown in the following examples:

- (76) inepo maeche'eta-m ja'abwa-k  
 1SG machete-PL put.up.PL.OBJ-PST  
 'I put up the machetes'
- (77) inepo maeche'eta-m kecha-k  
 1SG machete-PL put up.SG.OBJ-PST  
 'I put up the machete'

The same happens with the coordination of two morphological plural nouns functioning as object. The verb indicates the interpretation as singular or plural.

- (78) inepo mache'eta-m into kuchi'i-m ja'abwa-k.  
 1SG machete-PL and knife-PL put.up.PL.OBJ-PST  
 'I put up the machetes and the knives.'
- (79) inepo mache'eta-m into kuchi'i-m kecha-k.  
 1SG machete-PL and knife-PL put.up.SG.OBJ-PST  
 'I put up the machete and the knife.'

Under discontinuous coordination the interpretation and the requirements are the same as above:

- (80) inepo mache'eta-m kecha-k into kuchi'i-m  
 1SG machete-PL put.up.SG.OBJ-PST and knife-PL  
 'I put up the machete and the knife'

Interestingly, a conflict arises when we have the coordination of a plural and a singular noun: Which verb has to be used in this case? The conflict is resolved by using a plural verb, it doesn't matter what the order of the coordinated constituents is. If the verb is singular, we have an ungrammatical sentence:

- (81) inepo usi-ta                      into    ilí    jamuch-im    to'a-k.  
 1SG child-NNOM.SG            and    little    woman-PL    put.down.PL.OBJ-PST  
 'I put down the child and the girls.'
- (82) inepo ilí    jamuch-im    into    usi-ta                      to'a-k.  
 1SG    little    woman-PL    and    child-NNOM.SG            put down.PL.OBJ-PST  
 'I put down the girls and the child.'
- (83) \*inepo usi-ta                      into    ilí    jamuch-im    teeka.  
 1SG    child-NNOM.SG            and    little    woman-PL    put.down.SG.OBJ.PST  
 ('I put down the child and the girls.')
- (84) \*inepo ilí jamuch-im            into    usi-ta                      teeka.  
 1SG    little woman-PL            and    child-NNOM.SG            put.down.SG.OBJ.PST  
 ('I put down the girls and the child.')

### 5.2.6 Interaction between pronouns and coordination

Co-referential coordinated nouns agree in number with a plural pronoun. If we use a plural object pronoun, the sentence obligatorily requires a plural verb in order to be grammatical. Look at the following contrast. The coordinated nouns are singular and are co-referential with the plural pronoun.

- (85) inepo usí    o'ou-ta                      into    usí    jamut-ta            banko-t  
 1SG    child    male-NNOM.SG            and    child    female-NNOM.SG    chair-LOC  
 am=joá-k.  
 3OBJ.PL=sit.down.PL-PST  
 'I sit them down the boy and the girl in the chair.'





(90)	Object	Verb
	N <sub>SG</sub>	V <sub>SG OBJ</sub>
	N <sub>PL</sub>	V <sub>PL OBJ</sub>

Two (or more) coordinated singular nouns in object position take a singular verb.

Two (or more) coordinated plural nouns take a plural verb:

(91)	Object	Verb
	N <sub>SG</sub> + N <sub>SG</sub>	V <sub>SG OBJ</sub>
	N <sub>PL</sub> + N <sub>PL</sub>	V <sub>PL OBJ</sub>

In case of conflict arising from the coordination of a singular noun and a plural noun the verb must be plural:

(92)	Object	Verb
	N <sub>SG</sub> + N <sub>PL</sub> } N <sub>PL</sub> + N <sub>SG</sub> }	V <sub>PL OBJ</sub>

For morphological plural nouns (N3 class), the verb could be singular or plural, the verb indicates how to interpret the coordinated object:

(93)	Object	Verb	
	N <sub>PL</sub> + N <sub>PL</sub>	V <sub>SG OBJ</sub>	gives a singular reading of the coordinate nouns.
	N <sub>PL</sub> + N <sub>PL</sub>	V <sub>PL OBJ</sub>	gives a plural reading of the coordinated nouns.

The presence of a plural clitic pronoun in co-reference with two coordinate singular nouns obligatorily requires a plural verb:

(94)	Object	Verb	
	N <sub>SG</sub> + N <sub>SG</sub>	P <sub>3PL OBJ</sub> =V <sub>PL OBJ</sub>	(where P represents a clitic pronoun)

However, the presence of a singular clitic pronoun only can be co-referential with a single singular noun. It can not be co-referential with two coordinated singular nouns:

(95)	Object	Verb	
	N <sub>SG</sub>	P <sub>3SG OBJ</sub> =V <sub>SG OBJ</sub>	(where P represents a clitic pronoun)
	*N <sub>SG</sub> + N <sub>SG</sub>	P <sub>3SG OBJ</sub> =V <sub>SG OBJ</sub>	(where P represents a clitic pronoun)

In short, we need to license candidates in Yaqui that conform to the following patterns.

(96)	$[N + N]_{\text{OBJ}}$	+	$V_{\text{TR}}$	Interpretation
	SG+SG	+	SG	PL
	PL+PL	+		
	SG+PL	+	PL	PL
	PL+SG	+		

And rule out candidates with the following structure.

(97)	$[N + N]_{\text{OBJ}}$	+	$V_{\text{TR}}$	Interpretation
	SG+SG	+	PL	*
	PL+PL	+		
	SG+PL	+	SG	*
	PL+SG	+		

As we saw in the previous section, there are some differences between intransitive and transitive verbs. In the next section I present an analysis of transitive verbs. We will see that the feature system proposed by Hallaway King and Dalrymple (2004) makes wrong predictions about the Yaqui coordination patterns.

### 5.3 Analysis of transitive verbs

I propose that the verbs which agree with the object have the following features. The singular verb has active the feature CONCORD singular. The INDEX feature does not play any role. The predictions are checked in what follows:

(98)	me'a	‘to kill.SG.OBJ’
	V	
	(	CONCORD: SG
	INDEX: Ø	)

It is predicted that the verb combines with single singular nouns in object position and that it can never combine with a plural noun in object position. The verb requires matching in CONCORD singular. The candidate in (99) satisfies it but the one in (100) violates it. Therefore, one is grammatical and the other ungrammatical:

(99) Yoeme [masó-ta<sub>CONC:SG</sub>]<sup>IND:SG</sup> me'ak<sub>CONC:SG/Ø</sub>  
 man deer-NNOM kill:SG.OBJ.PST  
 'The man killed the deer (sg).'

(100) \*yoeme [masó-m<sub>CONC:PL</sub>]<sup>IND:PL</sup> me'a-k<sub>CONC:SG/</sub><sup>IND:Ø</sup>  
 man deer-PL kill.SG.OBJ.PST  
 ('The man killed the deer (pl).')

Because of the feature CONCORD singular must be distributed (i.e. matched or applied to each nominal covering the role of object), it is predicted that conjoined singular nouns will produce grammatical sentences. The INDEX feature of this type of verb does not play any role in the agreement system. For that reason the INDEX plural in the whole nominal phrase does not affect the grammaticality of the sentence.

(101) Joan [parós-ta<sub>CONC:SG</sub> into masó-ta<sub>CONC:SG</sub>]<sup>IND:PL</sup> me'ak<sub>CONC:SG/</sub><sup>IND:Ø</sup>  
 John hare-NNOM and deer-NNOM kill.SG.OBJ.PST  
 'John killed the hare and the deer (sg).'

The verb will never co-occur with conjoined singular and plural nouns. The reason is that the CONCORD plural feature in one of the conjuncts does not match (i.e. it is not distributed) with the CONCORD singular demanded by the verb. The ungrammaticality of (102) is expected:

(102) \*empo [paró'os-ta<sub>CONC:SG</sub> into masó-m<sub>CONC:PL</sub>]<sup>IND:PL</sup> me'a-k<sub>CONC:SG/</sub><sup>IND:Ø</sup>  
 2sg hare- NNOM and deer- NNOM kill.PL.OBJ-PST  
 ('You killed the hare and the deer (pl).')

It will never combine with conjoined plural nouns, either. The CONCORD singular feature in the verb does not match the CONCORD plural feature of each conjoined noun.

Then, the sentence (103) is ruled out as ungrammatical:

- (103) \*inepo [paró'os-im<sub>CONC:PL</sub> into masó-m<sub>CONC:PL</sub>]<sup>IND:PL</sup> sua-k<sub>CONC:SG/</sub><sup>IND:Ø</sup>  
 1SG hare-PL and deer-PL kill.SG.OBJ-PST  
 ('I killed the hares and the deer (pl).')

### 5.3.1 The problems

There are two problems that I want to analyze here: the false predictions of the system proposed by Holloway King and Dalrymple (2004) and the challenge posed by the patterns of coordinated nouns.

#### 5.3.1.1 False predictions

Given the four possibilities established by Holloway King and Dalrymple (2004), it is not possible to generate the behavior of agreement in plural verbs which agree with the object. The four possibilities are repeated here. I show how they fail in each case:

- (104) a) V      b) V      c) V      d) V  
           [INDEX]    [CONCORD]    [Ø]       $\left( \begin{array}{c} \text{CONCORD} \\ \text{INDEX} \end{array} \right)$

If we assign the plural value to the INDEX feature of plural verbs which agree with the object, we arrive at the following representation. On it the relevant feature is the INDEX plural.

- (105)            sua    'kill.PL.OBJ'  
                   V  
                    $\left( \begin{array}{c} \text{CONCORD: } \emptyset \\ \text{INDEX: PL} \end{array} \right)$

The representation predicts as grammatical two conjoined singular nouns, but the next example is not a grammatical Yaqui sentence. Observe that the INDEX plural features match and it would not be the reason for the ungrammaticality.

- (106) \*Joan [parós-ta<sub>CONC:SG</sub> into masó-ta<sub>CONC:SG</sub>]<sup>IND:PL</sup> sua-k<sub>CONC:Ø/</sub><sup>IND:PL</sup>  
 John hare- NNOM.SG and deer- NNOM.SG kill: PL.OBJ-PST  
 ('John killed the hare and the deer.')

If we analyze the CONCORD feature as the relevant one (see the representation (107)), the problem is that it wrongly rules out a grammatical sentence like (108). The sentence is predicted to be ungrammatical because the verbal CONCORD plural does not match the singular CONCORD in the nominal conjunct, i.e., the CONCORD plural feature is not distributed.

- (107) sua 'kill:PL.OBJ'  
 V  
 [ CONCORD: PL ]  
 [ INDEX: Ø ]

- (108) aapo [paró'os-im<sub>CONC:PL</sub> into masó-ta<sub>CONC:SG</sub>]<sup>IND:PL</sup> sua-k<sub>CONC:PL/</sub><sup>IND:Ø</sup>  
 3SG hare-PL and deer-NNOM.SG kill.PL.OBJ-PST  
 '(S)he killed the hares and the deer (sg).'

If we consider that the verb does not bear any number feature, as in (109), the prediction is that it will accept any combination of number values in a coordinate structure. This conclusion is unacceptable because we lose the plural characteristic of this type of verb.

- (109) sua 'kill.PL.OBJ'  
 V  
 [ Ø ]

Finally, if we check the last possibility seen in (110), we still have the problem of predicting as ungrammatical two conjoined singular and plural nouns. Observe that the

CONCORD feature is not distributed on each member of the coordinate structure. Therefore, sentence (111) is wrongly predicted to be ungrammatical.

(110) sua ‘kill:PL.OBJ’

$$\begin{array}{c} \text{V} \\ \left( \begin{array}{l} \text{CONCORD:PL} \\ \text{INDEX:PL} \end{array} \right) \end{array}$$

(111) aapo [paró's-os-ta<sub>CONC:SG</sub> into masó-m<sub>CONC:PL</sub>]<sup>IND:PL</sup> sua-k<sub>CONC:PL/</sub>  
 3SG hare-NNOM.SG and deer-PL kill.PL.OBJ-PST  
 ‘(S)he killed the hare and the deer (pl).’

However, this representation has the advantage that it predicts all the others patterns attested in the language. It predicts that the verb will never combine with a singular noun but just with plural nouns. The sentence in (112) is ungrammatical because the singular nominal INDEX feature does not match the plural verbal INDEX feature. The sentence in (113) is grammatical because both CONCORD and INDEX features match:

(112) \*inepo [usi-ta<sub>CONC:SG</sub>]<sup>IND:SG</sup> to'a<sub>CONC:PL/</sub><sup>IND:PL</sup>  
 1SG child-SG lay.down.PL.OBJ.PST  
 ‘I laid down the child’

(113) inepo [usi-m<sub>CONC:PL</sub>]<sup>IND:PL</sup> to'a<sub>CONC:PL/</sub><sup>IND:PL</sup>  
 1SG child-PL lay.down.PL.OBJ.PST  
 ‘I laid down the children.’

It predicts too that the verb will never combine with conjoined singular nouns. That prediction holds in the language. The ungrammaticality is due to the fact that the verbal CONCORD plural feature is not distributed, as indicated in the following sentence:

(114) \*Joan [parós-ta<sub>CONC:SG</sub> into masó-ta<sub>CONC:SG</sub>]<sup>IND:PL</sup> sua-k<sub>CONC:PL/</sub><sup>IND:PL</sup>  
 John hare- NNOM.SG and deer- NNOM.SG kill. PL.OBJ-PST  
 ‘(John killed the hare and the deer.)’

The grammaticality of conjoined plural nouns combined with a verb containing CONCORD plural and INDEX plural is expected. In such cases, the CONCORD features are distributed and the INDEX features match. Therefore, there is not a conflictive situation:

- (115) Amureo [paró'os-im<sub>CONC:PL</sub> into masó-m<sub>CONC:PL</sub>]<sup>IND:PL</sup> sua-k<sub>CONC:PL</sub>/<sup>IND:PL</sup>  
 Hunter hare-PL and deer-PL kill.PL.OBJ-PST  
 'The hunter killed the hares and the deer (pl).'

### 5.3.2 Solving the problem in OT terms

If we analyze the conditions under which conjoined singular and plural nouns fail to be generated by the system of CONCORD and INDEX features, we arrive at the following situation. Let's recall first the representation of singular verbs:

- (116) me'a 'kill.SG.OBJ'  
 V  
 $\left[ \begin{array}{l} \text{CONCORD: SG} \\ \text{INDEX: } \emptyset \end{array} \right]$

As we said before, the kind of singular verbs which agree with the object are unable to generate as grammatical the coordinate structure [singular + plural (it does matter the order)] for the following reason: the concord singular feature of the verb is not distributed over each conjunct (or, in a checking conception, it does not match with the plural feature of the conjoined nominal).

- (117) \*empo [paró'os-ta<sub>CONC:SG</sub> into masó-m<sub>CONC:PL</sub>]<sup>INDEX:PL</sup> me'ak<sub>CONC:SG</sub>/<sup>INDEX:∅</sup>  
 2SG hare-NNOM.SG and deer-PL kill.SG.OBJ-PST  
 ('You killed the hare and the deer (pl).')

Now, let's revise the condition under which the plurals verbs do not license the coordinate structure [singular + plural]. The verbal representation is given in (118):





- (121) \*empo [paró'os-ta<sub>CONC:SG</sub> into masó-m<sub>CONC:PL</sub>]<sup>IND:PL</sup> me'a-k<sub>CONC:SG/</sub><sup>IND:PL</sup>  
 2SG hare-NNOM.SG and deer-NNOM.SG kill.SG.OBJ-PST  
 ('You killed the hare and the deer (pl).')

As we can see, the candidate with the verb *me'ak* 'to kill.SG.OBJ' has CONCORD singular and INDEX plural. This is an undesirable specification of features as pointed out by Halloway King & Dalrymple (2004). They rule out determiners which require singular CONCORD and plural INDEX; such determiners could be used in cases where coordinate structures refer to more than one individual in which each conjunct is singular. They rule these determiners out "by requiring determiners to impose uniform numbers specifications: there are not determiners that impose a different value for CONCORD and INDEX." (84). If that is true, then we can think that the verb *me'ak* 'to kill.SG.OBJ' violates such a constraint. Let's call it NUMBER UNIFORMITY:

- (122) NUMBER UNIFORMITY: Verbs must bear number uniformity.

This constraint will force that both CONCORD and INDEX features have the same value over the verb. Therefore, we can say that candidate (121) violates two constraints: the constraint that requires distribution of the singular feature and the constraint that requires NUMBER UNIFORMITY.

On the other hand, the candidate with the plural verb just violates the CONCORD feature, but it does not violate NUMBER UNIFORMITY: the INDEX plural on the verb matches the plural INDEX in the noun phrase. Therefore, to express conjoined singular and plural nouns is less costly using the plural verb, than using the singular verb. The next tableaux show that it does not matter if the input is the verb *me'a* 'to kill.SG.OBJ' or *sua* 'to kill.PL.OBJ', the winner in both cases is the verb with plural meaning.

Two additional constraints are required one that forces the checking of the plural INDEX in the candidates, and one that requires the distribution of the CONCORD feature of the verb. They are defined as follows.

(123) CHECK INDEX. Index features must match in each candidate.

(124) CONCORD DISTR. Concord features of the verb must be distributed to the nominal arguments.

I suggest the ranking in (125). The candidates show the CONCORD features as subscripts and the INDEX features as superscripts.

(125) Tableau with the ranking CHECK INDEX >> NUMBER UNIFORMITY >> FAITH-I-O >> DIST. CONCORD:

input: {paros-ta <sub>CONC:SG</sub> , into, maso-m <sub>CONC:PL</sub> , me'ak <sub>CONC:SG/</sub> <sup>IND:Ø</sup> }	CHECK INDEX	NUMBER UNIFORMITY	FAITH-I-O	CONCORD DISTR
a. ☞ [paró'os-ta <sub>SG</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> sua-k <sub>PL/</sub> <sup>PL</sup>			***	*
b. [paró'os-ta <sub>SG</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> me'ak <sub>SG/</sub> <sup>PL</sup>		!*	*	*
c. [paró'os-im <sub>PL</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> sua-k <sub>PL/</sub> <sup>Ø</sup>	!*		***	
d. [paró'os-ta <sub>SG</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> me'ak <sub>SG/</sub> <sup>SG</sup>	!*		*	*
e. [paró'os-im <sub>PL</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> sua-k <sub>PL/</sub> <sup>PL</sup>			!*****	
f. [paró'os-ta <sub>SG</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> me'ak <sub>SG/</sub> <sup>Ø</sup>	!*			*

We can see that NUMBER UNIFORMITY is violated by candidate (125b) because the features on the verb are not the same, i.e. they are not uniform. Therefore, it is rule out of the competition. The CHECK INDEX constraint rules out candidates (125c), (125d), and (125f), because the INDEX feature in the verb does not match the INDEX feature of the whole conjoined NP. The FAITH-I-O constraint requires that the features in the input be

present in the output. However, we can see that they change the nominal and verbal number feature specifications. Further, there are changes in the phonological information of the verbal root. So, for example, candidate (125e) has four violations of FAITH-I-O. The tableau that shows the results with a plural verb is the following.

(126) Input: {paros-ta <sub>SG</sub> , into, maso-m <sub>PL</sub> , suak <sub>PL/PL</sub> }	CHECK INDEX	NUMBER UNIFORMITY	FAITH-I-O	CONCORD DISTR.
a. $\text{☞}$ [paró'os-ta <sub>SG</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> sua-k <sub>PL</sub> / <sup>PL</sup>				*
b. [paró'os-ta <sub>SG</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> me'ak <sub>SG</sub> / <sup>PL</sup>		!*	**	*
c. [paró'os-im <sub>PL</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> sua-k <sub>PL</sub> / <sup>Ø</sup>	!*		**	
d. [paró'os-ta <sub>SG</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> me'ak <sub>SG</sub> / <sup>SG</sup>	!*		***	*
e. [paró'os-im <sub>PL</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> sua-k <sub>PL</sub> / <sup>PL</sup>			!*	
f. [paró'os-ta <sub>SG</sub> into masó-m <sub>PL</sub> ] <sup>PL</sup> me'ak <sub>SG</sub> / <sup>Ø</sup>	!*		***	*

### 5.3.2.1 Conjoined nominal class 3 and the verbs

As it was mentioned above, for conjoined nouns of the class three, it was suggested in a separate paper (Langendoen & Martínez Fabián 2004) that those nouns are subject to a highly ranked constraint demanding affixation over the noun. It is called HaveAF. The interaction of this constraint with some other constraints result in the fact that those nouns are always marked with the *--(i)m* 'PL' affix. The next example shows part of the analysis. The input contains the nominal root, it has the feature specification of [Accusative, Singular] (in such case, if the noun were of class-1, it would be expect to have the *--ta* marking). We can see that the winner candidate is the one marked with *--(i)m* 'PL'.

- (127) HAVEAF: lexical forms must have affix.
- (128) FAITH-FS: Features in the input must be preserved in the output
- (129) \*CASE: Avoid case marking.
- (130) \*NUMBER: Avoid number marking.
- (131) Selection of *supe-m* for expressing *supe* [Accusative] & [Singular]

supe [Accusative] & [Singular]	HAVEAF	*CASE	FAITH-FS	*NUMBER
supe	*!			
supe-ta [Accusative]		*!	*	
☞ supe-m [Plural]			***	*

Remember that the verb gives the interpretation of the noun: singular or plural, as repeated in next examples. As we can see in the representation (132) and (133), the CONCORD feature is responsible of the singular/plural interpretation:

(132) inepo mache'eta-m<sub>CONC:SG</sub><sup>IND: Ø</sup>      teeka<sub>CONC:SG</sub><sup>IND: Ø</sup>  
 1SG machete-PL                      lay.SG.OBJ  
 'I lay down the machete.'

(133) inepo mache'eta-m<sub>CONC:PL</sub><sup>IND: PL</sup>      to'a<sub>CONC:PL</sub><sup>IND: PL</sup>  
 1SG machete-PL                      lay.PL.OBJ  
 'I laydown the machetes.'

The coordinate nouns are interpreted in the same way. Each noun is interpreted as singular if the verb is singular and each noun is interpreted as plural if the verb is plural.

The whole conjoined construction has a plural INDEX feature.

(134) inepo [kuchi'i-m<sub>CONC:SG</sub>      into      mache'eta-m<sub>CONC:SG</sub>]<sup>IND: PL</sup> teeka<sub>CONC:SG</sub><sup>IND: PL</sup>  
 1SG knife-PL                      and      machete-PL                      lay.SG.OBJ  
 'I lay down the knife and the machete.'



This representation implies that the CONCORD feature can be left unspecified (in cases where it does combine with verbs which do not carry number information and when there are no numerals indicating number) or specified with the value SG or PL. That makes several predictions (most of them are fulfilled). Let's look at them.

With the verbs of class three the coordinated nouns are left undefined in their CONCORD feature that can be interpreted as singular or plural (by pragmatic principles), but it have a plural INDEX (that means that the Yaqui speakers look at those nouns as if they were composed of several parts (as suggested by Buitimea Valenzuela p.c.). The line after the CONCORD and INDEX features means underspecification: There is no CONCORD value that the verb can distribute:

- (139) Joan [macheta-m<sub>CONC:\_</sub>]<sup>IND:PL</sup>      jinu-k<sub>CONC:\_</sub>/<sup>IND:\_</sup>  
 John [machete-PL ]                      buy-PST  
 'John bought a machete(s).'

For the patterns of Yaqui coordination with these nouns I suggest the following analysis. I just put into the input the coordinated nouns and the verb with which they agree. The following table shows that the candidate (a) is the winner because it does not violate the higher ranked constraint, whereas candidates (b) and (c) do.

(140) Tableau that shows the noun class 3 interacting with the verb class 1

Input:		HAVEAF	*CASE	CHECK INDEX	FAITH-SF	DISTR. CONCORD	*NUMBER
{kuchi'i-m, into, machetam, jinuk [Case: NNOM] [Case: NNOM] [Case: NNOM] [Concord: _] [Concord: _] [concord: _] [Index: PL] [Index: PL ] [Index: _ ]}							
☞ kuchi'i-m into macheta-m jinuk [Case: NNOM] [Case: NNOM] [Case: NNOM] [Concord: _] [Concord: _] [concord: _] [Index: PL] [Index: PL ] [Index: _ ]							**
kuchi'i-ta into macheta-ta jinuk [Case: NNOM] [Case: NNOM] [Case: NNOM] [Concord: SG] [Concord: SG] [concord: SG] [Index: PL ] [Index: PL ] [Index: PL ]		!*			**		** **
kuchi'i into macheta jinuk [Case: NOM] [Case: NOM] [Case: NNOM] [Concord: SG] [Concord: SG] [concord: SG] [Index: PL] [Index: PL ] [Index: _ ]	!*				**		
kuchi'i-m into macheta-m jinuk [Case: NNOM] [Case: NNOM] [Case: NNOM] [Concord: PL] [Concord: PL] [concord: PL] [Index: PL] [Index: PL ] [Index: PL ]					!* ** *		

With the verb *siika* 'to leave.SG', the predictions are fulfilled. We can see that in this case the winning candidate would have the distribution of the singular CONCORD feature and it is interpreted as a singular entity which is composed of several parts (*koari-m* 'skirt' or which is part of a plurality (ex. *chobe-m* 'buttock(s)'). The features of (141) are shown in the winning candidate in the table (143):

(141) [bejo'ori-m] siika  
lizard-PL left  
'The lizard left.'

The impossibility of the following sentence is attributed to the fact that the singular INDEX of the verb is incompatible with the INDEX of the whole nominal phrase.

- (142) \*[bejo'ori-m<sub>CONC:SG</sub> into porowi-m<sub>CONC:SG</sub>]<sup>IND:PL</sup> siika  
CONC:SG/IND:SG  
 [Case: Nom] [Case: Nom] [Case: Nom]  
 [Concord: SG] [Concord: SG] [Concord: SG]  
 [Index: PL] [Index: PL] [Index: SG]

The winning candidate is shown in the following tableau. It has the features indicated.

- (143) Tableau with noun class 3 and verb class 2.

Input:	{bejo'ori-m [case: NOM] [concord: __ ] [index: PL ]}	siika [case: NOM] [concord:SG] [index: SG ]}	HAVE AF	*CASE	CHECK INDEX	FAITH-SF	DISTR. CONCORD	*NUMBER
a.	bejo'ori-m [case: NOM] [concord:SG] [index: PL ]	siika [case: NOM] [concord:SG] [index: SG ]			!* *	*		*
b.	bejo'ori-ta [case: NNOM] [concord:SG] [index: PL ]	siika [case: NOM] [concord:SG] [index: SG ]		!* *	*	*		*
c.	bejo'ori [case: NOM] [concord:SG ] [index: PL ]	siika [case: NOM] [concord:SG] [index: SG ]	!* *		*	*		
d. ☞	bejo'ori-m [case: NOM] [concord:SG] [index: PL ]	siika [case: NOM] [concord:SG] [index: PL ]				**		*

The analysis predicts the behavior of the *sajak* 'to leave.PL' type verbs interacting with conjoined nouns of the N3 class:

The coordinate structure contains unspecified nouns for CONCORD number. Therefore, it can be interpreted as CONCORD singular or plural, but the INDEX feature is



plural. For that reason, the conjoined nominals can not be interpreted as referring to a single unit. The INDEX features of the verb and the nouns match. The features of example (144) can be seen in the winning candidate (145a):

- (144) bejo'ori-m    into    porowi-m            saja-k  
 Lizard-PL    and    porowi<sup>45</sup>-PL            leave.PL-PST  
 'The lizard and the porowi left'

(145) Table with noun class 3 and verb class 3.

Input	{bejo'ori-m    porowi-m    saja-k [case: NOM]    [ase: NOM]    [case:NOM] [concord: _]    [oncord: _]    [concord: _] [index: PL ],    [ndex: PL ],    [index:PL ], into}	HAVE AF	*CASE	CHECK INDEX	FAITH-SF	DISTR. CONCORD	*NUMBER
a. ☞	bejo'ori-m    into    porowi-m    saja-k [case: NOM]            [case: NOM]    [case: NOM] [concord: _]            [concord: _]    [concord: _] [index: PL ]    [index: PL ]    [index: PL ]						*
b.	bejo'ori-ta    into    porowi-ta    saja-k [case: NOM]            [case: NOM]    [case: NOM] [concord:SG]            [concord:SG]    [concord:SG] [index: PL ]            [index: PL ]    [index: pl ]		!*	*	** *		* *
c.	bejo'ori    into    porowi    saja-k [case: NOM]            [case: NOM]    [case: NOM] [concord: _]            [concord: _]    [concord: _] [index: PL ]            [index: PL ]    [index: PL ]	!*			**		*
d.	bejo'ori-m    into    porowi-m    saja-k [case: NOM]            [case: NOM]    [case: NOM] [concord:PL]            [concord:pl]    [concord:PL] [index: PL ]            [index: pl ]    [index: PL ]				!*** *		* *

The ranking predicts the behavior of the verbs which agree with the object as well (e.g. the verbs of the *me'a* 'to kill.SG.OBJ' class). The nouns are interpreted just as singular entities, which as a whole have a plural INDEX. The reason for the singular

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<sup>45</sup> The *porowi* is a kind of lizard (*Dinosaurus dorsalis*). It seems that these kinds of small animals belong to the same plural category.

interpretation is that the singular CONCORD feature of the verb distributes to the coordinate nominals, whereas the INDEX features of the nouns and the verb match giving the plural reading to the coordinate nouns.

- (146) [bejo'ori-m<sub>CONC:SG</sub> into porowi-m<sub>CONC:SG</sub>]<sup>IND:PL</sup> me'a-k<sub>CONC:SG/</sub><sup>IND:PL</sup>  
 lizard-PL and porowi-PL kill.SG.OBJ-PST  
 ‘((S)he) killed the lizard and the porowi.’

- (147) Table with a verb class 2 which agree with the object, and nouns class 3.

Input	{bejo'ori-m [case: NNOM] [concord: __] [index: PL ]	into	porowi-m [case: NNOM] [concord: __] [index: PL ]	me'ak [case: NNOM] [concord: SG] [index: __], into}	HAVEAF	*CASE	CHECK INDEX	FAITHH-SF	DISTR. CONCORD	*NUMBER
a. ☞	bejo'ori-m [case: NNOM] [concord: SG] [index: PL ]	into	porowi-m [case: NNOM] [concord: SG] [index: PL ]	me'ak [case: NNOM] [concord: SG] [index: PL ]				* * *		*
b.	bejo'ori-ta [case: NNOM] [concord: SG] [index: PL ]	into	porowi-ta [case: NNOM] [concord: SG] [index: PL ]	me'ak [case: NNOM] [concord: SG] [index: PL ]		!*		* * *		* *
c.	bejo'ori [case: NOM] [concord: __] [index: PL ]	into	porowi [case: NOM] [concord: __] [index: PL ]	me'ak [case: NOM] [concord: SG] [index: PL ]	!*			* * *	*	*
d.	bejo'ori-m [case: NOM] [concord: PL] [index: PL ]	into	porowi-m [case: NOM] [concord: PL] [index: PL ]	me'ak [case: NOM] [concord: PL] [index: PL ]				!* * * *		* *

For the verbs of the *sua* ‘to kill.PL.OBJ’ class, the predictions hold too. Because the verb has the specification Concord plural and Index plural, the distribution of concord to the noun gives the correct result. The coordinate structure can only be interpreted as conjoining two pluralities.

- (148) [bejo'ori-m<sub>CONC:PL</sub> into porowi-m<sub>CONC:PL</sub> sua-k<sub>CONC:PL</sub>  
 [Case: NNOM] [Case: NNOM] [Case: NNOM]  
 [Concord: PL] [Concord: PL] [Concord: PL]  
 [Index: PL] [Index: PL] [Index: PL]  
 'He killed the lizards and the porowis.'

In order to explain it in an OT framework, it is assumed, as before, that the nouns have the specification given in the input. The competing candidates are shown in next table. In order to get the correct output, we need to use the previous constraint of Uniformity. This constraint is ranked before the FAITH-I-O constraint:

- (149) Table with a verb class 3 which agrees with the object and noun class 3.

Input	{bejo'ori-m, [case:NNOM] [concord:___] [index: PL ] into}	porowi-m, [case:NNOM] [concord:___] [index: PL ]	suak, [case:NNOM] [concord: PL] [index: PL],	HAVEAF	*CASE	CHECK INDEX	UNIFORMITY	FAITH-FS	DISTR. CONCORD	*NUMBER
a.	bejo'ori-m into porowi-m suak [case:NNOM] [case:NNOM] [case:nnom] [concord:PL] [concord:PL] [concord:PL] [index: PL] [index: PL] [index: PL]							*		*
b.	bejo'ori-ta into porowi-ta suak [case:NNOM] [case:NNOM] [case:NNOM] [concord:SG] [concord:SG] [concord:SG] [index: PL] [index: PL] [index: PL]			!	*		*	*		*
c.	bejo'ori into porowi suak [case: NOM] [case: NOM] [case: NOM] [concord:___] [concord:___] [concord:___] [index: PL] [index: PL] [index: pl]			!			*	*		*
d.	bejo'ori-m into porowi-m suak [case:NNOM] [case:NNOM] [case:NNOM] [concord:___] [concord:___] [concord:PL] [index: PL] [index: PL] [index: PL]						!	*	*	*

#### 5.4 NP conjunction and separateness of the events

Givón (2001) mentions that NP conjunction is not merely a syntactic device for rendering two propositions about two separate events into the more economical surface structure, rather it is a device for coding a single event. (Givón 2001:16). The following observations are made: a) Separate events will tend to be coded as separate clauses, b) Clauses with conjoined subject or object NPs tend to code single multi-participant events; c) The order of an event could interact with the order of the conjoined items. In addition to these observations, we can add the following: d) a single participant might develop a series of multi-events.

For those reasons, Givón considers that it is necessary to look at some pragmatic principles responsible for the order of the conjuncts. The next section explores such pragmatics principles.

##### 5.4.1 Observations about the Relative order of conjoined NPs

It has been noted that “human language, unlike propositional logic, does not seem to be quite as neutral to serial order” (Givón 2001: 17). The order of participants in an event is reflects their relative importance or relevance. In other words, there are pragmatic principles involved in that ordering. Cooper and Ross (1975), cited in Givón (2001:17), note the following hierarchies in frozen expressions with conjoined NPs.

- |       |    |          |   |           |                                    |
|-------|----|----------|---|-----------|------------------------------------|
| (150) | a. | near     | > | far       | (now and then, ?then and now)      |
|       | b. | adult    | > | young     | (father and son, ? son and father) |
|       | c. | male     | > | female    | (man and wife, ? wife and man)     |
|       | d. | singular | > | plural    | (one and all, ? all and one)       |
|       | e. | animate  | > | inanimate | (life and death, ? death and life) |
|       | f. | agent    | > | patient   | (cat and mouse, ? mouse and cat)   |

- g. large > small (large and small, ? small and large)  
 h. positive > negative (more or less, ?less or more)

The exploration of this type of contrast in Yaqui shows that ordering restrictions in conjunctions is reduced, as in English and apparently in Spanish too, to some frozen idiomatic expressions. It does not seem to be a phenomenon that pervades living grammar. Some of the frozen expressions found in Yaqui are given in the pairs below. However, as we can see, the contrast is not totally unacceptable.

- Near > far (now and then, ?then and now)
- (151) a. Joan imi'i into aman ket weama-n.  
 John here and there too walk-PST.CONT  
 'John was here and there too.'
- b. ?Joan aman into imi'i ket weama-n.  
 John there and here too to be-PST.CONT  
 ('John was there and here.')
- (152) a. jiba bena iani junak bena-sia.  
 already seem today then seem-sia  
 'It is the same now and then.'
- b. ?jiba bena junak into ian bena-sia.  
 already seem then and today seem-sia  
 ('It is the same then and now.')
- Agent > patient (cat and mouse, \* mouse and cat)
- (153) a. Em chu'u into em miisi nau=nassua.  
 Your dog and your cat together=fight.PRS  
 'Your dog and your cat are fighting.'
- b. ?Em miisi into em chu'u nau=nassua  
 Your cat and your dog together=fight.PRS  
 ('Your cat and your dog are fighting')

But most of these pragmatic principles do not apply in the language. The next examples illustrate this fact:

- Adult > young (father and son, ?son and father)
- (154) a. Ju achai into a= usi-wa nau bwiika.  
 DET father and 3POSS=son-POSS together sing.PRS  
 ‘The father and his son are singing together.’
- b. Ju uusi into a= achai-wa nau bwiika.  
 DET boy and 3POSS= father-POSS together sing.PRS  
 ‘The boy and his father are singing together.’
- Large > small (large and small, ?small and large)
- (155) a. bwere-m into ilitchi sotoi-m tu’ule.  
 Big-PL and small pot-PL like.PRS  
 ‘(S)he likes big and small pots.’
- b. ilitchi-m into bwere sotoi-m tu’ule.  
 small-PL and big pot-PL like.PRS  
 ‘(S)he likes small and big pots.’
- Male > female (man and wife, \* wife and man)
- (156) a. uka o’ou-ta into wepul jamut-ta nee  
 DET.NNOM.SG man-NNOM.SG and one woman-NNOM.SG 1SG  
 bicha-k-an.  
 see-PST-CONT  
 ‘I was looking a man and one woman.’
- b. jamut-ta into o’ou.-ta nee bicha-k amani.  
 woman-NNOM.SG and man-NNOM.SG 1SG see-PST there  
 ‘I saw a woman and a man over there.’

Additional evidence that the distinction male/female is not playing a large role in the language is given by the following pair of sentences. On them the verbalized nouns used for *husband* and *wife* are used in both cases for expressing marriage:

- (157) a. bempo emo ku-kuna-k.  
 They REFL PL-husband-POSS  
 ‘They are married.’
- b. bempo emo ju-jube-k.  
 They REFL PL-wife-POSS  
 ‘They are married.’

### 5.4.2 Summary

The previous section explores the use of pragmatic constraints that could alter the order of the conjuncts. However, the Yaqui language does not present the kind of contrasts found in some other languages. An OT treatment of these facts suggests that those constraints in Yaqui are unranked with respect to each other, or that they occupy a lower position in the hierarchy of constraints. I suggest an introductory analysis in the following section.

### 5.4.3 OT analysis of pragmatic constraints

I suggest that many of the pragmatic constraints codify the importance or relevance of the participants mentioned in the conjuncts. They can be seen as statements about the expected sociolinguistic behavior of the speaker. So, we can define the following constraints related to what has to be mention first:

- (158) MALE FIRST: Mention first male than female.
- (159) ADULT FIRST: Mention first adult persons than young persons
- (160) SINGULAR FIRST: Mention first singular than plural.
- (161) POSITIVE FIRST: Mention first positive things than negatives.

These constraints interact with Gricean constraint demanding order. We can just assume that lexical items in the input carry indexical information which is codified in each candidate and that is indicative of order of presentation. The order can be taken as cardinal order. The constraint is defined as follows:

- (162) BE ORDERED: Present the information in cardinal order.

So an input would contain the features and indices that will produce the order of the predicates.

As a way of exemplification, let's take the first three constraints in (158-160) together with the Yaqui sentence in (163). The order *jamut into uusim* 'the woman and the boys' is seen in the table (164). It shows how the order of the conjoined nouns is generated in OT terms.

- (163) [Jamut        into    uusi-m]        teopo-po        bwuik-bae.  
           Woman        and    boy-PL        church-LOC    sing-INTT  
           'The woman and the boys will sing in the church.'

The conjunct *jamut* 'woman' in (163) has the features [female, adult, singular], whereas the conjunct *uusim* 'boys' has the features [male, young, plural]. For that reason, given an input as that in the table (164), the winner is the candidate (164a) which does not violate the higher ranked constraint BE ORDERED, whereas the candidate (164b) violates it. The nouns in the input carry a subindex which can be considered the number that indicates the position that a speaker wants it to occupy in the conjoined structure.

- (164) Tableau with the order *jamut into uusim* 'the woman and the boys'.  
 The ranking is BE ORDERED >> MALE FIRST, ADULT FIRST, SINGULAR FIRST.

Input:	{jamut <sub>1</sub> , into, uusi-m <sub>2</sub> ...}	BE ORDERED	MALE FIRST	ADULT FIRST	SINGULAR FIRST
a. ☞	[Jamut <sub>1</sub> into uusim <sub>2</sub> ...]		*		
b.	[Uusim <sub>2</sub> into jamut <sub>1</sub> ...]	!*		*	*

The inverse order of the conjuncts in (163) is represented in sentence (165). If the input has the information given in (166), then the winner will be the candidate (166b) because it does not violate the constraint BE ORDERED. Candidate (166a) violates this constraint and is rule out as non-optimal.



(165) [uusi-m into jamut] teopo-po bwuik-bae.  
 Boy-PL and woman church-LOC sing-INTT  
 ‘The boys and the woman will sing in the church.’

(166) Tableau with the order *uusim into jamut* ‘the boys and the woman’. The ranking is BE ORDERED >> MALE FIRST, ADULT FIRST, SINGULAR FIRST.

Input: {uusi-m <sub>1</sub> , into jamut <sub>2</sub> , ...}	BE ORDERED	MALE FIRST	ADULT FIRST	SINGULAR FIRST
a. [Jamut <sub>2</sub> into uusim <sub>1</sub> ...]	!*	*		
b. ☞ [Uusim <sub>1</sub> into jamut <sub>2</sub> ...]			*	*

We can say that Yaqui does not have the kind of restrictions in the order of the conjuncts seen previously because the pragmatic constraints are ranked lower in the hierarchy of constraints. This approach is tentative but makes predictions that can be tested typologically. For example, it predicts that the inverse order between BE ORDERED and the rest of the constraints will produce a language where these constraints will favor the loosing candidate in table (166). It predicts, too, that there would be rankings between the constraints, so, if we have MALE FIRST >> ADULT FIRST >> SINGULAR FIRST and the input contains two nouns, one with the features  $N_{[male, adult, singular]}$  and another with the features  $N_{[male, adult, plural]}$  the order will be:  $[N_{[male, adult, singular]} \& N_{[male, adult, plural]}]$ .

### 5.5 Noun coordination and case marking

In Yaqui all conjuncts must be case-marked (except the plural nouns, marked with *--(i)m* ‘Pl’, which are mutually exclusive with the suffix *--ta* ‘NNOM.SG’). In other words, each conjunct bears information about case-marking. It is never the case that a single case marking is applied to a coordinate construction. The contrast is shown in sentences (166)-(167) where the conjuncts cover the grammatical function of direct object:

- (167) u cu'u [[buru-ta] into [kaba'i-ta]] ke'e-ka.  
 DET dog donkey-NNOM.SG and horse-NNOM.SG bite-PST  
 'The dog bites the donkey and the horse'
- (168) \*u cu'u [[buru into kaba'i]-ta] ke'e-ka.  
 DET dog donkey and horse-NNOM.SG bite-PST  
 ('The dog bites the donkey and the horse.')

The next examples contain coordinate constructions covering several grammatical functions. As we can see, each nominal gets its own case-marking. (The nominative is recognized by the absence of morphological marking).

Subject:

- (169) [Bochareo into kuchureo] jo'ara-po nau etejo.  
 Shoemaker and fisherman house-LOC together r talk:PRS  
 'The shoemaker and the fisherman are talking in the house.'

Indirect object (with --ta 'NNOM.SG'):

- (170) [Sandra-ta into Joel-ta] =ne yokia-m maka-k.  
 Sandra-NNOM.SG and Joel- NNOM.SG =1SG marker-PL give-PST  
 'I gave the markers to Sandra and to Joel.'

Indirect object (with --ta-u 'NNOM.SG-DIR'):

- (171) [Rosa-ta-u into Patricia-ta-u] =ne na'aso-m toja-k.  
 Rosa- NNOM.SG-DIR and Patricia- NNOM.SG-DIR=1SG orange-PL bring-  
 PST  
 'I brought oranges to Rosa and to Patricia.'

Comitative:

- (172) Aapo [Lupe-ta-mak into Lolis-ta-mak] tekipanoa.  
 3SG Lupe-NNOM.SG-COM and Lolis- NNOM.SG-COM work.PRS  
 '(S)he works with Lupe and with Lolis.'

Genitive:

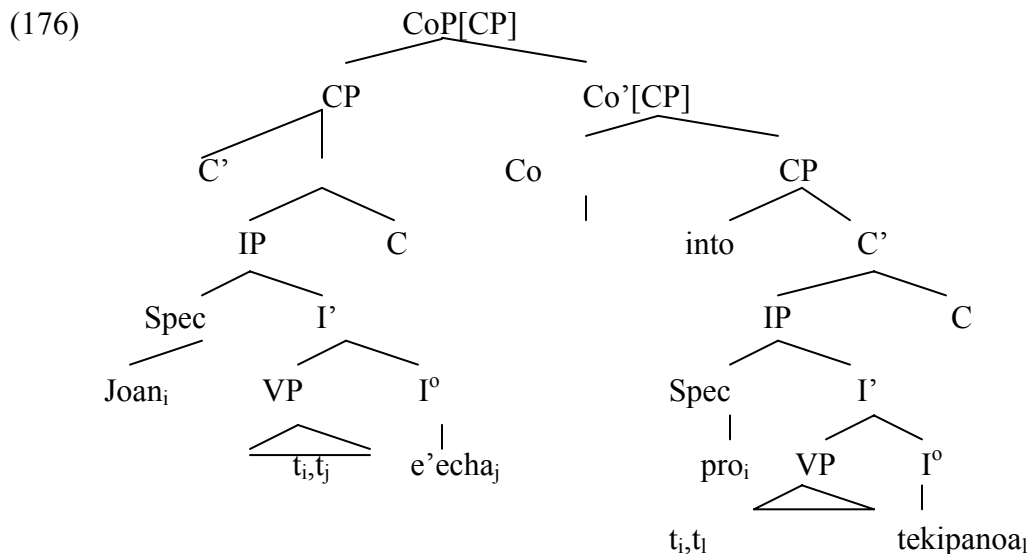
- (173) Joan into [a= ako-wa into a= sai-wa] uka  
 John and 3POSS= sister-POSS and 3POSS=brother-POSS DET.NNOM.SG  
 kari-ta su'utoja-ka-me.  
 house-NNOM.SG left-PST-3PL  
 'John and his sister and his brother left the house.'

I suggest that each noun is case-marked as a consequence of a constraint over what can be coordinated. Yaqui data indicate that we only have the coordination of maximal projections. So, we have a constraint forbidding the coordination of non-maximal projections. It is defined as follows:

(174) \*COORD OF NMAX-PROJ: Avoid coordination of non-maximal projections.

This constraint is ranked above \*CASE and is well founded on empirical and theoretical grounds. Researchers such as Johannessen (1998) have suggested that coordination conjoins two (or more) CP's<sup>46</sup>. From this point of view, a coordinate sentence like the following has the indicated structure. Two maximal projections are coordinated:

(175) Joan e'echa into tekipanoa  
 John sow.PRT and work.PRT  
 'John sows and works'



<sup>46</sup> The coordinator for Johannessen is a functional head, contrary to my proposal, which considers the coordinator to be an adjunct.

On the other hand, Kayne (1994) suggests that languages only coordinate maximal projections, but not necessarily CP's. Kayne proposes that Universal Grammar does not allow coordination of heads. For him, English RNR (Right Node Rising) structures involves FV coordination always. In the following example, [e] in the first conjunct is an elided object. It is not the coordination of two finite verbs. However, as pointed out by Takano (2004), not all cases of *V and V* in English can be analyzed in this way.


(177) John read [e]<sub>i</sub> and reviewed [the article]<sub>i</sub>

I suggest that the interaction of \*COORD OF NMAX-PROJ with \*CASE (avoid case marking) and Faith-FS (Features in the input must be preserved in the output) gives rise to the pattern seen in Yaqui. The next table shows the interaction of those constraints. Candidate (179a) does not violate the constraint \*COORD OF NMAX-PROJ whereas candidates (179b) and (179c) do violate it. Because this constraint is ranked above \*CASE and FAITH-FS candidate (179a) emerges as optimal and wins over candidates (179b) and (179c), which violate that undominated constraint. The winning candidate mentioned in (166), repeated here as (177), would win the battle against its closest competitor, candidate (167), repeated here as (178), when they are evaluated by the ranked constraints:

(178) u      cu'u    [[buru-ta]                    into    [kaba'i-ta]]                    ke'e-ka.  
          DET   dog    donkey-NNOM.SG    and    horse-NNOM.SG                bite-PST  
          'The dog bites the donkey and the horse.'

(179) \*u      cu'u    [[buru                    into    kaba'i]-ta]                    ke'e-ka.  
          DET   dog    donkey                    and    horse-NNOM.SG                bite-PST  
          ('The dog bites the donkey and the horse.')

- (180) Tableau with the ranking \*COORD OF NMAX-PROJ>>\*CASE>>FAITH-FS, showing how each noun gets case marking.

Input:	{buru, kaba'i, into...} [NNOM:SG], [NNOM:SG]	*COORD OF NMAX-PROJ	*CASE	FAITH-FS
a. 	...[[buru]-ta] into [kaba'i]-ta...		**	
b.	...[[buru] into [kaba'i]]-ta...	!*	*	*
c.	...[[buru] into [kaba'i]]...	!*		**

We have seen in this chapter the interaction of the nominal and verbal classes of Yaqui. It was shown that the Index and Concord features are useful but not enough in the explanation of Yaqui agreement between nominal arguments and nouns. It was necessary to introduce a set of constraints that explains the alternations found in the coordination of the Yaqui language.

The final ranking proposed in this chapter is shown next. The exploration of nouns cl-3 and the different type of verbs indicates that Yaqui has the following final ranking. It allows the explanation of all patterns described here and that holds between the four types of verbs and the nominal class three.

- (181) HAVE-AF >> \*CASE >> CHECK INDEX >> PRESERVE LEXICAL FEATURES >>

UNIFORMITY >> FAITH-I-O >> DISTR.CONCORD >> \*NUMBER.

## 5.6 Summary of chapter 5

This chapter has focused on the description of the morphological number features of nouns and verbs of Yaqui. We have seen that there are three classes of nouns. The regular nouns which take singular and plural marking (N1), the nouns which requires singular marking (N2) and the nouns which requires just plural marking (N3). The (N3) class has

a subset of nouns which must be always marked with plural but which are underspecified for singular or plural. My analysis shows that there are five types of verbs: the verbs that does not mark number (the *jinuk* ‘to buy’ class), the singular suppletive intransitive verbs (the *siika* ‘leave.SG’ class), the plural suppletive intransitive verbs (the *sajak* ‘leave.PL’ class), the singular suppletive transitive verbs (the *me’a* ‘to kill.SG.OBJ’ class), and the plural suppletive transitive verbs (the *sua* ‘to kill.PL.OBJ’ class). I analyzed some interactions related to agreement between nouns and verbs, the order of the conjuncts and case marking. We saw that the feature system proposed by Halloway King and Dalrymple (2004) was unable to explain the Yaqui patterns of coordination and we applied an OT analysis that shows that it is able to predict the alternations described in this chapter.

## 6 CONCLUSIONS AND TOPICS FOR FUTURE RESEARCH

### 6.1 Conclusions

This dissertation has described and explained three main topics regarding Yaqui coordination: the nature of sentential coordinate structures which are treated like adjunct-host relations, the *--kai* construction that in some cases emerges like a subordinate structure and in other cases like a coordinate structure, and finally, in Chapter Five, I provide an analysis of the agreement between nominals and verbs.

This work gave evidence that the ConjP hypothesis is not appropriate for explaining the coordinate structures of Yaqui sentences. A ConjP approach does not predict and is unable to account for *into* ‘and’ in second and last position. This failure is evident because the ConjP approach predicts that the specifier of the projection must be occupied by the first conjunct whereas the complement position will be occupied by the second conjunct. The coordinator, being the head, will be between both conjuncts. Therefore, the ConjP approach predicts as grammatical sentence (1), and predicts as ungrammatical sentence (2). However, the opposite situation happens in Yaqui: (1) is ungrammatical and (2) is grammatical:

- (1)   \*[Joan bwika-k]   into   [maria       ye’e-ka]  
       John sing-PST   and   Mary       dance-PST  
       (‘John sang and Mary danced’)
- (2)   [Joan bwika-k]   [maria into   ye’e-ka]  
       John sing-PST   Mary and   dance-PST  
       ‘John sang and Mary danced’

We saw that Agbayani and Golston (2002) attempt to rescue the ConjP hypothesis by claiming that coordinators which appear after one constituent like in (2) are clitics. Therefore, the moved element attaches to the coordinator, as illustrated in (3):

(3)  $\text{ConjP} [\text{CP} [\text{Joan buikak}] \text{Conj} [\text{Conjo Maria}_i = \text{into}] [\text{CP} [\text{t}_i \text{ ye'eka}]]]$

But in Chapter Three we saw that *into* ‘and’ in Yaqui is not a clitic. It is not prosodically deficient: it is a minimal word in the language, it is a disyllabic trochaic foot, it has stress, it is a host for cliticizing other particles and it can occur in first position. In Yaqui, topicalized elements are located in front of CP. For that reason, it was suggested that sentence (2) contains a fronted subject and that the landing site of a topicalized item is not the head of a projection. I have suggested that the coordinator is an adjunct which attaches to a Maximal projection (CP in this case) and that the topicalized element is fronted as indicated in (4):

(4)

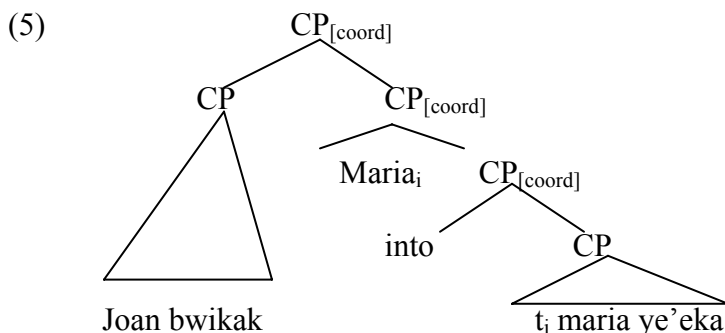
$$\begin{array}{c}
 \text{CP}_{[\text{coord}]} \\
 \diagdown \quad \diagup \\
 \text{Maria}_i \quad \text{CP}_{[\text{coord}]} \\
 \quad \quad \diagdown \quad \diagup \\
 \quad \quad \text{into} \quad \text{CP} \\
 \quad \quad \quad \quad \quad \triangle \\
 \quad \quad \quad \quad \quad \text{t}_i \text{ maria ye'eka}
 \end{array}$$

Because (4) is now marked with the feature [coord], it licenses the addition of another CP (the first conjunct) as indicated in (5)<sup>47</sup>:

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<sup>47</sup> Recall that *into* ‘and’ is conceived in this work to be a marker (the sense in which the word “marker” is used here is similar to the sense used when talking about agreement markers) and an operator (by its logical properties (truth values)).

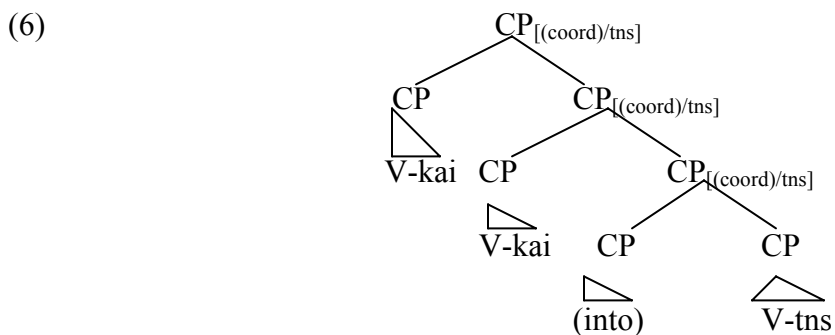




In the final part of Chapter Three, I show that some OT constraints are able to handle the Yaqui patterns of sentence coordination.

On the other hand, the idea that coordination is the result of an adjunct-host relation is extended to the analysis of the *--kai* constructions in Chapter Four. A set of tests indicates that the *--kai* verbal construction is marked as subordinated but that it can emerge syntactically as coordinated (if it is a chaining structure) or subordinated (if it is not a chain). So we saw the following basic representations:

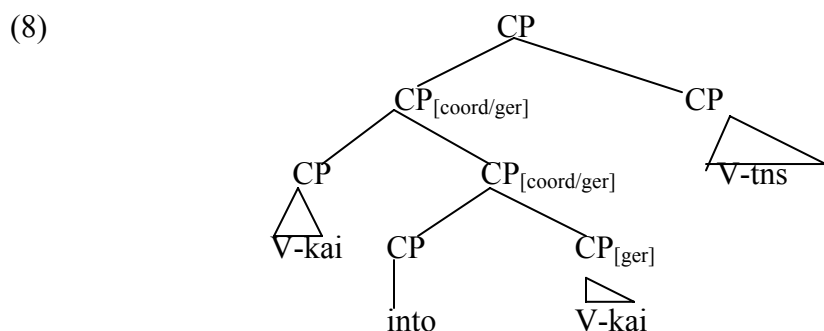
The tree in (6) stands for a *--kai* coordinate series (see example (35) in Chapter Four). The *into* ‘and’ is optional. In this case *into* ‘and’ cannot occur between the *--kai* clauses (\**v-kai into v-kai*, (*into*) *V-tns*).



A subordinate clause emerges without the occurrence of *into* ‘and’, as indicated in the contrast of (7a) and (7b) (see example (38) in chapter four):



The following structure was proposed for cases where *into* occurs between *--kai* clauses. In such a case the (gerundive) tense of the *--kai* clauses does not depend on the tense of the final verb in the series. The occurrence of *into* between the last *--kai* clause and the tensed verb is not possible (\*V-kai into V-kai into V-tns). The *--kai* clauses are subordinated (see examples (98) and (99) in Chapter 4).



The analysis of the *--kai* clauses indicates too that the construction respects the CSC and that it is an inviolable constraint in Yaqui. Typologically the *--kai* construction is a pseudo-subordinated structure (i.e. it is marked as subordinated but it behaves as coordinated). There was no attestation of any case of pseudo-coordination in the language (cases that syntactically are coordinated but that are really subordinated). The use of constraints helped us to explain the main characteristics of the *--kai* construction.

Finally, Chapter Five presented a description of nominal and verbal morphosyntactic features of number. We detected an asymmetry in nominal-verb

agreement: two (or more) coordinate nouns combine with a plural verb if the verb is intransitive, whereas they combine with a singular verb if it is both transitive and agree with the object. The asymmetry is shown in (9) and (10).

- (9) Joan into Peo sajak/ \*siika  
 John and Peter go.PL.PST/ go.SG.PST  
 ‘John and Peter left’
- (10) Andrea Joan-ta into peo-ta kecha-k/ \*ja’abwa-k  
 Andrea John-NNOM.SG and Peter-NNOM.SG get up.SG.OBJ-PST get up.PL.OBJ-PST  
 ‘Andrea got up John and Peter’

My analysis of the nominal and verbal features of number indicates that there are several classes of nouns and verbs. These classes interact in such a way that a system of features like that proposed by Holloway King & Dalrymple (2004) does not explain all of the resulting patterns of the language. The system appeals to a distinction in number features: CONCORD features and INDEX features. Chapter Five shows that we need to recast the observations made by Holloway King and Dalrymple into OT terms. The use of additional constraints helped us to explain the Yaqui data.

## 6.2 Topics for future research

I want to close this work by pointing out two interesting areas for future research into the Yaqui language. One is the possibility of exploring the nature of the input. The other is the possibility that the coordinator *into* ‘and’ can be a complementizer in the language.

The nature of the input is worth exploration because in Yaqui it seems that it is possible to derive the set of sentences in (11)-(14) from a common source. We can suppose that there is a set of constraints regulating the pronunciation of lexical items. If this is so, the pronunciation of lexical items will be tied to constraints regulating the

intended meaning. The glosses indicate that the meaning tends to be different for each case. For example, sentence (11) will be used just for a disjoint subject reading. Such a reading is not available in the other cases. What makes this proposal interesting is the idea that we have a single input which is able to produce four patterns of coordination attested in Yaqui: sentence coordination (11), VP coordination (12), NP coordination (13), and NP discontinuous coordination (14). The question is, then: Could we say that the following sentences are derived from a common source<sup>48</sup>?

Sentence coordination:

- (11) [jabe bibam jinu-k]      [jabe into bino-ta      jinu-k]  
 Who cigars buy-PST      who and wine-NNOM:SG      buy-PST  
 ‘Who bought cigars and who bought wine?’  
 (Subject: disjoint reading; two disjoint events)

VP coordination:

- (12) [jabe      bibam jinu-k]      [jabe into bino-ta      jinu-k]  
 Who cigars buy-PST      who and wine-NNOM:SG      buy-PST  
 ‘Who bought cigars and bought wine?’  
 (Subject joint reading, two disjoint/joint events.)  
 (Focuses the act of buying, it repeats twice the verb.)

NP coordination:

- (13) [jabe bibam ~~jinu-k~~]      [jabe into bino-ta      jinu-k]  
 Who cigars buy-PST      who and wine-NNOM:SG      buy-PST  
 ‘Who bought cigars and wine?’  
 (Subject joint reading, one joint event.)

Discontinuous NP coordination:

- (14) [jabe bibam jinu-k]      [jabe into bino-ta      ~~jinu-k~~]  
 Who cigars buy-PST      who and wine- NNOM:SG      buy-PST  
 ‘Who bought cigars and wine?’  
 (Subject joint reading, one joint event.)

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<sup>48</sup> Oirsov (1987) suggested that coordination is an optional rule that applies over well-formed sentences of a language. However, as pointed out by Johannessen (1998), that approach is unable to explain unbalanced coordination (e.g. *you and me will go to the party*) where one of the conjuncts can not be a grammatical sentence of the language (*\*me will go to the party*).

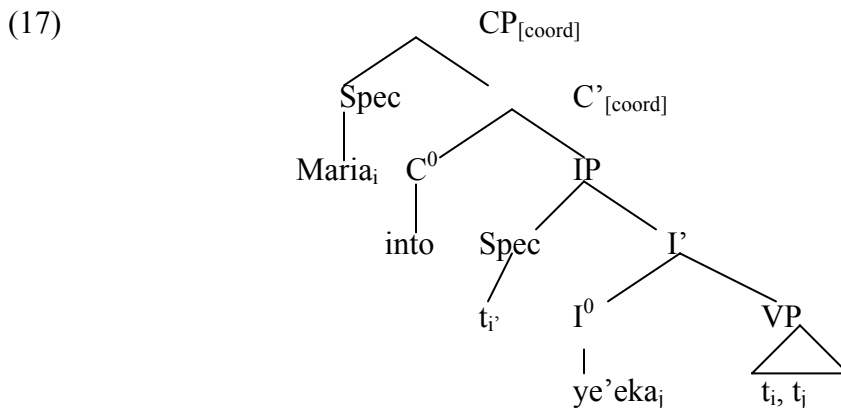
In addition to the previous examples, we can have the non-pronunciation of the coordinator, as indicated in (15):

- (15) [jabe bibam jinu-k]      [jabe ~~into~~ bino-ta      jinu-k]  
 Who cigars buy-PST      who ~~and~~ wine- NNOM:SG      buy-PST  
 ‘Who did buy cigars, who did buy wine?’  
 (Disjoint / joint subject reading, disjoint/joint event)

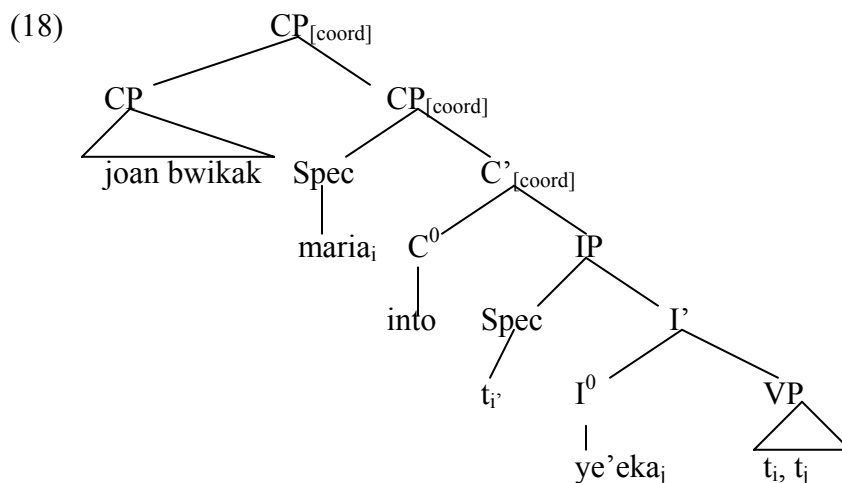
Such an approach will require blocking the following types of candidates due to their ungrammaticality:

- (16) a. [jabe      bibam jinu-k]      [jabe into bino-ta jinu-k]  
 b. [jabe      ~~bibam~~ jinu-k]      [jabe into bino-ta jinu-k]  
 c. [jabe           bibam ~~jinu-k~~]      [jabe into bino-ta jinu-k]  
 d. [jabe      ~~bibam~~ jinu-k]      [jabe into bino-ta jinu-k]  
 e. [jabe ———      bibam ~~jinu-k~~]      [jabe into bino-ta jinu-k]  
 f. [jabe      ~~bibam~~ ~~jinu-k~~]      [jabe into bino-ta jinu-k]  
 g. [jabe      ~~bibam~~ jinu-k]      [jabe into bino-ta jinu-k]

Finally, I want to point out an observation made by Sheila Dooley, who has suggested that the *into* ‘and’ particle could be considered to be a complementizer (p.c.). If that is true, then the coordinator will be a head. In such a case, the moved subject will be in the specifier position of CP, as indicated in (17). We saw in Chapter Three that subject-fronting is obligatory for reasons of topicality.



Because the CP is marked with a [coord] feature, there can be an adjunction of another CP, as indicated in (18). So, the first conjunct *joan bwikak* ‘John sang’ is still an adjoined CP. Therefore, from this point of view, the ConjP will be just the second conjunct which serves like a host for the first conjunct:



This suggestion is important from a theoretical point of view. It combines two previously competing sides of the debate on coordinate structures: coordinate structures as headed constructions and coordinate structures as adjoined structures. Under this analysis, the coordinator will be a head in the second conjunct, but the first conjunct will be the product of an adjoin operation.

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