Chapter 1

INTRODUCTION

1.1 Scope of the study

This dissertation presents a Role and Reference Grammar treatment of complex constructions in Yaqui. Complex sentences are made up of a number of simple sentences. In traditional grammar, complex sentences are divided into (a) those in which the constituent clauses are grammatically *co-ordinate*, no one being dependent on the others, but all being, as it were, added together in sequence, with or without the so-called coordinating conjunction; and (b) those in which one of the clauses, the 'main' clause, is 'modified' by one or more *subordinate* clauses grammatically dependent upon it and generally introduced by a subordinating conjunction (Lyons 1968: 178). Accordingly, there are two types of subordination. In the first one, the 'dependent' clause modifies either an argument of the 'main' clause (relative clauses) or the whole 'main' clause (adverbial clauses); in the second one, the 'dependent' clause serves as an argument of the 'main' clause (complementation). This traditional dichotomy, clearly defined on the grounds of morpho-syntactic criteria, works well for most of the Indo-European complex sentences, but it is not enough to explain constructions that have properties of both coordination and subordination found in other linguistic families.

As originally proposed by Silverstein (1976), Haiman (1985) and Givón (1980), there is an iconic relation between the syntactic representation and the semantic representation of a complex sentence. Among the predictions that this form-function correlation makes is the fact that the semantic relations between the events and their syntactic realization can be organized together into a scale of clause union, where the stronger the semantic bond between two events, the more intimate will be the syntactic

integration of the two propositions into a single clause. The correlation between the syntactic and semantic dimensions has had great impact on the research on the semantics of English complex constructions, e.g., Bolinger (1968, 1972), Kiparsky and Kiparsky (1970), Karttunen (1971), Ross (1973), Hopper (1975), Kirsner and Thompson (1976), Frajzyngier and Jasperson (1991), as well as on typologically oriented studies, e.g., Foley and Van Valin (1984), Dixon (1984, 1991, 1995), Noonan (1985), Ransom (1986), Wierzbicka (1988), Dik and Hengeveld (1991), Horie (1990, 1993, 2000), Van Valin and Wilkins (1993), Cristofaro (2003).

Role and Reference Grammar [RRG] (Van Valin 1993, 2005; Van Valin and LaPolla 1997) has a very distinctive theory for complex sentences. The theory has three main components: the theories of juncture, nexus, and interclausal semantic relations. The theory of juncture deals with the units which make up complex sentences, termed nucleus, core, and clause. The theory of nexus concerns the syntactic relationship between the units in the juncture, termed coordination, subordination and co-subordination. The juncture-nexus combinations are organized into a hierarchy in which they are ranked in terms of the tightness of syntactic link or bond between them, called the Syntactic Relation Hierarchy. The theory of interclausal semantic relations proposes that the semantic relations themselves can be ranked in a continuum based on the degree of semantic cohesion between or among the units, called the Semantic Relation Hierarchy. The RRG theory of clause linkage juxtaposes the syntactic and the semantic hierarchies to create the Interclausal Relations Hierarchy illustrated in Figure 1. The crucial point is that RRG assumes that there is an implicational hierarchy linking the semantic continuum and the morpho-syntactic continuum.

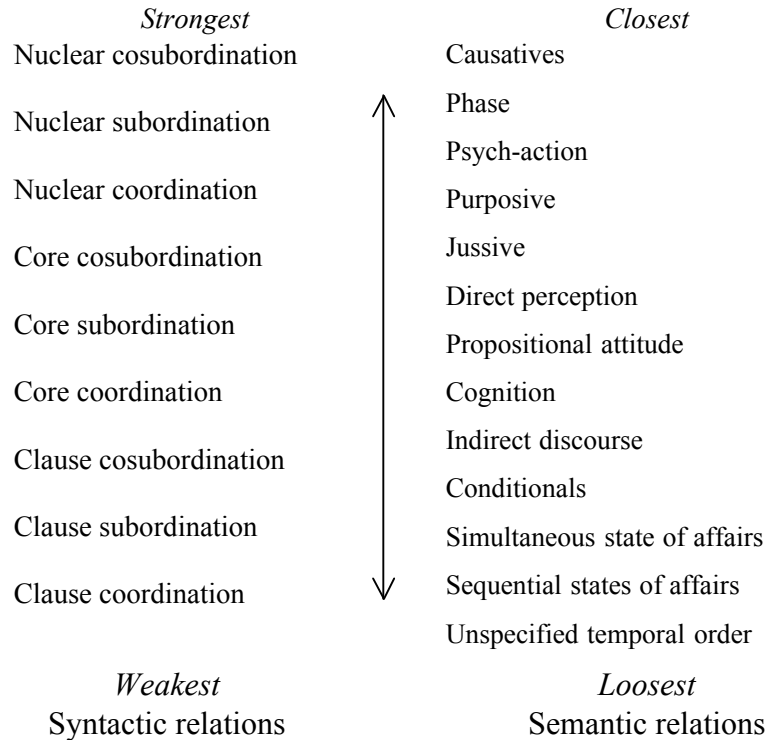| Strongest		Closest
Nuclear cosubordination		Causatives
Nuclear subordination	↑	Phase
		Psych-action
Nuclear coordination		Purposive
Core cosubordination		Jussive
		Direct perception
Core subordination		Propositional attitude
Core coordination		Cognition
		Indirect discourse
Clause cosubordination		Conditionals
Clause subordination		Simultaneous state of affairs
	↓	Sequential states of affairs
Clause coordination		Unspecified temporal order
Weakest		Loosest
Syntactic relations		Semantic relations

Figure 1.1: Interclausal Relation Hierarchy [IRH]

This study investigates the syntactic and semantic dimensions of complex sentences in the Yaqui language. Although most of the discussions involve complement-taking predicates, other types of subordinate and non-subordinate complex sentences are also investigated. The study of Yaqui complementation is interesting for two reasons. First, the strongest grammatical construction in the language, the morphological type, that is assumed to express closer semantic relations at the top end of the hierarchy such as causation and phase predicates, has been extended down to express looser semantic notions, even indirect discourse. Second, at the middle portion of the scale -jussive, perception, and propositional attitude predicates- show alternative coding, one grammatical construction being syntactically tighter then the others, without necessarily different semantic effects.

1.2 The Yaqui language

Mexico is a multicultural, multi-linguistic country. The heterogeneity of its peoples and the cultural diversity are evident in its 62 officially recognized indigenous languages which make up 11 percent of the nation's 97 million inhabitants. Most indigenous languages of Mexico belong to three major groups, Hokan, Otomanguean, and Uto-Aztecan, in addition to other linguistic families such as Algonquian, Huavean, Mayan, Mixe-Zoquean, Tarazcan, and Totonacan. The Uto-Aztecan family is one of the largest and most widely distributed in North America. This linguistic group can be divided into a northern and a southern branch. The northern branch consists of four subgroups: Numic (Northern and Southern Paiute, Shoshoni, and Comanche), Takic (Serrano, Cahuilla, Cupeño and Luiseño), Tubatulabal and Hopi. The southern branch consists of another four subgroups: Aztecan (classical and modern Nahuatl), Pimic (Tohono O'odham, Southern and Northern Tepehuan, Tepecano and Pima), Corachol (Cora and Huichol) and Taracahita (Tarahumara, Guarijío, Yaqui and Mayo). The last three Southern sub-groups are commonly termed the Sonoran branch.

The Yaqui language was traditionally spoken by the Yoeme people living along the Rio Yaqui, in Sonora, Mexico. After the Mexican Revolution in 1920, a large group of speakers settled in Arizona. Today, there are approximately 15,000 speakers in Sonora and an estimated 6,000 in Arizona (Estrada 1998). Yaquis identify themselves as *yoremes*, a word that means man or person; they identify foreigners, white men as *yoris*. The Yaquis traditionally lived in the bay and valley of the southern part of Sonora, from the southern bank of the Yaqui River to the Tetakawi hill. The eight traditional Yaqui towns, from south to north are: Loma de Guamúchil, Loma de Bácum, Tórim, Estación Vícam, Pótam, Ráhum, Huirivis and Belem. Vícam has become the political and

administrative center of the eight towns, and is the main trading point in the area. Vícam is inhabited by *yoremes* and *yoris*.

Yaqui is a synthetic/agglutinant type of language which uses suffixes and postpositions quite extensively. It shows a nominative-accusative system, clearly distinguished in the pronominal inventory. In nominal forms, the nominative case is unmarked and the accusative case is marked by *–ta*; postpositions are used to mark oblique arguments. As a verb-final language, the unmarked word order is SOV where the order of the nominal arguments is relatively flexible. The order of sentential complements, however, tends to be fixed and there is a strong tendency for extraposition of complement constructions to the right.

1.3 Brief review of previews literature
There are some previous studies on the Yaqui language, e.g. Crumrine (1961), Johnson (1962), Lindenfeld (1973), Escalante and Jelinek (1988), Escalante (1990), Dedrick and Casad (1999), Félix (2002). Those are studies of particular domains of Yaqui grammar and, except for the last two, they are based on the Arizona dialect. Lindenfeld's *Yaqui Syntax* is one of the well-known early studies on complex sentences. It covers the main outlines of the Extended Standard Theory Model including phrase structure base rules, several common transformations, and aspects of complex constructions. Under subordination, she analyzed clauses coding manner, time and condition, goal, and other adverbial relations marked by the general (neutral manner) subordinator *–kai*, as well as *alle'apo* 'although', *kielekun* 'so that', and the like. Under nominalization, she grouped purpose clauses marked by *–betchi'ibo* 'for', nominalized clauses acting as subjects, a few cases of clauses serving as objects (basically those marked by the Spanish marker *ke*

'that'), and complex constructions involving derivational suffixes such as the causative –*tua*, the command – *'ii'aa*, and the quotative –*tia*. She points out that she has "excluded all the cases that in a complete grammar could be handled in the lexicon, according to the guidelines set by Chomsky in 'Remarks on Nominalization' (1970)" (Lindenfeld 1973:100), meaning that she excludes most types of complex constructions involving complement-taking predicates.

Fernando Escalante, a native speaker from Arizona, has studied several aspects of the Yaqui grammar, e.g., *Yes/No questions in the Yaqui Indian Language* (1983), *Moods and modes in Yaqui* (1984), *A preliminary view of the structure of Yaqui* (1985), *Setting the record straight on Yaqui passives* (1990). His dissertation, *Voice and argument structures* (1990), is an important study of syntactic clauses containing complex verbs including causatives, dative, applicative and possessive constructions. He addressed the idea that argument selection and voice alternation depend upon discourse factors, but he recognized that these factors are complex and poorly understood requiring future studies. Jelinek has also published a number of grammatical studies (1991, 1993, 1998), some of them coauthored with Escalante (1988a, b). Nowadays, there is on-going theoretical research at the University of Arizona, e.g., Jelinek (1998) and Jelinek and Escalante (2000), of a formal compositional view of the argument structures in Yaqui verbs.

Dedrick and Casad's *Sonora Yaqui Language Structure* (1999) is an invaluable contribution to the grammatical study of the language, and it includes very useful information about voice, aspect and other features of verbal inflection, word formation and derivational processes, from both morphological and lexical perspectives. It also describes in detail the use of quantifiers, adverbial and deictic particles, rarely

documented before. Many of the example sentences are citations from texts and narratives, and it also includes a complete text. However, when compared to the detailed exposition of simple constructions, the description of complex constructions is extremely sparse. The grammar describes the variety of devices and combinations to mark coordinate sentences, e.g., the use of coordinating conjunctions, juxtaposition of conjuncts (359-364); the kinds of subject relative clauses and its historical properties, the morphology of object relative clauses, and a few notes about oblique relative clauses (279-385); and the suffixes and postpositions used to mark locative and temporal adverbial clauses, the role of the imperfective suffix –*ka(i)* as a simultaneity marker, as well as certain devices to mark sequential, temporal 'if' and conditionals (p. 387-398). With respect to complementation, the authors claim that they group the complement types in terms of the semantics of the verbs that govern them and show the contrast between main verb usages and more grammaticalized usages of the governing verbs (p. 365-378). Whereas the second aspect (the grammaticalized usages of main verbs) is well documented, the groups of matrix verbs is reduced to: (i) the capacitative verb *'aa* 'to know how to' (§6.2.3), (ii) the mental activity verb *'ea* 'to think, make a judgment' (§7.2.2), (iii) the speech act verb *jiia* 'to say' (§7.4.1-2), and a set of personal action verbs governing onomatopoetic expressions (373). They briefly discuss some marking properties of complement constructions such as the use of postpositions as complementizers and the occurrence of the imperfective particle –*ka* for marking subordinate clauses. They also introduce the use of embedded questions as a type of complement clause. In sum, although D&C provide an excellent resource on Yaqui grammar and a detailed documentation of word classes and verb formation, the

morphological, syntactic and semantic properties of complement constructions still constitute an under-studied aspect on the Yaqui language. This study seeks to fill in where it is lacking.

1.4. Goals and data

This dissertation has three specific aims: i. to present a morpho-syntactic description of simple and complex constructions in the language, ii. to investigate the relationship between the syntactic and semantic dimensions of complex sentences, and iii. to contribute to the research and maintenance of one of the American Indian Languages spoken in México. The descriptive component addresses which units are involved in simple and complex constructions, what kind of predicate is involved in the clause, and how the argument structures are selected and coded. Although the analysis focuses on semantic and syntactic structures, a detailed description of morphological devices for verb classification, voice and valence changes has been also included. The explanatory component will follow the cognitive-functional foundations of complex constructions as proposed by RRG. The main questions to be explored are:

(i) What are the units involved in complex sentences and what syntactic relations hold between them?

(ii) Does Yaqui follow and support RRG's general assumptions as a theory of universal grammar?

(iii) Can RRG's theoretical assumptions, as a structural-functionalist theory of grammar, elucidate Yaqui morpho-syntactic manifestations?

For the purpose of the analysis, the complex construction types are organized in terms of the semantics of the predicate coding the main state of affairs. This classification of complement-taking predicates closely follows the one proposed by Noonan (1985), e.g., manipulatives, phasals, desideratives, perception, propositional attitude, knowledge, and

utterance predicates. These classes involve different relation types between the main and the dependent states of affairs. In order to establish the semantic and morhpo-syntactic integration among the units involved, the following properties are explored: i) case marking of the non-matrix subject; ii) coreferential vs. argument sharing, iii) passivization, iv) operator dependency, v) modification of temporal adverbs (co-temporality), vi) position of the non-matrix unit within the sentence, vii) syntactic status of non-morphological complements, viii) the use of complementizers. Roughly speaking, the more arguments and operators are shared between the two units, and the more restricted the use of complementizers is, the tighter the predicate-complement construction will be.

This study has certain limitations. Since one of the central issues is to provide a detailed description and syntactic inventory of complex constructions in the language, it mainly analyzes data from direct elicitation and does not include data from texts. Moreover, although briefly mentioned in several parts of the analysis, it leaves behind the semantic notions involved in conditionals, temporally related events and non-temporally related events. Both aspects will need to be addressed in future studies.

The data used in the present study comes from three primary sources: from published studies, from the Yaqui-Spanish Dictionary (Estrada et al, 2004), and from my own fieldwork. All data on complex constructions was collected by me. The data was collected in Estación Vicam, Sonora, during several fieldwork trips to the community, from December 1998 to February 2004. My principal consultant has been Gregorio 'Goyo' Flores, a native speaker in his late thirties. Goyo began to learn Spanish by the time he enrolled in primary school (six years old); although he studied Agriculture in the

Universidad de Sonora, he is more involved in religious and political activities within the community, especially those related to ceremonial organizations. Goyo is one of the principal ritual dancers of *La danza del Venado* 'deer dancing', around the area. In addition to Goyo and his family, a number of other Yaqui speakers have served as language consultants in earlier stages: Cresencio Buitimea, Asalia Buitimea, and Anabela Carlón, all young bilingual speakers of the Sonoran dialect. I am deeply in debt to all of them who kindly shared the knowledge of their language.

The methodology used to collect the data was, primarily, direct elicitation of sentences. The consultants invariably volunteered numerous related sentences during the elicitation sessions, which I included in the data set. I frequently built Yaqui example sentences to test grammatical aspects and structure possibilities discussed in this work. I tested my constructions with Goyo and his family several times, correcting them as directed and noting variation in grammaticality judgments. For certain semantic domains (e.g., causation, perception, etc.), I tried to provide enough context to give a solid picture of the use of the construction in question.

1.5. Organization

This dissertation is organized in two main parts. The first part deals with grammatical aspects of simple clauses. Chapter 2 provides an overview of the basic morpho-syntactic properties of the language including noun structure, verb structure and a brief introduction to complex constructions. Chapter 3 first introduces the basic principles of Role and Reference Grammar, and then analyzes in detail the verbal system. This section develops diagnostic tests to examine the Aktionsart classes of the Yaqui predicates; the so-called verb agreement in suppletive verbs is also analyzed in terms of semantic, rather than syntactic, valence. Chapter 4 analyzes one, two and three-place verbs, putting especial attention on multiple accusative constructions. It establishes the case marking and postpositional assignment rules as well as the linking algorithm for simple clauses.

The second section focuses on complex constructions. Chapter 5 briefly comments the RRG theory of clause linkage and then explores in detail the notion of non-verbal and verbal causation, from lexical causative verbs, to derived and syntactic causative constructions. Chapter 6 deals with phase, desiderative and purposive clauses. Chapter 7 analyzes direct and indirect perception, propositional attitude, cognition and direct and indirect discourse predicates. Chapter 8 summarizes the juncture-nexus relations found in the language, establishes the linking algorithm from semantics to syntax in complex constructions and provides a functional-cognitive explanation for alternative syntactic manifestations. Chapter 9 concludes this dissertation.

Chapter 2

MORPHO-SYNTACTIC STRUCTURES IN YAQUI

This chapter describes the basic morpho-syntactic properties and argument structure of the Yaqui language. Section 2.1 describes the noun structure; section 2.2 presents the verb structure in terms of number agreement, transitivity, tense-aspect-modal markers, and syntactic valence change; section 2.3 briefly introduces complex construction types, and section 2.5 summarizes this chapter.

2.1. Noun Structure[1]

Yaqui is a syntactic/agglutinative type of language which uses suffixes quite extensively; it has postpositions and sentence final suffixes marking tense, aspect, and modality (Escalante 1990). Yaqui is a verb-final language in which the nominal arguments show relatively free word order. By 'word-order' is meant primarily the order of subject, verb, direct and oblique object, which carries no special nuances of semantic or pragmatic values. In the unmarked word order (and basically, that one found in direct elicitation), the subject NP appears core-initially, the *topic* position according to D&C (43), except when it is a pronoun in which case it may appear in second-position, preceding the verb; direct and oblique NPs show free word order. Considering Yaqui to be a verb-final language, it presents an unexpected word order regarding the position of wh-expressions, which usually occur at the beginning of the clause. Furthermore, adverbial and postpositional phrases expressing manner, temporal or locative information frequently

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[1] The orthographic system used in this study is very close to the one proposed by Dedrick and Casad (1999). Except that, for typographic convenience, I use 'ch' to represent the alveo-palatal voiceless fricative [_], 'j' for the glottal voiceless fricative [h], and 'bw' for the labial voiced labialized stop [b^w].

occupy the first position in the clause or, at least, a pre-verbal position, although they may also occur within the clause, preceding the verb.

2.1.1 Pronominal system. The nominative-accusative case system on pronouns is illustrated in Table 2.1. Pronouns identify person, number and case. There are distinct paradigms for accusative and genitive pronouns with some overlap in forms (Langacker 1977). Objects of postpositions belong to a different paradigm (D&C: 173).

Table 2.1 Pronoun inventory

	Nominative		Accusative		Object of postpositions	Reflexive	Genitive
1 Sg	inepo	=ne	nee		ne-	ino	in, nim
2 Sg	empo	='e	enchi		e-	emo	em
3 Sg	aapo		apo'ik	a	a-	eu, au, emo	a, apo'ik
1 Pl	itepo	=te	itom		ito-	ito	itom
2 Pl	eme'e	='em	enchim		emo-	emo	em, enchim
3 Pl	bempo		apo'im	am	ame-	emo	bem, bempo'im

Pronominal elements range in status from fully independent forms, to clitics, to affixes. The nominative pronouns show a free and a bound form for the first and second person as illustrated in (1). For the third person the contrast is between a free pronoun and zero. The bound forms appear as second position clitics, and they can be attached to any preceding noun, adjective or adverbial phrase.

(1) a. Junak inepo   yepsa-k.
         then   1SG:NOM arrive-PRFV
         'Then, I arrived.'

     b. Junak = ne   yepsa-k
         then = 1SG:NOM   arrive-PRFV
         'Then, I arrived.'

     c. Nim   kuna = ne   su'u-toja-k.
         1SG:GEN   husband =1SG:NOM   abandon-PRFV
         'I abandoned my husband.'

While adverbs or other particles may intervene between a lexical object and the verb, nothing can intervene between an accusative pronoun and the following verb; thus,

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accusative pronouns behave like clitics. When the two object arguments are pronominal

(2b), the 'indirect' object tends to precede the 'direct' object. The object of postposition

paradigm refers to those pronouns that are employed as objects of postpositions. For

instance, the object pronoun followed by the directional postposition –*u* indicate the

'indirect' object of verbs like *tejwa* 'to tell' in (2b).

(2) a. Empo   tuuka   am   bicha-k.
       2SG:NOM   yesterday   3PL:ACC   see-PRFV
       'You saw them yesterday.'

     b. Peo-Ø   ame-u   a   teuwa-k.
       Pedro-NOM   3PL-DIR   3SG:ACC   tell-PRFV
       'Pedro told it to them.'

The reflexive pronouns are exemplified in (3a-b). In addition to these forms coding

person and number, there is a default reflexive form *omo ~ emo*, also typical of Uto-

Aztecan languages, which may be used by itself (3c) or co-occurring with a nominative

pronoun (3d) to emphasize the reflexive sense.

(3) a. Inepo   ino   bekta-Ø.
       1SG:NOM   1SG:REFL   shave:PRES
       'I shave myself.'

     b. Karmen-Ø   au   chukta-k.
       Carmen-NOM   3SG:REFL   cut-PRFV
       'Carmen cut herself.'

     c. Wa'a   ili   jamut-Ø   sio   yolisia   omo   chichike-Ø.
       that   little   woman-NOM   very   pretty   REFL   brush-PRES
       'That girl brushes her hair very nice.'

     d. Maria-Ø   espejo-po   aapo   omo   bicha-k.
       Maria-NOM   mirror-LOC   3SG:NOM   REFL   see-PRFV
       'Maria saw herself in the mirror.'

The default reflexive pronoun may also indicate reciprocal meaning. Compare the

two clauses in (4a-b). Whereas the reciprocal takes the default reflexive pronoun *omo*,

meaning 'each other', the non-reciprocal takes the accusative *am*. The reconstructed

reciprocal verb prefix *na- (Langacker 1977: 47) has been retained in the particle *nau*

'together' (lit. reciprocal-directional) as in (4c).

(4) a. Joan-Ø   into Maria-Ø   omo ji'i-bwa-tua-Ø.
         Juan-NOM and Maria-NOM REFL thing-eat-CAUSE-PRES
         'Juan and Maria feed each other.'

     b. Joan-Ø   into Maria-Ø   am   ji'i-bwa-tua-Ø.
         Juan-NOM and Maria-NOM 3PL:ACC thing-eat-CAUSE-PRES
         'Juan and Maria feed them.'

     c. Bempo   nau   put-putti-su-k.
         3PL:NOM together RED-shoot-FINISH-PRFV
         'They shot each other (lit. together).'

In contrast to many other Uto-Aztecan languages, Yaqui overtly distinguishes the

accusative pronouns from the genitive ones, but only for the first and second person

singular, and the third person plural; the other forms are the same as in the accusatives.

The genitive pronouns often precede the possessed noun as a clitic particle, as in (5a). For

the third person singular, the possessive suffix *–wa* (possibly related to the reconstructed

*-wa 'have') is obligatorily added to the possessed noun, as shown in (5b).

(5) a. Goyo-Ø   nim   team be-beas   kokte-k.
         Goyo-NOM 1SG:GEN name in front forget-PRFV
         'Goyo forgot about my name.'

     b. Anselmo-Ø   a   kari-wa   nenka-k   Ruben-ta-wi.
         Anselmo-NOM 3SG:GEN house-POSS sell-PRFV Ruben-ACC-DIR
         'Anselmo sold his house to Ruben.'

   2.1.2 Case and postpositional system. As a dependent-marking language, the

syntactic relation between a head and its dependent(s) is morphologically coded on the

dependent. The nominative is unmarked. As Langacker (1977: 94-95) shows, the Proto-

Uto-Aztecan absolutive suffix -tɨ was followed by the active particle *–a*, and in Yaqui,

these two suffixes fused in *–ta* to indicate singular accusative. See the examples in (6).

(6) a. Kajlos-Ø   mesa-ta   kokta-k.
      Carlos-NOM   table-ACC break-PRFV
      'Charles broke the table.'

    b. U   goi-Ø   u-ka   chu'u-ta ke'e-ka.
      the coyote-NOM the-ACC dog-ACC bite-PRFV
      'The coyote bit the dog.'

Plural and accusative marking on nouns are mutually excluded.[2] That is, when the direct object is singular it takes the suffix *–ta* (6b), but when the object is plural, it only takes the plural suffix *–m ~ im* (7a). Also, if the noun is possessed, the suffix *–ta* can be omitted, especially if inanimate as in (7b).

(7) a. U   goi-Ø   u-me   chu'u-im ke'e-ka.
      the coyote-NOM the-PL   dog-PL   bite-PRFV
      'The coyote bit the dogs.'

    b. Joan-Ø   nim   soto'i-(ta) jamta-k.
      Juan-NOM 1SG:GEN pot-ACC   shatter-PRFV
      'Juan shattered my pot.'

The accusative *–ta* also marks the possessor NP in genitive phrases (8a-b), the subordinated subject in relative clause (8c), temporal clauses (8d) and complement clauses (8e), as well as complements of some postpositions. Based on these usages, Lindenfeld (1973: 53-61) refers to *–ta* as one kind of 'dependency marking'. Because *–ta* serves the canonical function of the accusative case, namely to mark the patient/theme of a transitive verb, I will henceforth refer to it as the 'accusative' case.

(8) a. Ini'e o'uo-ta   kari   kaa bwe'u.
      this   man-ACC house NEG big
      'This man's house is not big.'

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[2] The accusative and plural co-occur only in the pronoun *am* '3Pl:Acc'. This complementary distribution is also observed when nouns function as complement of postpositions, e.g. *jamuchi-me-u* 'to the women'. This is presumably an instance of a morphological blocking phenomenon, that is, the two morphemes are blocked to co-occur on the same lexical form, and it does not appear to have any syntactic consequence. Escalante (1990) argues for a reanalysis of *–tau* as a dative case marker, but forms like *jamuchi-me-u* would appear to be problematic for such an account.

b. Itom   pare-ta   kari   si   bweela.
1PL:GEN padre-ACC house very old
'Our priest's house is very old.' (Lindenfeld 1973)

c. U   kaba'i-Ø [Peo-ta   nenka-ka-'u]   muuku-k.
the horse-NOM   Pedro-ACC sell-PRFV-CLM   die(SG)-PRFV
'The horse that Pedro sold is dead.'

d. Joan-Ø   ye'e-ka   [Peo-ta   ketunke kuba'i-ta pona-o].
Joan-NOM dance-PRFV   Pedro-ACC before   drum-ACC play-CLM
'Juan danced before Pedro played the drum.'

e. Ivan-Ø   ju'unea-Ø [Flor-ta   mansana-ta bwa-ka-'u].
Ivan-NOM know-PRES   Flor-ACC apple-ACC   eat-PRFV-CLM
'Ivan knows that Flor ate the apple.'

The language presents a rich postpositional system that semantically encodes a wide range of spatial, temporal and associative meanings. The postpositional markers are listed below. Some of these postpositions are always bound, while others may appear as free form in certain contexts. Some may vary in form depending on phonological, morphological or syntactic factors. Some can be used as clause linkage markers. In addition, some require an accusative complement, whereas others require a nominative complement.

Table 2.2 Postpositional system

Function	Marker	Function	Marker
Directional (sg):	-u / -wi	Proximal contact (sg) 'at, on'	-t, -chi
Directional (pl):	-meu /- mewi	Proximal contact (pl) 'at, on'	-met
Directional (toward):	-bicha	Proximative 'near, close'	naapo
Comitative:	-mak/-make	Positional 'beside, from'	betana, tana
Instrumental (sg):	-e, -ae	Positional '(on) the top of'	jika
Instrumental (pl):	-mea	Positional 'together'	nau
Benefactive, purposive:	betchi'ibo	Positional 'under, beneath'	betuk
Locative (general) 'in, on'	-po	Positional 'in front of, by'	beas
Limiter 'until'	tajtia	Positional 'over'	bepa

The accusative –*ta* is the base form for the directional, comitative, benefactive and the locatives *betuk* 'under, beneath' and *beas* 'by, in front of'. For instance, -*ta* followed by the directional –*u* expresses the 'indirect' object of *omte ʹ*be angry at' in (9a), the goal

argument of *nenka* 'sell' in (9b), and the goal argument of the motion verb *yepsa* 'arrive' in (9c). The variant *–wi* appears clause finally (9d). Rude (1996) suggested that the suffix *–ta* is optional for inanimate nouns, but obligatory for animate participants. In my data, however, *-ta* followed by *–u* only occurs with animate NPs.

(9) a. U   o'ou-Ø   u-e   jamut-ta-u   omte-k.
        the man-NOM   the-INST woman-ACC-DIR   angry-PRFV
        'The man was angry at the woman.'

    b. U   o'ou-Ø   toto'i-ta jamut-ta-u   nenka-k.
        the man-NOM   hen-ACC woman-ACC-DIR   sell-PRFV
        'The man sold the hen to the woman.'

    c. Aapo   u-e   bwe'u   kari-(ta)-u   yepsa-k.
        3SG:NOM   the-INST big   house-ACC-DIR   arrive-PRFV
        'He arrived at the big house.' (Rude 1996)

    d. U-me ili   usi-m   saja-k   eskuela-wi.
        the-PL little child-PL go(PL)-PRFV escuela-DIR
        'The children went to the school.'

When the comitative postposition *-mak ~ make* introduces a truly comitative -animate- argument, it takes an accusative noun as a complement; the variant *-make* appears clause finally. In (10a) *jamut-ta-mak* 'with the woman' indicates the 'indirect' object of *e'tejok* 'chat' while in (10b) *itom-mak* 'with us' expresses company. This postposition does not take an accusative complement when it expresses an implement or instrumental phrase (10c).

(10) a. Kajlos-Ø   jamut-ta-mak   e'tejo-k.
        Carlos-NOM woman-ACC-COM chat-PRFV
        'Charles talked with the woman.'

    b. Itom-mak   bwelta-k   u   kaba'i-Ø.
        3SG:ACC-COM turn-PRFV   the horse-NOM
        'With us (riding on him) the horse turned on its side.'

    c. Jeema-m seboraka into kokoi siari-mak   bwasai-tu-k   si   kia.
        Liver-PL onion   and   chili green-COM   cook-INCHO-PRFV very good

'The liver cooked with onion and green chili is delicious.'

When the postposition *betchi'ibo* introduces a beneficiary or recipient argument as in (11a-b), it also takes an accusative complement. When it introduces a purposive phrase as in (11c), the complement is not marked by –*ta*.

(11) a. Karmen-Ø   wakas-ta   jinu-k   Maria-ta   betchi'ibo.
       Carmen-NOM meat-ACC buy-PRFV Maria-ACC for
       'Carmen bought meat for Maria.'

    b. Karmen-Ø   wakas-ta   jinu-k   bw'awa-ta betchi'ibo.
       Carmen-NOM meat-ACC buy-PRFV soup-ACC   for
       'Carmen bought meat for the soup.'

    c. Karmen-Ø   wakas-ta   jinu-k   ji'i-bwa betchi'ibo.
       Carmen-NOM meat-ACC buy-PRFV thing-eat for
       'Carmen bought meat to eat.'

The locative postposition –*po* 'in, inside' is illustrated in (12a-b), and the instrumental –*mea* in (12c). Both postpositions take a nominative complement. The postpositions *betana* 'from' is shown in (12d-e); when the complement is animate, it is marked by the suffix –*ta*.

(12) a. Joan-Ø   mesa-po   na'aso-ta   yecha-k.
       Juan-NOM table-LOC orange-ACC put-PRFV
       'Juan put the orange on the table.'

    b. Joan-Ø   seenu ora-po   weeye-Ø.
       Juan-NOM one   hour-LOC walk(SG)-PRES
       'Juan walks for an hour.'

    c. Karmen-Ø   wakas-ta   kuchi'i-m-mea   chukta-k.
       Carmen-NOM meat-ACC knife-PL-INSTR   cut-PRFV
       'Carmen cut the meat with knives.'

    d. Karmen-Ø   Maria-ta-betana   soto'i-ta   mabeta-k.
       Carmen-NOM Maria-ACC-from pot-ACC receive-PRFV
       'Carmen received the pot from Maria.'

    e. U-me naamu-m   norte-betana   aabo   kaate-Ø.
       the-PL cloud-PL   north-from   here   walk(PL)-PRES

'The clouds came here from the North.'

2.1.3 Noun phrase structure. Noun phrases can be modified by demonstratives, quantifiers and adjectives. In addition to case, the demonstratives as listed in Table 2.3 distinguish three degrees of distance relative to the speaker (D&C: 203). Often, the medial determiners serve as definite determiners. The 'other' demonstratives taking the suffix *–e*, glossed as instrumental, appear with postpositional phrases.

Table 2.3 Yaqui demonstratives

	Nominative	**Accusative**	**Other**	**Plural**	**Gloss**
Proximal	ii ini'i	ika inika'a	'i-e	ime'e inime'e	'this one right here'
Medial	u ju'u	uka juka, junuka	'u-e	ume'e jumume'e	'that there (neutral)'
Distal	wa'a	waka	wa-e	wame'e	'that one off yonder'

In noun phrases, adjectives agree in number and case with the nominals they modify. As seen in (13), adjectives take the suffix *–k* for accusative and *–m* for plural nominative or accusative noun. Attributive adjectives may precede or follow the nouns that they modify.

(13) a. Inepo   u-ka   chukui-k   chu'u-ta   bicha-k.
        1SG:NOM   the-ACC   black-ACC   dog-ACC   see- PRFV
        'I saw the black dog.'

   b. Inepo   u-me   chukui-m   chu'u-im   bicha-k.
        1SG:NOM   the-PL   black-PL   dog-PL   see- PRFV
        'I saw the black dogs.'

   c. Maria-Ø   tuisi   wakabak-ta   ya'a-k.
        Maria-NOM   very good   wakabaki-ACC   cook-PRFV
        'Maria cooked a delicious wakabaki.'

Examples of Yaqui quantifiers are presented below; they may indicate not only how many occurrences of an entity are involved in a complex relation, but also the degrees of

extension within particular domains such as those of three-dimensional physical space and time. The examples come from D&C (p. 223).

(14) a. Kaa juebena jaamuchi-m ama tekipanoa-n.
     NEG many woman-PL there work-PASTC
     'Not many women were working there.'

    b. Ili juebena jaamuchi-m ama tekipanoa-n.
     little many woman-PL there work-PASTC
     'Quite a few women were working there.'

    c. Baji taewai-m intok ama nasuk taewai-ta.
     three day-PL and there half day-ACC
     'Three and a half days.'

2.2 Verb Structure

As a family, the Uto-Aztecan languages vary greatly in the complexity of verbs. At one extreme, languages like Serrano or Pima Bajo have relatively little productive verb morphology and comparatively few verbal affixes. At the other extreme, languages like Huichol and S. Tepehuan show an extraordinary long string of affixes. Yaqui is at some middle point. This section describes in detail some of the morphological properties of the verb stem such as verb agreement, transitivity, tense-aspect-modal markers, and voice alternations, as well as processes related to the argument structure of simple sentences.

   2.2.1 Verb agreement. Number has traditionally been considered a property of entities, a characteristic of objects and people; when number markers appear on other words, such as verbs or adjectives, they are often automatically classified as agreement markers, indicators of the syntactic relationship between those words and associated nouns (Mithun 1988). In almost every Uto-Aztecan language, number on verbs can be coded through different devices. For instance, subject and object markers may serve this function to the extent that they themselves are differentiated for number, as illustrated by the examples of Huichol in (15).

(15) a. Nee   ne-pɨ-yɨa-ne.   b. Taame   te-pɨ-yɨa.
        1SG   1SG-ASSR-do-go   1PL   1PL-ASSR-do
        'I am doing it.'   'We are doing it.' (Langacker 1982:141)
    Another mechanism is reduplication of one or two segments of the first syllable of the

stem, as shown by the example of S. Tepehuan in (16a-b) and Tohono O'odham in (16c).

(16)   Singular forms   Plural forms
       a.   koxia' (SG)   ko-k-xi'a (PL)   'sleep'
       b.   baasa' (SG)   baa-p-sa   (PL)   'put into' (Willet 1991: 363)
       c.   hím (SG)   híhim (PL)   'walk'   (Ojeda 1998: 249)

    A third device is suppletion, in which stems alternate according to the number of

participants involved. The general assumption proposed by Langacker (1977), and

adopted by all subsequent studies, is that intransitive verbs alternate according to the

number of the subject, as the example from Guarijío in (17a) shows, whereas transitive

verbs alternate according to the number of the object, as in (17b-c). Accordingly, it has

been said that suppletion exhibits a 'proper and true' ergative relation to argument

structure (Hale et al 1991: 262).

(17) a. Chuchuri   mugu-re.
         dog   die:SG-PAST
         'The dog died.'

     b. Tihoe   me'a-re   chuchuri.
         man   kill:SG-PAST   dog
         'The man killed the dog.'

     c. 'iwa-ma   yasa-re   pire   ihjicao tihoe   *ko'ya*-me.
         here-say sit:SG-PAST   one   seven   man   kill:PL-REL
         'It is said that here lived someone who killed seven men.' (Miller 1993)

    Yaqui is no exception, and the subject agreement present in certain intransitive verbs

is well known (Lindenfeld 1973, Escalante 1990, Jelinek & Escalante 2000).

(18) Suppletion triggered by the subject

	Non-past		Past			Non-past		Past	
	Sg.	Pl.	Sg.	Pl.		Sg.	Pl.	Sg.	Pl.
Run	bwite	tenne			Get up	yejte	jo'ote		
Walk	weama	rejte			Stand up	kikte	japte	weyek	ja'abwek
Walk, move	weeye	kaate			Sit	yeesa	Jooye	katek	jooka
Enter	kibake	kiimu			Lying down	bo'ote	to'ote	bo'oka	to'oka
Go come	siime	saka	siika	saja	Die	muuke	koko		
Leave	wante	watakte			Fall	weche	watte		
Arrive*	yepsa	yaja	yebij-	yai-	Go to do X	-se	-bo		

* 'Arrive' distinguishes realized vs. non-realized

Examples of subject-verb agreement are illustrated in (19a-b). In addition, there are few lexicalized compound transitive verbs that agree with the subject in number. Note that in (19c-d), the first verb bears some type of adverbial relation to the other verb, usually a directional or manner relation expressed by the V$_2$. The addition of *–siime/- saaka* 'go doing X' and *–se/-bo* 'go to do X' to a basic verb is a very productive process.

(19) a. Peo-Ø   buite-k.
          Pedro-NOM   run(SG)-PRFV
          'Pedro ran.'

     b. Peo-Ø   into Joan-Ø   teene-k.
          Pedro-NOM and   Juan-NOM   run(PL)-PRFV
          'Pedro and Juan ran.'

     c. Juanito-Ø   bo'o-t   bina-bicha   yeu-siim-ne.
          little Juan-NOM   road-LOC toward-toward play-go(SG)-EXPEC
          'Juanito will go play in the road.'

     d. U-me ili   uusi-m   aabo bicha bo'o-t   bwan-saka-Ø.
          the-PL little child-PL here   toward road-LOC cry-go(PL)-PRES
          'The children come crying from the road.'

Few verbs indicate subject agreement via reduplication of the first syllable as in (20).

(20) a. Maria-Ø   kot-taite-Ø.
          Maria-NOM   sleep-BEGIN-PRES
          'Maria is beginning to sleep.'

     b. U-me ili uusim   ko-koche-Ø.
          the-PL ili child-PL   RED-sleep-PRES
          'The children are sleeping.'

23

2.2.2 Syntactic transitivity. Verb classes may be listed under three categories: intransitive verbs, transitive verbs, and verbs which may be either transitive or intransitive. Intransitives must be accompanied by a subject noun or pronoun, whereas transitives must be accompanied by both a subject and an object noun or pronoun. The absence of an overt subject noun marks the third person singular in both transitive and intransitive stems, as in (21).

(21) a. Si osi bu'e-Ø.
         a lot   bark-PRES
         'It is barking a lot.'

     b. U-ka   ili   usi-ta   ki'i-bae.
         the-ACC little child-ACC bite-DESID
         'It wants to bite the child.'

Verbs that may be either transitive or intransitive are subdivided into three categories: (i) those with some kind of phonological modifications on one of the two forms in (22a-b); (ii) those with stems ending in *–(t)a* when transitive, and *–(t)e* when intransitive in (22c-d); and (iii) those that can be either transitive or intransitive without any change whatsoever in the verb form (i.e., ambi-transitives or labile verbs) in (22e-f).

(22) a. U   ili   uusi-Ø   uba-k.
         the little child-NOM   bath-(INTRA)-PRFV
         'The child took a bath.'

     b. Aurelia-Ø   u-ka   ili   uusi-ta   ubba-k.
         Aurelia-NOM the-ACC little child-ACC bath-(TRA)-PRFV
         'Aurelia bathed the child.'

     c. U   tajjo'ori-Ø waake-k.
         the cloth-NOM   dry(INTRA)-PRFV
         'The clothes dried.'

     d. U   ta'a   tajjo'o-ta   waacha-k.
         the sun-NOM   cloth-ACC   dry(TRA)-PRFV
         'The sun dried the clothes.'

e. Ne   yooko   tekipanoa-ne.
   1SG:NOM   tomorrow   work-EXPE
   'I will work tomorrow.'

f. Ne   waasa-ta   tekipanoa-k.
   1SG:NOM   sown field-ACC   work-PRFV
   'I worked the sown field.'

As in other Uto-Aztecan languages, some verbs have three verb forms: transitives ending in –(t)a, intransitives ending in –(t)e, and the participial/stative ending in –(t)i (Langacker 1982; Escalante 1990, D&C). Examples of these three-verb forms are illustrated in (23).

(23) a. Aapo   u-ka   kuta-ta   kotta-k.
        3SG:NOM   the-ACC   stick-ACC   break(TRA)-PRFV
        'He broke the stick.'

     b. Ju'u   puentes-Ø   kotte-k.
        that   bridge-NOM   break(INTRA)-PRFV
        'That bridge broke.'

     c. Ju'u   puentes-Ø   kotti.
        that   bridge-NOM   break:STA
        'That bridge is broken'

For some verbs, the valence change may involve some sort of meaning change; in (24a-b), the transitive counterpart *bwasa* means 'to cook something', whereas the intransitive form *bwase* means 'to get ripe'. Valence endings may even express opposite meanings, even when the argument valence does not change at all, e.g., *kooba* 'win' vs. *koobe* 'lose' in (24c-d). Although there is a large list of transitive verbs ending in –(t)a and intransitive verbs ending in -(t)e (Guerrero 2003), many Yaqui verbs do not occur with a final vowel marking valence such as *bwiika* 'sing', and *bwise* 'grab'.

(24) a. Karmen-Ø   wakabak-ta   bwasa-Ø.
        Carmen-NOM   wabakaki-ACC   cook(TRA)-PRES
        'Carmen is cooking wakabaki'

b. Minai-m   bwase-e'-tek-o   mekka   winjuba.
   cantelope-PL   cook(INTRA)-EV-COND-CLM   far   fragrant
   'When cantaloupes are ripe, the fragrance carries a long way.'

c. Inepo   bu'u   tomi-ta   kooba-Ø.
   1SG:NOM much money-ACC win-PRES
   'I am winning a lot of money.'

d. Bu'u   tomi-ta = ne   koobe-Ø.
   much   money-ACC = 1SG:NOM   lose-PRES
   'I am losing a lot of money.'

Yaqui also has ditransitive verbs. The verb meaning 'sell' is exemplified in (25a) and the verb meaning 'give' in (25b). The transitive version of the change of position verb meaning 'sit' can be used to express the meaning of 'put' as in (25c).

(25) a. U o'ou-Ø   toto'i-ta   jamut-ta-u   nenka-k.
   the man-NOM hen-ACC   woman-ACC-DIR   sell-PRFV
   'The man sold the hen to the woman.'

b. U o'ou-Ø   toto'i-ta jamut-ta   miika-k.
   the man-NOM hen-ACC woman-ACC give-PRFV
   'The man gave the woman the hen.'

c. Ivan-Ø   soto'i-ta bwia-po   yecha-k.
   Ivan-NOM pan-ACC   ground-LOC sit(SG)-PRFV
   'Ivan placed the pan on the ground.'

2.2.3 Tense-Aspect-Modal system. The verbal morphological system indicating tense, aspect and modal (TAM) information is quite complex. Scholars do not agree in the number, gloss and meaning of those morphemes. For instance, Escalante (1990) and Estrada (1998) listed nine verb morphemes, whereas D&C listed more than 30 morphemes. Table 2.4 lists, I believe, the major TAM markers in Yaqui.

Table 2.4 TAM system in Yaqui

	Marker	Function	Gloss
Tense-Aspect	V-Ø	Simple present, present progressive	Sings, is singing
	V- n	Past Continuous	Was singing
	V-k ~ -ka	Perfective	Sang
	RED-V	Habitual	Always sings
	REDRED-V	Iterative, intense	Usually sings
Tense-Modal	V-ne	Expected (potential, unrealized)	Will sing
		Must (obligation, necessity)	Must, have, need to sing
	V-na	Unrealized passive	Will be sung
	V-bae	Desiderative	going to/want to sing
	V-pea	Intentive (strong intention)	Want /desire/feel to sing
	V-maachi	Possibility, obligation (strong)	Can, should sing
	V-'ea(n)	Hypothetical obligation /possibility	May, ought sing
Aspect	V-taite, naate	Inceptive	Start/begin singing
	V-yaate (sg) V-japte (pl)	Cessative	Stop singing
	V-su, -ansu	Completive	Finish singing
Others	V-tek	Conditional, hypothetical, potential	Would sing, if/when sings
	V-ka(i)	Imperfect, non-finite, gerund	Singing, while singing
	V-la	Completive event	Have sang
	V-siime / saka	Simultaneous (motion) events	He goes singing
	V-se/bo	Purposive (Sg/Pl)	He goes to sing

As typical in the family, Yaqui shows little indication of pure tense suffixes. Instead, the usual situation is for the tense markers to display a range of meanings that include aspectual and distinct epistemic states (D&C: 307). Because of this, Lindenfeld (1973) claims that the language is tenseless, whereas D&C argue that there are only two suffixes that can be treated as tense markers: future –*nee* and future passive –*naa*; the rest consists of aspect markers or tense/aspect markers.

The morphemes in the first group in Table 2.4 express tense-aspect information. The notion of 'present' or ongoing events is captured by the absence of markers as in (26a). Clauses like those in (26c-d) may also refer to repetitive or universal truths.

(26) a. Maria-Ø,   ili   uusi-Ø   bwaana-Ø.
         Maria-NOM little child-NOM   cry-PRES
         'Maria, the child is crying!'

    b. Empo   jiosia-m   leyiaroa-Ø eskuela-po.
        2SG:NOM book-PL   read-PRES escuela-LOC
        'You read books in school.'

    c. U   tata paare-Ø   lio-nooka-Ø.
        The priest-NOM   Dios-talk-PRES
        'The priest prays (lit. God-talks).'

The language employs a wide variety of suffixes and suffix combinations to mark the kinds of distinctions involving events priori to the time of speaking. There are two suffixes indicating complete events: *-k ~ -ka, –(a)n ~ -kan*.[3] The most frequently used suffix is the perfective *–k* which indicates that the action is viewed as an undifferentiated whole, or as a happening at a point in time, rather than as an unfolding process or a continuation which would be indicated by an unmarked form of the verb (D&C: 310). A very limited number of verbs take *–ka* as an allomorph of this suffix *–k*, e.g. *je'ee* 'to drink', *che'ee* 'to nurse', *be'ee* 'to lack', *ne'ee* 'to fly', *bwa'e* 'to eat', *ke'e* 'to bite'.

(27) a. Maria-Ø   kaa maachia-k si   tase-k.
        Maria-NOM NEG light-ACC   very cough-PRFV
        'Maria coughed a lot last night (lit. being not light).'

    b. Chuu'u-Ø ili   uusi-ta   ke'e-ka.
        dog-NOM   little child-ACC bite-PRFV
        'The dog bit the child.'

There is an imperfective participle suffix *–ka* that is homophonous with this perfective allomorph of *–k,* which is also used very productively. The imperfective *–ka* serves both to highlight the durativeness cohering to particular situations, as well as to background the entire situation to another one expressed in the main clause of a sentence; that is, a kind of participial suffix in (28). Other uses of *–ka* suggest "a sort of a

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[3] The status and gloss of these suffixes vary among Yaqui's scholars: *-kan* = Past Perfect and *–n* = Past Imperfect in Escalante (1990); *–n* and *–kan* as Past Imperfect in Estrada (2001); *–n* = continuative and *–ka* as imperfect/participle suffix in D&C. Following D&C and Rude (1996), I will consider *–k ~ ka* as a perfective (aspectual) marker, and *-(a)n ~ kan* as a past (tense) continuative.

subordinator and it often is functionally equivalent to English *–ing* and Spanish *–ando, -iendo*" (D&C: 311-315). The examples in (28) and (29) are from D&C.

(28) Tuuka   ne   tekipanoa-ka(i)   kupte-k.
     Yesterday 1SG:NOM work-PASTIMPERF   evening-PRFV
     'Yesterday, I was working until the evening (lit. still working when it got dark)'

The imperfective participle *–ka* combines with the remote stative *–i* to reinforce the notion of anteriority to the present speech situation of the situation designated by the subordinate clause of complex sentences (29a).[4] The sequence *–kai* is not restricted to past situations, however, since it is also used to mark a contingent possibility in (29b) linked to future results stated in the sentence final clause. When the verb marked by *–kai* appears clause internally, it is realized as *–ka*.

(29) a. Tui-si   kaa-machia-k   yeu notte-k   kaita   tea-kai.
         good-INTS NEG-light-PRFV   out return-PRFV nothing find-CLM
         'He returned long after darkness, not having found anything.'

     b. Laau-laauti tu'u-jiapsi-m-mea   a   mammate-ka(i) a   teu-ne.
         RED-slowly good-heart-PL-INST 3SG:ACC realize-CLM   3SG:ACC find-EXPE
         'If you search for it diligently, with a good heart, you will find it'

The suffix *–n*, maybe the only genuine tense marker (D&C: 318), expresses a general past continuative, an ongoing process in the past. The clauses below exemplify some sort of durative or continuative past event. It may appear by itself as *–n* (30a) or as *–kan* (30b). It is possible that the distribution of *–n ~ -kan* may be lexically determined (as the examples illustrated in (27)), but more data would be necessary.

(30) a. U   ili   uusi-Ø   bwaana-n.
         the little child-NOM cry-PASTC
         'The little child was crying.'

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[4] The remote stative *–i* hardly occurs by itself or in combination with other suffixes besides *–ka*. Since *–kai* appears mostly paired with another clause whose main verb is fully marked yielding a complex sentence, I will consider it as a kind of complementizer (CLM).

b. Joan-Ø   jiba   wikoi-ta   putputte-kan   polisia-tu-kai.
   Joan:NOM   always   gun-ACC   RED-shot-PASTC   policeman-BE-CLM
   'Juan always used to shot the gun when he was a policeman.'

The second TAM marking group indicates a combination of tense and modality. The suffix –*ne* glossed as EXPE(cted) but very often termed as a simple future tense, expresses events that have not yet taken place, but involve a high degree of purpose and intentionality.

(31) a.   Maria-Ø   yooko   wakabak-ta   ya'a-ne.
          Maria-NOM   tomorrow   wakabaki-ACC   cook-EXPE
          'Maria will cook wakabaki tomorrow.'

     b.   Maria-ta   wakabak-ta   ya'a-ne-o   ne   tajkai-m   ya'a-ne.
          Maria-ACC   wakabaki-ACC   cook-EXPE-CLM   1SG:NOM   tortillas-PL   cook-EXPE
          'If Maria cooks the wakabaki, I will make tortillas.'

This suffix also indicates a high degree of confidence (almost certainty) as shown in (31a), possibility in (31b), potential change of state in (31c), and even strong obligation in (31d).

(32) a.   Peo-Ø   naikim-po   yebij-ne.
          Pedro-NOM   four-LOC   arrive-EXPE
          'Pedro will arrive at four o'clock.'

     b.   U go'i-Ø   tui-si   kowi-m   into   kaba'i-m   me'e-ne.
          the coyote-NOM   good-very   pig-PL   and   horse-PL   kill(SG)-EXPE
          'The coyote can kill pigs and horses easily.'

     c.   U teeka-Ø   chukui-si   au   jiba-tua   yuk-ne.
          the sky-NOM   black-very   3SG:REFL   always true   rain-EXPE
          'The sky is getting black, it is almost sure that it is going to rain.'

     d.   Kaa = ne   siim-pea   o'oben   ta   jiba   ne   siim-ne.
          NEG = 1SG:NOM   go-INTENT   although   but   always 1SG:NOM   go-EXPE
          'I don't want to go but I have to go.'

There are at least four modal morphemes. The suffix –*pea* expresses desires, preference and feelings of a human participant (32a), while –*bae* expresses planning, a

firm intention or a high possibility of occurrence (32b). Although -*bae* is commonly translated as 'going to' referring to an unrealized event (i.e., –*ne* and –*bae* may alternate in most contexts), it can also occur within verbs marked by the perfective -*k*, something impossible with –*ne* (*-ne-k).

(33) a. Armando-Ø   kinto-u   we-pea-Ø.
       Armando-NOM Quinto-DIR   go-INTENT-PRES
       'Armando really wants to go to El Quinto.'

    b. Empo   ka   em   achai a'-ania-bae-k.
       2SG:NOM NEG 2SG:GEN father RED-help-DESID-PRFV
       'You did not want to help your father.'

In (34), the suffix –*maachi* indicates some sort of weak possibility, i.e., 'seem to, be likely to, be possible, be able'. It can also indicate weak probability 'may' or weak obligation 'ought', especially when compared to –*ne* 'strong possibility' in (34c-d).

(34) a. U chuu'u-Ø ili   uusi-ta   ki'i-maachi.
       the dog-NOM   little child-ACC bite-MAY
       'The dog may bite the child.'

    b. Nepo   ji-paksia-maachi.
       1SG:NOM thing-wash-SHOULD
       'I should wash it.'

    c. Joan-Ø   tui-si   a   joara-wa-u   wee-ne   bajim-po.
       Joan-NOM good-very 3SG:ACC house-POSS-DIR go- EXPE   three-LOC
       'Juan will go home at three (I am sure).'

    d. Joan-Ø   tui-si   a   joara-wa-u   wee-maachi bajim-po.
       Joan-NOM good-very 3SG:ACC house-POSS-DIR go-OUGHT   three-LOC
       'Juan ought to go home at three.'

The suffix – '*ea* ~ – '*ean* resembles an epistemic modal operator, i.e., hypothetical necessity or hypothetical possibility, as illustrated in (35).

(35) a. Joan-Ø   banko-ta   ya'a-'ea.
       Juan-NOM   bench-ACC   make-SHOULD
       'Juan should make a chair (he does not have anywhere to sit).'

b. Lauti yuk-'ean echimui-ta tui ne betchi'ibo.
early rain-SHOULD harvest-ACC good 1SG:ACC for
'It should rain soon in order to have a good harvest (for me).'

c. Ili uusi-m lauti kot-kot-'ean.
little child-PL early RED-sleep-SHOULD
'The children should sleep early.'

Yaqui also uses the reduplication of the first syllable of the verb stem to indicate two main things: iterative events (36a) and/or the intensive realization of an event (36b). Interestingly, not only can independent verbs undergo reduplication, but also certain modal and verbal suffixes can be reduplicated expressing a stronger intention, as in the examples in (36c-d).

(36) a. U tata paare-Ø jiba lio-no-nooka-Ø.
the priest-NOM always Dios-RED-talk-PRES
'The priest always prays (lit. God's pray).'

b. Ili uusi-Ø bue'u jiosia-m ma-m-matte-Ø.
little child-NOM big book-PL RED-RED-comprehend-PRES
'The child is reading (comprehending) the big book.'

c. Armando-Ø kinto-u we-pe-pea-k.
Armando-NOM Quinto-DIR go-RED-INTENT-PRFV
'Armando really, really wanted to go to El Quinto.'

d. Maria-Ø jiba tekil-ta su'u-to-t-toja-n bajim-po.
Maria-NOM always job-ACC release-RED-RED-place-PASTC three-LOC
'Maria always used to leave the job at three o'clock.'

The third group of morphemes corresponds to phase (aspectual) markers. Some examples are given in (37). The aspectual markers –taite and –su are always bound forms.

(37) a. Ili uusi-Ø bwaan-taite-k.
little child-NOM cry-BEGIN-PRFV
'The child started crying.'

b. Maria-Ø wakabak-ta ya'a-su-k.
Maria-NOM wakabaki-ACC cook-FINISH-PRFV

'Maria finished cooking the wakabaki (it is done).'

Related to negation, at least three particles are used for signaling a variety of speaker intentions. The clauses in (38a-b) show the typical use of the pausal negative *e'e* for answering yes/no questions. The form *kat* in (38c) is used for expressing normal negative imperatives and occurs in clause initial position in this construction. The examples are from D&C (p. 54-61).

(38) a. Jai-sa empo aman wee-bae ja'ani.
   How-WH 2SG:NOM there go-DESID maybe
   'Do you plan to go there?

  b. E'e, ne   kaa aman wee-bae.
   No 1SG:NOM NEG there go-DESID
   'No, I don't plan to go there.'

  c. Kat gom-gomte!
   NEG RED-be afraid
   'Don't be afraid.'

The basic verbal, adjectival, or adverbial negative *kaa* is placed ahead of whatever it negates, with its differential placement in a sentence correlating with distinct implications. D&C (p. 56) illustrate this variable scope with the following examples. By placing *kaa* in clause initial position (39a), the speaker implies to the hearer that 'others may do so, but you must not'. By placing *kaa* in front of the complement (39b), the speaker implies 'you should not do it that way, but rather do it some other way'. By placing *kaa* in front of the verb (39c), the speaker highlights the absolute prohibition of doing something in a particular way.

(39) a. Kaa eme'e junuen an-ne.
   NEG 2PL:NOM thus do-EXPE
   'You must not do that (thus).'

  b. Eme'e kaa junuen an-ne.
   2PL:NOM NEG thus do-EXPE

'You must not do that.'

c. Eme'e   junuen kaa an-ne.
   2PL:NOM   thus   NEG do-EXPE
   'You must not do that.'

2.2.4 Changing the argument structure. Yaqui presents a considerable number of morphemes that modify the argument structure of a verb. Some of them reduce the valence by one, e.g., passives, impersonals, while others augment the valence by one, e.g., causatives, citatives, commands. A list of valence changing morphemes is presented below.

Table 2.5 Valence-change morphemes

Morphemes	Function	Gloss
-wa	Passive, Impersonal	Was cooked
-ri	Passive impersonal completive	Cooked
-ria	Applicative	Cook it for X
-tua	Direct causative	Make X cook
-tebo	Indirect causative	Give orders to cook
-sae	Command	Order X to cook
-su'utoja	Command	Allow X to cook
-'ii'aa	Desiderative	Want X to cook
-tia	Citative	Say that X cooks
-maachia	Propositional attitude	Believes X cooks
-majta	Educative	Teach X how to cook

As in most Uto-Aztecan languages, the same suffix is used to indicate an impersonal clause, one with unspecified semantic subject, and the passive clause, one in which the 'original' object becomes the surface subject. Langacker (1977) reconstructs this suffix as *-ti̱-wa where the first syllable (apparently optional by the P-UA times) can be equated with *-ti̱ 'be'. In Yaqui, this reconstructed form emerges as –wa. When the passive suffix –wa is added to the verb, the original subject is omitted and the object argument functions as a passive subject. The passive version of the clause in (40a) is given in (40b).

(40) a. Kajlos-Ø   mesa-ta   kokta-k.
        Carlos-NOM   table-ACC break-PRFV

'Charles broke the table.'

    b. Mesa-Ø   kokta-wa-k.
        mesa-NOM break-PASS-PRFV
        'The table was broken.'

Although Lindenfeld (1973) and Escalante (1990) list one or two examples where the original subject may be introduced by the instrumental postposition in a passive clause, it is not possible to have an oblique agent, as shown in (41b). It is possible, however, to include an oblique instrumental argument in both the active and passive clauses, as seen in (41c).

(41) a. U   bwepul 'ou-Ø   u-ka   maaso-ta me'a-k.
        the one   man-NOM the-ACC deer-ACC kill-PRFV
        'One man killed the deer.'

    b. *U maaso-Ø o'ou-ta-e   me'e-wa-k.
        'The deer was killed by one man.'

    c. U maaso-Ø kuta-e   me'e-wa-k.
        the deer-NOM stick-INST kill-PASS-PRFV
        'The deer was killed with the stick.'

The same suffix derives impersonal clauses as illustrated in (42a). As in the passive, the subject is the argument missing, in the impersonal, however, the object keeps its status as an accusative argument. Since accusative and plural markers are mutually exclusive, clauses like those in (42b) can be interpreted as either impersonal or passive.

(42) a. Mesa-ta   kokta-wa-k.
        table-ACC break-PASS-PRFV
        'Someone/something broke the table.'

    b. Mesa-m   kokta-wa-k.
        table-PL   break-PASS-PRFV
        'The tables were broken'/'Someone broke the tables.'

Few intransitives allow the occurrence of the passive *–wa* deriving an impersonal clause. Usually, impersonal clauses like those in (43) refer to cultural or general knowledge events.

(43) a. Pajko-po   yi'i-wa-n.
        party-LOC   dance-PASS-PASTC
        'There was dancing at the ceremony'

     b. Aman bwiik-wa, u-me   ili   uusi-m majta-betchi'ibo.
        there   sing-PASS the-PL little child-PL teach-for
        'Singing is being done there, to teach the children' (Escalante 1990:36)

There is a second passive/impersonal marker in Yaqui, the suffix *–ri*. D&C (p. 123) commented that this 'rare' suffix seems to be inherently past passive, but it can also be used as a participializer or nominalizer because it can take the plural suffix *–m*. The interesting point about this valence-reducing suffix is that it expresses some sort of completive, finished impersonal passive: the event was realized in the past, presumably, by more than one person. Contrary to the passive clauses marked by *–wa*, a *-ri* passive clause cannot be modified by any other TAM markers.

(44) a. Im   achai   wajo'ori-ta tekipanoa-k.   Active
        1SG:GEN father   field-ACC   work-PRFV
        'My father worked the field.'

     b. U   wajo'ori-Ø tekipanoa-wa-k.   Passive
        the field-NOM   work-PASS-PRFV
        'The field was worked.'

     c. U-ka   wajo'ori-ta tekipanoa-wa-k.   Impersonal
        the-ACC field-ACC   work-PASS-PRFV
        '(Someone) worked the field.'

     d. U wajo'ori-Ø tekipanoa-ri.   Past Passive
        the field-NOM   work-PASS
        'The field has been worked / (some body) worked the field.'

     e. * U   wajo'ori-Ø tekipanoa-ri-k.   Past Impersonal
         'The field has been worked/(some body) worked the field.'

The major valence change morphemes consist in increasing the valence of the verb by one. Most of these morphemes incorporate a subject-type argument, i.e. causatives, citatives, and commands. Some may stand alone as full verbs, e.g., *majta* 'to teach', *maachia* 'believe', whereas others never stand alone, e.g., *–tua* 'to cause', *-tebo* 'to give orders', *-ria* 'in benefit of'. The syntactic and semantic properties of these verbal suffixes will be discussed in detail in the following chapters.

Furthermore, verb stems may undergo one of three morpho-phonological changes when certain TAM and valence-increasing suffixes are added. Table 2.6 lists the suffixes that trigger or not changes on the stem that I have encountered.

Table 2.6 Suffixes involving stem changes

Involve changes				Do not involve changes	
-ne	Expected	-su	Finish	-n	Past continuous
-tua	Direct causative	-taite, -naate	Inceptive	-tebo	Indirect causative
-tu	Copula 'be'	-yaate, -kikte	Cesative	-tia	Citative
-wa	Passive	-siime, -saja	Directional	-sae	Command
-la	Completive	-se, -bo	Purpose	-ria	Applicative
-bae	Desiderative	-pea	Intentive	-k, ka	Past Perfective

The first and most common stem change implies vowel raising, the final vowel *–e* changes to *–i*, as the examples in (45) illustrate. Notice that this vowel change is not phonologically, but morphologically determined, since *–ne* triggers change but *–n* does not, and both begin with the consonant *–n*; the same applies for *–tua* vs. *-tia.*

(45) a. U kuta kotti-ne   'The stick will break.'
    b. U kuta kotte-n   'The stick was breaking.'
    c. Maria uka kuta-ta kotti-tua-k   'Maria made the stick break.'
    d. Maria uka kuta-ta kotte-tia-k   'Maria said the stick is broken.'

Other verb stems undergo a second process in which the vowel *–e* is deleted. Note that these changes do not affect transitive verbs ending in *–a*, as shown in (46e).

(46) a. U wakabaki chup-ne   'The wakabaki will run out.'
    b. U wakabaki chupe-n   'The wakabaki was running out.'

c. Lupe wakabak-ta chup-tua-k	'Lupe made the wakabaki run out.'
d. Lupe wakabak-ta chupe-tia-k	'Lupe said the wakabaki ran out.'
e. Ne Lupe-ta wakabak-ta chupa-tua-k	'I made Lupe run out the wakabaki.'

Other verb stems involve a radical and unpredictable change on the stem as in (47).

(47)	a.	Joan tuuka yepsa-n	'Juan arrived.'
	a´.	Joan yooko yebij-ne	'Juan will arrive.'
	b.	joan kari-ta taya-n	'Juan was burning the house.'
	b´.	Joan kari-ta ta'a-ne	'Juan will burn the house.'
	c.	Joan a'ache-k	'Juan laughed.'
	c´.	Peo Joan-ta a'at-tua-k	'Pedro made Juan laugh.'
	d.	Peo mansana-ta toja-n	'Pedro brought an apple.'
	d´.	Peo mansana-ta toi-ne	'Pedro will bring an apple.'

2.3. Complex constructions

In traditional grammar, sentences are classified into different types according to their function and structural complexity. By function, sentences can be classified as statements, questions, exclamations and commands; by structural complexity, they can be simple or complex. Following the traditional classification, this section briefly describes the morpho-syntactic structure of relative clauses, coordinate clauses, adverbial clauses, and complement clauses.

2.3.1 Relative clauses. Relative clauses (henceforth Rel-clauses) consist of subordinate clauses that serve to modify a noun or pronoun in a sentence. In this language, they may modify nouns functioning as subjects, direct objects and indirect objects. Among the characteristics of these clauses are the dependency marker of the embedded subject, the order of the Rel-clause with respect to the main clause, the omission or use of coreferent pronouns when the two clauses share an argument, some

sort of agreement among the Rel-clause and the markers on the head noun, and the presence of one of the two complementizer markers (CLM) on the subordinated verb:

i. The suffix –*me* ~ -*m* occurs when the head noun is coreferential with the embedded subject; and

ii. The suffix – *'u* occurs when the head noun is not coreferential with the embedded subject.

In this language, Rel-clauses show several mechanisms to indicate the dependency of the embedded clause with respect to the main clause. For instance, the Rel-clause cannot appear by itself since it shows a complementizer marker, a dependent subject, and a specific kind of agreement with the head noun. Compare the examples below. The example in (48a) is a simple clause. In (48b), the unexpressed, coreferential argument acts as the subject of the non-matrix verb *bicha* 'see', so the relative clause is marked with the nominalizing suffix –*me*. In (48c), it functions as the object of the subordinate verb, so the relative clause is marked by – *'u*. In the examples, the suffix –*m(e)* is glossed as a nominalizer whereas – *'u*, clearly related to the directional postposition –*u*, is glossed as a clause linkage marker, since the latter is one of the two general suffixes indicating clausal subordination.

(48) a. (Aapo)   siika.
         3SG:NOM   leave(SG):PRFV
         'He/she left.'

    b. U [enchi   bicha-ka-me]   siika.
        the   2SG:ACC   see-PRFV-CLM   leave(SG):PRFV
        'The one_i who_i saw you, left'

    c. U-me   [em   bicha-ka-'u]   saja-k.
        the-PL   2SG:GEN   see-PRFV-CLM   leave(PL)-PRFV
        'The ones_i who you saw_i, left.'

The subject of a non-matrix clause is systematically marked as non-nominative. If it is nominal, it takes the accusative suffix *–ta*; if pronominal, it basically appears as a genitive form, as *em* '2sg' in (48c). With respect to the word order, it is common that the Rel-clause immediately follows the modified noun, but extraposed clauses are also very frequent, especially to the right (i.e. clause-final). Longer Rel-clauses are more likely to be extraposed, otherwise they tend to split the main clause down the middle. In the examples in (48), the Rel-clause appears after the modified noun but in (49) below it appears clause finally. Furthermore, the final verb in the Rel-clause tends to agree in case and number with the modified noun. Apparently, this agreement pattern is more systematic for clauses marked by *–me*, especially for accusative case as illustrated in (49a). For *– 'u* clauses, accusative agreement is rare but number agreement is slightly more common as seen in (49b). The precise conditions for this agreement pattern remain to be investigated.

(49) a. Ju'u   yoeme-Ø$_i$ chu'u-ta me'a-k   [a$_i$ kiki-su-ka-m-ta].
       that   man-NOM dog-ACC kill-PRFV 3SG:ACC bite-FINISH-PRFV-CLM-ACC
       'The man killed the dog that bit him'

     b. Kaa mache'eta-m ne   jippue-Ø [em   ne   reuwa-ka-'u-m]
        NEG machete-PL 1SG:NOM have-PRES 2SG:GEN 1SG:ACC lend-PRFV-CLM-PL
        'I don't have the knives that you lent me'

Since they function as noun modifiers, the main clause and the Rel-clause share an argument, the head noun. Frequently, the Rel-clause omits that shared argument as in (50a), or takes a co-referential pronoun as in (50b).

(50) a. Mache'eta-m ne   jippue-Ø [em   ne   miika-ka-'u-m].
        machete-PL   1SG:NOM have:PRES 2SG:GEN 1SG:ACC give-PRFV-CLM-PL
        'I still have the machetes that you gave me'

     b. Kuchi'i-m$_i$ ne   maka-'e   [wakaj-ta   em   a-mea$_i$
        knife-PL   1SG:ACC give-IMPER   meat-ACC 2SG:GEN 3SG-INSTR

chuk-chukta-u'-m-mea].
RED-cut-CLM-PL-INST
'Give me the knives that you chop the meat with'

2.3.2 Coordination. Among the three types of coordinate clauses, the conjunction type is commonly indicated by the use of *into ~ intok* 'and' which concatenates nouns, phrases, and clauses. This particle occurs between the two clauses, but more often it appears in the second position, after the first element of the second sentence. Among the characteristics of coordinate clauses, the elision of shared arguments, i.e. nouns, pronouns or even verbs, is common as seen in (51c).

(51) a. Amak   ba'akochi-m nu'upa-ne   amak   intok   mosen-ta.
         sometimes   shrimp-PL   bring-EXPE sometimes   and   caguama-ACC
         'Sometimes, they bring shrimp and sometimes caguama'

    b. Empo   ye'e-ka   aapo   into bwiika-k.
        2SG:NOM dance-PRFV   3SG:NOM   and   sing-PRFV
        'You danced and he sang.'

    c. Joan-Ø   ko'oko-im   et-bae   intok   inepo   kechia.
        Juan-NOM   chili-PL   plant-DESID   and   1SG:NOM   too
        'Juan is going to plant chili and so am I.'

Disjunctive clauses are marked by the particle *o* 'or' (Spanish loan), as shown in (52a), whereas adversative clauses are marked by *bweta ~ taa* 'but' as in (52b). In contrast to the second-position of *into*, these two connectives always appear between the two constructs.

(52) a. Ini-ka   empo   waata-Ø   o juna-ka ja'ani.
         this-ACC 2SG:NOM   want-PRES or that-ACC maybe
         'Do you want this one or that one?'

    b. Empo   ye'e-ka   taa aapo   bwiika-k.
        2SG:NOM dance-PRFV but 3SG:NOM sing-PRFV
        'You sang but he danced.'

2.4.3 Adverbial clauses. Traditionally, adverbial clauses function as clause modifiers. In this language, they express a wide range of meanings such as time/temporality, manner, location, condition, and finality. Among the characteristics that identify this type of complex clauses are the non-nominative marking of the subject of the non-matrix clause, the omission of shared arguments, switch-reference tracking as well as other clause linkage markers. For instance, the postposition –*o* indicates both a conditional *if*-clause as in (53a), and a temporal subordinated clause meaning 'when' in (53b). For the temporal meaning, the suffix -*o* is used only when the subject of the main clause and the subject of the non-main clause are non-co-referential. When the two subjects are co-referential, the suffix –*kai* is used. Compare the clauses in (53b) and (53c). Adverbial clauses can appear before or after the main clause, although clause-final position seems more common.

(53) a. [aman   wee-bae-tek-o]   bamse-'e.
       there   go(SG)-DESID-COND-CLM   hurry-IMPER
       'If you want to go there, then hurry up!'

    b. Joan-Ø   kot-bae-Ø   [enchi   jiba yepsa-o].
       Joan-NOM   sleep-DESID-PRES   2SG:ACC just arrive-CLM
       'Juan is going to sleep when you arrive.'

    c. Joan-Ø   kot-bae   [jiba yepsa-kai].
       Joan-NOM   sleep-want   just arrive-CLM
       '(By the time) he arrives, Juan is going to sleep.'

The locative postposition –*po* is used to express geographic and temporal location, like in (54); usually, locative clauses occur at the end of the sentence.

(54)   Mache'eta-m ne   tea-k   [em   am   su'utoja-ka-po].
       machete-PL   1SG:NOM find-PRFV   2SG:GEN 3PL:ACC release-PRFV-CLM
       'I found the machetes where you left them.'

Although traditionally classified as subordinate, Yaqui *because* clauses resemble coordination rather than an adverbial subordination in several aspects. As we will see later, the subject of a *because*-clause in (55) is nominative rather than accusative, and the *because* particle appears between the two clauses, i.e., conjunction-like; but the construction as a whole shows a relatively fixed position, i.e., main + *because*-clause, meaning that the two clauses cannot move without changing the meaning (in contrast to coordination).

(55) a. Em   jo'ara-u   ne   enchi   toja-k   bweitu-k
       2SG:GEN house-DIR   1SG:NOM   2SG:ACC   bring-PRFV   because

       empo   naamukia-tu-kan.
       2SG:NOM   drunk-be-PASTC
       'I took you to your place because you were drunk.'

   b. Kat = te   Rosa-ta   aman nu'u-ka   sino Maria-ta
      NEG = 1PL:NOM   Rosa-ACC   there take-PRFV   sino Maria-ta

      bweituk Rosa-Ø   apela   siika.
      because   Rosa-NOM   already   leave(SG):PRFV
      'We did not pick up Rosa but Maria, because Rosa already left.'

2.4.4 Complement clauses. Complementation arises when a notional sentence or predication is an argument, subject or object, of a matrix predicate. Predicates that take sentential complements are referred to as complement-taking predicates. Embedded subordinate, relative and adverbial clauses are not complements, since they are not arguments of predicates. Equi-deletion, raising, parataxis, serialization, and clause and lexical union are the typical syntactic strategies in complementation. Noonan (1985) affirms a complement type is identified basically by (i) the morphology of the predicate, (ii) the sort of syntactic relations the predicate has with its argument, and (iii) the syntactic relations of the complement as a whole with the rest of the sentence.

Accordingly, there are different types of complements and languages vary not only in number but in form. English, for instance, has four main forms, i.e. fully tensed clauses, infinitival clauses, gerund clauses, and participial clauses. Some predicate only take one type of complement, some can take two, and some can take more than two. But the selection is not random.

Yaqui shows three main complement types, a nominalized complements, syntactic-like complements, and morphological complements. Nominalized complements are marked by the suffix –*m(e)*, followed by the accusative suffix, as illustrated in (56). This complement type is defined by the following properties: (i) the 'subject' of the matrix predicate and the 'subject' of the linked verb must be different; (ii) the linked verb can be unmarked or be marked by the perfective aspectual suffix –*ka*; and (iii) it appears embedded in the main clause, preceding the matrix predicate.

(56)   Aurelia-Ø   [enchi   laaben-ta pona-m-ta]   jikka-k.
           Aurelia-NOM   2SG:ACC violin-ACC play-CLM-ACC   hear-PRFV
           'Aurelia heard you play the violin.'

There are two sub-types of syntactic-like complements. In the first one, the most common type illustrated in (57), the linked verb overtly expresses its 'subject', is fully marked for TAM, and its position with respect to the main clause is variable, i.e., it can be embedded or follow the matrix predicate. In the second one, illustrated in (58), the linked verb must omit its PSA, does not take any TAM suffix, and its position is relatively fixed. Let's discuss the first sub-type. The postpositions -*'u* and –*po* acting as complementizers take a clause as a complement, since the verb expresses all its arguments and is marked by the relevant operators depending upon the semantics of the matrix predicate. When the 'subject' of the matrix predicate and the 'subject' of the

linked verb are non-coreferential in (57a-b), the embedded-PSA is marked as accusative; when they are coreferential in (57c), the embedded-PSA may be marked by genitive pronouns.

(57) a. Peo-Ø   [kaba'i-m   enchi   jinu-ka-'u]   suale-n.
         Peo-NOM   horse-PL   2SG:ACC   buy-PRFV-CLM   believe-PASTC
         'I believed that you had bought the horses.'

     b. Peo-Ø   a_i   suale-n   [kaba'i-m   enchi   jinu-kan-'u]_i
         Peo-NOM   3SG:ACC   believe-PASTC   horse-PL   2SG:ACC   buy-PASTC-CLM
         'I believed it, that you were buying the horses.'

     c. Nepo   a_i   suale-n   [kaba'i-m   nim   jinu-ne-'u]_i
         1SG:NOM   3SG:ACC   believe-PASTC   horse-PL   1SG:GEN   buy-EXPE-CLM
         'I believed it, that I am not going to buy the horses.'

The second sub-type of syntactic-like complement is marked by –*kai*, as shown in (58). Here, the linked verb is missing a syntactic argument (its 'subject'), which is understood to be the same as the 'subject' of the matrix predicate, and cannot carry TAM information. Usually, this complement type appears following the matrix verb.

(58)   Maria-Ø   bo'obicha-Ø   [sim-bae-kai]
        Maria-NOM   hope-PRES   go-DESID-CLM
        'Mary hopes to leave.'

Finally, the third complement type consists of a morphological structure. In (59), the matrix predicate and the linked verb are joined together, in most cases without complementizer. The linked verb may be unmarked or marked by aspectual suffixes, but not for tense.

(59) a. Peo-Ø   Goyo-ta   toto'i-m   sua-tua-k
         Pedro-NOM   Goyo-ACC   hen-PL   kill-cause-PRFV
         'Pedro made Goyo to kill the hens.'

     b. Joan-Ø   tuuka   Tibu-ta   siim-maachia-Ø.
         Juan-NOM   yesterday   Tibu-ACC   go-believe-PRES
         'Juan believes Tibu to have left yesterday.'

c. Goyo-Ø   Tibu-ta   wakas-ta   etbwa-ka-t-'ea-n.
Goyo-NOM   Tibu-ACC   cow-ACC   steal-PRFV-CLM-think-PASTC
'Goyo thought Tibu to have stolen the cow.'

d. Goyo-Ø   Tibu-ta   wakas-ta   etbwa-k-tia-n.
Goyo-NOM   Tibu-ACC   cow-ACC   steal-PRFV-say-PASTC
'Goyo said you have stolen the cow.'

In sum, Yaqui has different strategies to encode the complement unit of complement-taking predicates, and each complement type shows specific morpho-syntactic properties. The central issue of this study is to discover to what extent the types of complements available with a given verb can be predicted from the meaning of the verb.

2.4 Summary

This chapter has described the basic morpho-syntactic properties of simple and complex clauses in Yaqui. It first described some aspects of noun structure such as the pronominal, case marking, and postpositional systems; it then presented relevant information about verb structure including number suppletion, syntactic transitivity, the TAM system, and valence-changing mechanisms. It also introduced the diversity of complex constructions. We have seen that Yaqui is a verb-final, left-branching language which respects head-finality at the level of morpheme ordering and phrases, but it shows a strong tendency for extraposition of complement units to the right.

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Chapter 3

ROLE AND REFERENCE GRAMMAR AND

THE YAQUI VERBAL SYSTEM

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This chapter is concerned with the theoretical principles of Role and Reference Grammar and the lexical decomposition of predicates in Yaqui. Section 3.1 presents the syntactic and semantic representations of sentences, and introduces the linking principles; section 3.2 develops diagnostic tests to establish verb classes and logical structures of Yaqui predicates; section 3.3 summarizes this chapter.

3.1. A synopsis of Role and Reference Grammar

Role and Reference Grammar (henceforth RRG) posits three main representations of a sentence: 1) the syntactic structure which corresponds to the actual structural form of utterances, 2) the semantic structure representing important facets of the meaning of the linguistic expression, and 3) the information structure which is related to its communicative functions. There is a set of rules, the linking algorithm, which relates the syntactic and semantic representations to each other, and discourse-pragmatics plays a role in this linking. From an RRG perspective, one of the most important ways in which languages differ from each other is in terms of the manner in which discourse-pragmatics interacts with the linking between syntax and semantics (Van Valin & LaPolla 1997, henceforth VV&LP). These main representations are summarized in Figure 3.1.
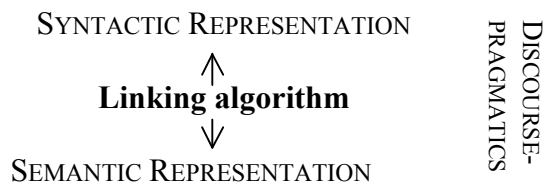
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SYNTACTIC REPRESENTATION

⇑

Linking algorithm

⇓

SEMANTIC REPRESENTATION

DISCOURSE-PRAGMATICS

Figure 3.1: Organization of Role and Reference Grammar

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3.1.1 The syntactic representation. The first step in the exploration of the syntax, semantics, and pragmatics interface is to characterize the nature of the syntactic structure. RRG seeks to provide not only a descriptive perspective but also an explanatory framework for the analysis of languages, and there are two general considerations that need to be considered when analyzing the syntactic structure of a clause:

(1) General considerations for a theory of clause structure (VV&LP: 22):
   a. A theory of clause structure should capture all of the universal features of clauses without imposing features on languages for which there is no evidence.
   b. A theory should represent comparable structures in different languages in comparable ways.

These considerations lead to a very different conception of clause structure from that assumed in other approaches. RRG posits a syntactic representation, referred to as Layered Structure of the Clause (LSC), which consists of the constituent projection and the operator projection. The constituent projection is the representation of the lexical components of a sentence. The essential components are: (i) the NUCLEUS, which corresponds to predicate (usually the verb); (ii) the CORE, which contains the nucleus and the arguments of the predicate; (iii) the PERIPHERY, which contains the non-arguments of the predicate (adjunct), and (iv) the CLAUSE which contains the core and the periphery elements. The SENTENCE will be the larger syntactic unit which may contain multiple clauses in complex sentences.

In a clause containing more than one noun phrase plus pre- or postpositional phrases, some of these phrases are semantic arguments and some are not. For instance, in *Aurelia washed the clothes in the river*, *Aurelia* and *the clothes* are semantically required by the predicate *wash*, whereas *in the river* corresponds to an optional element (periphery or adjunct) which adds extra information to the clause. The theory distinguishes, then,

between core arguments of the predicates, those which are part of the semantic representation of the verb, and non-core arguments of the predicates, such as temporal or locative adverbial phrases. There are two types of core arguments. **Direct** core arguments are those arguments which are either unmarked, as in English, or marked by case alone, as in Icelandic and Yaqui (e.g., nominative and accusative NPs). **Oblique** core arguments are those arguments which are adpositionally marked, as in English and Yaqui (e.g., postpositional NPs marked by –u or –betchi'ibo). For instance, in the English clause *the salesman sold the house to the foreigner, the house* is a direct core argument whereas *to the foreigner* is an oblique core argument marked by the preposition *to*. The components of the LSC -nucleus, core, and periphery- are syntactic units which are motivated on semantic grounds. The semantic motivation for these syntactic units is summarized in Table 3.1. A very important feature of the LSC is that the distinctions among the layers do not depend in any way on the linear order of the elements in the clause, i.e. the syntactic representation of a sentence corresponds to its actually occurring form.

Table 3.1 Semantic and syntactic units of the LSC (VV&LP: 27)

Semantic element(s)	Syntactic unit
Predicate	Nucleus
Argument in semantic representation of the predicate	Core arguments
Non-arguments	Periphery
Predicate + arguments	Core
Predicate + arguments + non-arguments	Clause (core + periphery)

There are additional elements which may occur in a simple sentence, in which linear order is crucial to the determination of these positions. The first is the PRECORE SLOT [PrCS], the clause-initial position in which question words appear in languages in which they do not occur *in situ*, e.g. English, Italian, Zapotec; it is also the location in which the fronted element in a sentence like *Blue cheese I don't like.* There is also a POSTCORE

SLOT [PoCS] in some verb-final languages. These positions are core-internal, i.e., there is no pause between the units. Both semantic arguments and adjuncts may occur in the pre- and post-core slots. Although it is a verb-final language, question words in Yaqui appear in the PrCS as shown in (2b). *Jita-sa* 'what' questions the (theme) direct core argument of the verb *kokta* 'break'; this wh-expression always initiates the clause and there is not a pause separating the core components. Often, within the wh-question clause, the subject occurs in the PoCS, following the predicate, as illustrated in (2b).

(2) a. Kajlos-Ø   u-ka   mesa-ta   kokta-k.
         Carlos-NOM   the-ACC   table-ACC   break-PRFV
         'Carlos broke the table.'

     b. Jita-sa   kokta-k   u   Kajlos-Ø?
         what-wh   break-PRFV   the   Carlos-NOM
         'What did Carlos break?

A simple clause may also include a phrase in a detached position, most commonly in the LEFT-DETACHED POSITION [LDP], but there is also a RIGHT-DETACHED POSITION [RDP]. The LDP is the location of sentence-initial elements, most commonly adverbials, which are set off from the clause by a pause, e.g. *Yesterday, I went to the Six Flags Darien Lake*. The LDP is never obligatory. In English, when the element in a detached position functions as a semantic argument of the verb, there is normally a resumptive pronoun in the core referring to it, e.g. *I saw it, the big bug*. Even though Yaqui is predominantly verb-final, it instantiates both branching directions. While Wh-words appear in the PrCS as shown in (2b), most verbal complements occur clause-finally. The clause in (3a) contains an argument in the PoCS: the core argument of the verb *ju'unea* 'know', 'that you danced', appears at the end without any intonation break, i.e. clause-internally. The clause in (3b) also shows an argument clause finally, the complement

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'that you arrived at the town', but there is a pause between the verb *jikka* 'hear' and the complement, and there is an obligatory resumptive pronoun *a* '2sg:acc' within the matrix core referring to the detached clause. The clause in (3b), then, contains an argument in the RDP. Although extremely rare, a clause may also appear in the LDP as the example given in (3c).

(3) a. Nepo   ju'unea-Ø   [enchi   ye'e-ka-'u].
      1SG:NOM   know-PRES   2SG:ACC   dance-PRFV-CLM
      'I know that you danced.'

   b. Ne   a   jikka-k   [enchi   aabo pueplo-u noite-ka-'u].
      1SG:NOM 3SG:ACC hear-PRFV   2SG:ACC here   town-DIR return-PRFV-CLM
      'I heard it, that you came back to town.'

   c. [Mesa-ta   Kajlos-ta   kokta-ka-'u]   inepo   a   a'tea-kan.
       mesa-ACC Karlos-ACC break-PRFV-CLM   1SG:NOM 3SG:ACC own-PASTC
      'The table that Carlos broke, I owned it.'

The RRG conception of the layered structure of the clause is thus a semantically-based theory of non-relational syntactic structures. That is, the fundamental units in the hierarchical organization of sentences and clauses are semantically motivated by the contrast between predicate and arguments, on the one hand, and between XPs which are related to the predicate and those that are not, on the other. Furthermore, there is a difference between the universal and non-universal aspects of clause structure. The universal aspects –nucleus, core, periphery, clause- are all semantically motivated, whereas the non-universal aspects –the detached phrases and the extra-core slots- are not semantically motivated. The non-universal aspects seem to be pragmatically motivated, or at least are associated with clauses that have strong pragmatic conditions on their occurrence (VV&LP: 40). Hence, position is relevant to the special position of wh-words,

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certain postposed elements and detached phrases, but it is not relevant to the more basic issues of determining core vs. peripheral elements.

In addition to the syntactic projection, RRG posits the operator projection which is a representation where grammatical elements called *operators* modify the clause and its parts. Eight kinds of operators have been recognized: tense, aspect, negation, modality, status, illocutionary force, directional, and evidentials. The crucial fact is that different operators modify different layers of the clause: some only modify the nucleus, some only modify the core, and others modify the whole clause. The operators that have scope over the nucleus are aspect, negation and directional; they modify the action, event or state itself without reference to the participants. Within this approach, **aspect** expresses the internal temporal structure of the event itself, i.e., whether the event is completed or not, if it is ongoing or not, if it happens all in one moment or it is extended over time. Morphemes that indicate a particular phase of an event such as inceptive, mid-point, and end phases are not considered aspectual operators, but rather phase predicates. Aspectual operators code information about the internal temporal structure of a situation (Comrie 1976), whereas a phase verb is independent of the internal temporal structure. **Negation** can operate over distinct layers, such as the nucleus. For instance, the English prefix *un-* in *unhappy* and Spanish prefix *in-* in *infeliz*, are examples of negation as a nucleus operator. **Directionals** as elements that express the direction of the action itself are also nucleus operators, as in *he saw down the window.*

Operators at the level of the core are directionals, modality and negation. **Directionals** at the core-level refer to the direction of motion which depends on the motion of the referent of the core argument, e.g. *John come in.* **Modality** is used here to

refer to what is called the root or deontic, sense of modal verbs. This category includes such things as strong obligation (*must, have to*), ability (*can, be able to*), permission (*may*) and weak obligation (*ought or should*). That is, modality expresses the relation between the referent of the subject NP and the action, a relation among the nucleus and one of its core arguments. **Negation** at the core level, often referred to as 'internal negation', negates part of the semantic content of the core but not the whole clause, as in *Aurelia did not wash the blanket, she washed the clothes*.

The clausal operators fall into two groups, one containing tense and status, and the other evidentials and illocutionary force. **Tense** and **status** situate the proposition expressed by the clause within temporal and realis-irrealis continua. Specifically, status includes epistemic modality, external negation and categories like realis and irrealis. In contrast to deontic modality which expresses strong obligation and ability, epistemic modality expresses notions of necessity and possibility. On the other hand, **evidentials** indicate the epistemological basis of the state of affairs expressed, they refer to the sources of information, i.e. how the speaker came to have the information being conveyed, by hearing it, seeing it, or deducing it from some sort of evidence. **Illocutionary force** specifies the type of speech act, whether the utterance is an assertion, a question, a command or an expression of a wish. These are different types of illocutionary force, declarative, interrogative, imperative, and optative illocutionary force. The operators and their scope over the layers are summarized in Figure 3.2.

Since operators are technically not part of the nucleus, core or periphery, but rather are modifiers of these units and combinations thereof, they are represented separately from the predicates and arguments that they modify. Hence, the constituent projection

consists of the predicate and its arguments, while the operator projections consist of the operators which modify the clause. Moreover, predicates and arguments are subject to language-specific constraints on their ordering, while the primary principle governing the ordering of operators is the universal scope constraint described below.
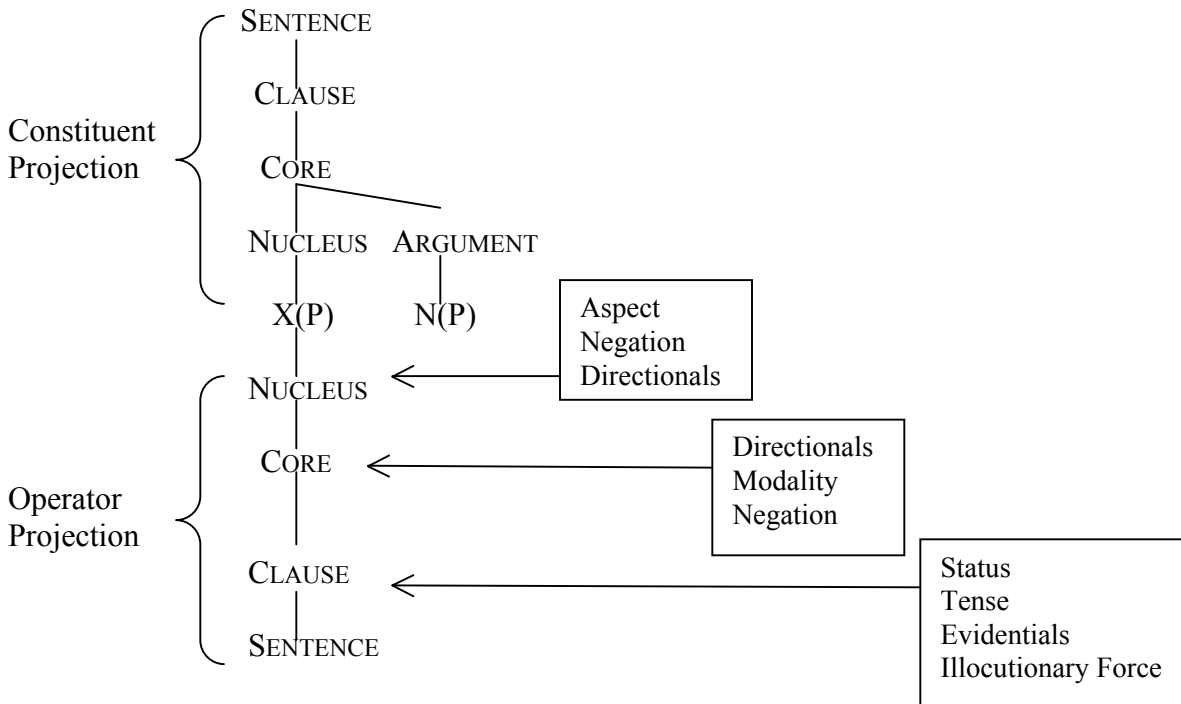
Figure 3.2: Operator Projection in LSC

The main language-specific consideration affecting the occurrence of constituents is the basic word-order type of a language, i.e. whether the language is right-branching or left-branching (Dryer 1992), which governs whether the operators are predominantly prefixes or suffixes, if they are bound morphemes, or whether they occur before or after the nucleus, if they are free morphemes. However, the ordering among them is determined by the scope principle. The layered structure of the imperative clause in (4) with constituent and operator projection is illustrated in Figure 3.3. The top part is called the 'constituent projection', the bottom part the 'operator projection'. The two projections are joined through the nucleus, which is the central element in the clause both in terms of

defining the range of possible arguments and being the primary entity to which the operator grammatical categories are oriented.

(4) Aurelia-Ø,   bwatne-po tajjo'ori-ta baksia-Ø-'e.
     Aurelia-NOM river-LOC   cloth-ACC   wash-PRES-IMPER
     'Aurelia, wash the clothes in the river!'
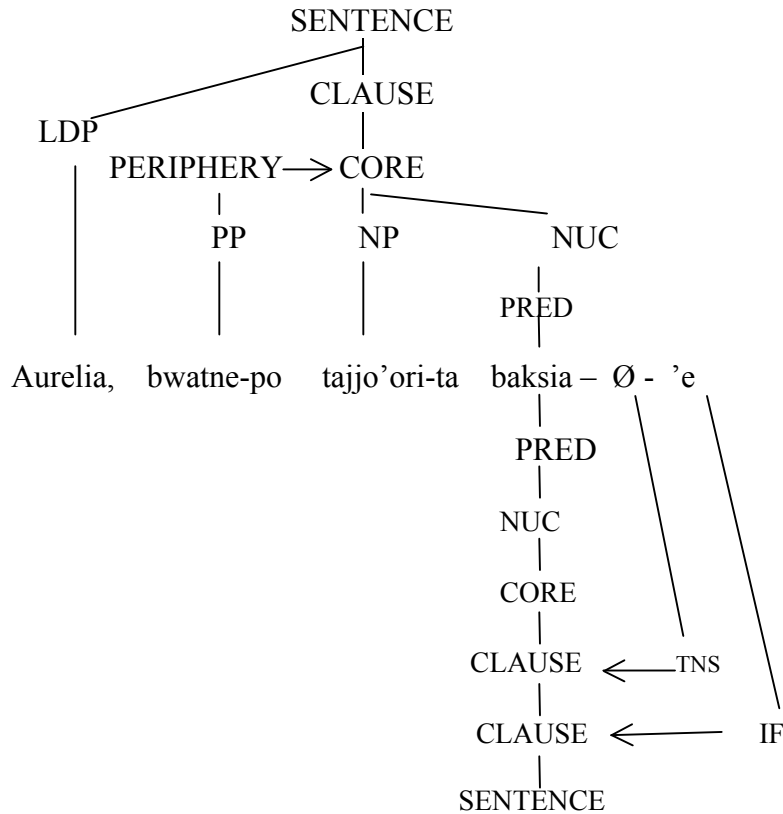
Figure 3.3: Constituent and operator projection of a Yaqui clause

Syntactic structures are not specified by phrase-structure rules or the like, but the different patterns are stored as SYNTACTIC TEMPLATES in a SYNTACTIC INVENTORY. Templates are merged to create the constituent projection of the syntactic representation of a sentence. While the layered structure of the clause is universal, there is substantial cross-linguistic variation with respect to the syntactic templates of each language. In the English syntactic inventory, there are templates for each of the various extracore

positions, and they combine with the core templates to constitute a clause and a sentence.[5]

3.1.2 The semantic representation. The second step in the exploration of the syntax, semantics, and pragmatics interface in a language is to characterize the nature of the semantic structure. The semantic structure of the sentence is based on the semantic representation of the verb or predicating element, and the semantic relationships which hold between a verb or other predicators and their arguments. The theory uses the lexical decomposition system based on the *Aktionsart* verb classification from Vendler (1967) into states, achievements, accomplishments and activities, and it utilizes a modified version of the representational scheme proposed in Dowty (1979) to capture these distinctions. English verbs from each of the Aktionsart classes are given in (5).

(5) a. States: *be sick, be tall, be dead, love, know, believe, have*
   b. Achievements: *pop, explode, collapse, shatter* (intransitive versions)
   c. Accomplishments: *melt, freeze, dry* (intransitive version); *learn*
   d. Activities: *march, walk, roll* (intransitive version); *swim, snow, write, drink*

This system of lexical decomposition distinguishes the four main verb classes as defined in (6) based on the verbs' inherent temporal properties or features: telicity, punctuality, and staticness, which are represented by the binary features [±telic], [±punctual], and [±static] respectively. Roughly speaking, telicity distinguishes an event that brings about a change of state, from one that does not involve any change. Punctuality distinguishes an event that takes place instantaneously, from an event that allows temporal duration. Staticness distinguishes a state which consists of internally uninterrupted and inseparable phases, from an event which consists of internally complex stages.

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[5] For some examples of English syntactic templates, see VV&LP: 74.

(6) Lexical aspect properties of verb classes (VV&LP 1997:93)[6]

	Boundedness	**Durativeness**	**Dynamicity**
State	[-telic]	[-punctual]	[+static, -dynamic]
Activity	[-telic]	[-punctual]	[-static, +dynamic]
Achievement	[+telic]	[+punctual]	[-static, -dynamic]
Accomplishment	[+telic]	[-punctual]	[-static, -dynamic]
Active Accomplishment	Non-inherently [+telic]	[-punctual]	[-static, +dynamic]

States and activity are atelic events. States are static situations which are inherently temporally unbounded, and activities are dynamic, inherently temporally unbounded. The telic events are achievement and accomplishment, which express the inherently temporally bounded changes of state. Accomplishments are the durative counterpart of achievements. Dowty (1979) noted that activities can alternate with accomplishments when the verb appears with a phrase that serves to provide an end-point of the action such as *to the park* in the English examples in (7).

(7) a. John walked in the park for / *in ten minutes   Activity

    b. John walked to the park in / *for ten minutes   Active Accomplishment

The predicate *walk* in (7a) is an atelic (unbounded) event, whereas *walk to the park* in (7b) is telic. Active accomplishments are dynamic, inherently unbounded events that can be delimited and bounded within a particular construction taking an object-type complement, i.e. verbs of motion, creation and consumption. The examples in (8) show the telic use of the active verb *tubukte* 'jump' in Yaqui. Note that whereas the active verb is marked as intransitive *-te*, the active accomplishment is marked as transitive *-ta*.

(8) a. Flor-Ø   si osi   tubukte-k.   Active
          Flor-NOM   a lot   jump-PRFV
          'Flor jumped a lot.'

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[6] Some of the terminology employed in this classification is used in different senses in other earlier works (Dowty 1979, Foley and Van Valin 1984, Van Valin 1990). For instance, within this approach, [±dynamic] is a sub-property of [-static] and therefore, [+dynamic] does not necessarily entail [-static], or vice versa, and [±dynamic] is employed to distinguish activity from non-activity verbs among [-static] verbs.

b. Flor-Ø   teta-ta   tubukta-k.   Active Accomplishment
    Flor-NOM stone-ACC   jump-PRFV
    'Flor jumped the stone.'

Within this lexical representation, the *aktionsart* classes are non-causative, and causative counterparts exist independently for each class, resulting in ten verb classes. For instance, the intransitive verb *waake* 'dry' in *the clothes dried* in (9a) is a plain accomplishment, whereas the transitive verb *waacha* in *the sun dried the clothes* in (9b) is a causative accomplishment.

(9) a. U   tajjo'ori-Ø   waake-k.   Accomplishment
         the cloth-NOM   dry-PRFV
         'The clothes dried.'

     b. U   ta'a-Ø   tajjo'o-ta   waacha-k.   Causative Accomplishment
         the sun-NOM   cloth-ACC   dry-PRFV
         'The sun dried the clothes.'

There is one important non-Vendlerian Aktionsart class, namely semelfactives (Smith 1997). Semelfactives are punctual events which have no result state (Van Valin 2005). Examples are given in (10). Semelfactives differ from achievement in lacking a result state and this can be seen in their inability to be used as adjectival modifiers, e.g. *the shattered window* vs. **the flashed light*. Like achievements, when semelfactives are iterated, they behave like activity verbs, but unlike achievement they do not require a plural subject for an iterative interpretation. Indeed, the default interpretation with many semelfactive verbs is that they are iterative.

(10) a. The light flashed
     b. Chris coughed
     c. Pat tapped the cane on the door

RRG proposes a set of syntactic and semantic tests for determining membership in the verb classes. The point of the tests is to uncover co-occurrence patterns which will reveal the *Aktionsart* class of a verb. Each of them is intended to isolate one or more

semantic features of the classes. The tests are intended for cross-linguistic use, though modifications may be needed to accommodate language-specific characteristics. Below, seven diagnostic tests for determining predicate classes in English as proposed by RRG are commented. The results are summarized in Table 3.2. These tests are not perfect, but taken together they enable the analyst to distinguish between verb classes.

- Test 1: Can the verb occur with the progressive form *–ing*? In languages which have progressive aspect, this test is an indicator of [-static, -punctual], since it can occur with activity, accomplishment, active accomplishments, but not with states or achievements.

- Test 2: Can the verb occur with adverbs like *vigorously* or *actively*? This test involves the ability to co-occur with adverbs coding dynamic actions. States, accomplishments, and achievements are odd with this test since adverbs like *vigorously* modify actions not change of states.

- Test 3: Can the verb occur with adverbs like *quickly* or *slowly*? This test is compatible with non-static verbs and distinguishes [-punctual] from [+punctual]. 'Pace' adverbs such as *quickly, rapidly*, and *slowly* involve no terminal duration. The '*' on the achievements and semelfactives in Table 3.3 means that pace adverbs indicating very short temporal intervals are marginally acceptable, e.g. *the bomb exploded instantly*. With semelfactives they are possible only on the iterative reading.

- Test 4: Can the verb occur with a prepositional phrase with *for*? This test isolates the property of having duration in time. It shows that states, accomplishments and activities all have temporal duration, but achievements do not. Also, a prepositional

phrase such as *for one hour* is compatible with an event that does not bring about a change of state. So, the *for*-test does well with activities, e.g. *John ran for two hours*, but it is incompatible with [+telic], e.g. **the candle melted for an hour*. The '*' for states in Table 3.3 indicates that this test is problematic for certain predicates. The occurrence of *for*-phrases with accomplishments and active accomplishments is really redundant since they are [-punctual], so they are marked 'irrel(evant)'.

- Test 5: Can the verb occur with a prepositional phrase *in*? This test focuses on terminal points. If something is done *in* ten minutes, then explicit reference is being made to the termination point of the event. In other words, the event started at a certain time and ended ten minutes later. But if something is done *for* ten minutes, the same event could still be going on at a later time. The *in*-test distinguishes between achievements and accomplishments on one hand, and from activities and states on the other hand. Because achievement and semelfactives are [+punctual], they are compatible with *in*-phrases referring to an exceedingly short period of time, e.g. *in the blink of an eye, in an instant*, and so they are marked No*.

- Test 6: Can the sentence occur as a result state modifier? This test serves to distinguish the two punctual types from each other. Activities and semelfactives have no result state, thus they cannot be used as stative modifiers, e.g. **the tapped window*. Achievements, on the other hand, do have a result state and therefore can be used as stative modifiers, e.g. *the shattered window*.

- Test 7: Can the sentence be paraphrased with 'cause'? This test intends to explore whether a verb is inherently causative or not. When the verb takes two semantic arguments, one of them can be the 'causer' of the event. If the argument is the

'causer', the clause allows a causative paraphrase retaining the same number of arguments. It is important to make sure that the paraphrases have the same number of NPs as the original sentence being paraphrased. This means, Test 6 cannot apply to single argument verbs because it would be impossible to make a causative paraphrase with a single participant.

Table 3.2 Test for Aktionsart classes in English

Verb class	Test 1 progressive	Test 2 dynamic	Test 3 duration	Test 4 *for*-PP	Test-5 *in*-PP	Test-6 Result state	Test 7 Cause
State	No	No	No	Yes*	No	Yes	No
Activity	Yes	Yes	Yes	Yes	No	No	No
Achievement	No*	No	No*	No*	No*	Yes	No
Semelfactive	No*	No*	No*	Yes*	No*	No	No
Accomplishment	Yes	No	Yes	Irrel.*	Yes	Yes	No
Active accomplishment	Yes	Yes	Yes	Irrel.*	Yes	Yes	No
Causative state	Yes*	Yes*	No	Yes	No	Yes	Yes
Causative activity	Yes	Yes	Yes	Yes	No	Yes	Yes
Causative achievement	No	Yes*	No*	No	No*	Yes	Yes
Causative semelfactive	No*	Yes*	No*	No*	No*	No	Yes
Causative accomplishment	Yes	Yes*	Yes	Irrel.*	Yes	Yes	Yes
Causative active Accomplishment	Yes	Yes	Yes	Irrel.*	Yes	Yes	Yes

In many languages, verbs in these different classes may be overtly morphologically related to each other. Consider the following examples from Yaqui.

(11) State   Accomplishment Causative Accomplishment
  a. *bwas-i*   *bwas-e*   *bwas-a*
    'cooked, ripe' 'cook'   'cook'
  b. *jam-ti*   *jam-te*   *jam-ta*
    'broken'   'get broken'   'break'
  c. *om-ti*   *om-te*   *om-ta*
    'be mad'   'get angry'   'hate'
  d. *muuk-ia*   *muuk-e*   *me'a*
    'death'   'die'   'kill'

An explanation for these morphologically related patterns can be found in the lexical representation used in RRG: verbs are analyzed in terms of a lexical decomposition system in which state and activity predicates are taken as basic and other classes are

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derived from them. The lexical representation of the verbs as given in (12) is referred to as the **Logical Structure** (LS). The semantic interpretation of each argument is a function of its position within the LS.

(12) Lexical representation for Aktionsart classes

Verb Class	*Logical Structure* [LS]
State	**predicate´** (x) or (x, y)
Activity	**do´** (x, [**predicate´** (x) or (x, y)])
Achievement	INGR **predicate´** (x) or (x, y) *or*
	INGR **do´** (x, [**predicate´** (x) or (x, y)])
Semelfactive	SEML **predicate´** (x) or (x, y)
	SEML **do´** (x, [**predicate´** (x) or (x, y)])
Accomplishment	BECOME **predicate´** (x) or (x, y) *or*
	BECOME **do´** (x, [**predicate´** (x) or (x, y)])
Active Accomplishment	**do´** (x, [**predicate$_1$´** (x, (y))]) & BECOME
	predicate$_2$´ (z, x) or (y)
Causative	_ CAUSE _, where _,_ are LSs of any type

States are represented as bare predicates, e.g. **know´** (x, y), **dead´**(x). Activity representations contain the element **do´**, e.g. **do´**(x, [**cry´** (x)], **do´** (x, [**eat´** (x, y)]). Achievements, which are punctual changes of states or onsets of activity, are represented as a state or activity predicate plus an INGRessive operator, e.g. INGR **shattered´** (x). Semelfactives likewise can be based on states or activities, e.g. *glimps*e would have the representation SEML **see´** (x, y), while *cough* would be represented as SEML **do´**(x,[**cough´**(x)]). This captures the fact that only semelfactives based on activities have an activity reading when iterative, e.g. *Pat is coughing* vs. **Chris is glimpsing Kim*. Accomplishments which are non-punctual changes of states or onsets of activity, are represented as a state or activity predicate plus a BECOME operator, e.g. BECOME **melted´** (x). Causative verbs have a complex structure consisting of a predicate indicating the causing action or event, usually an activity predicate, linked to a predicate indicating the resulting state of affairs by an operator-connective CAUSE, e.g. [**do´**…] CAUSE [BECOME **pred´**…].

There are two additional LS elements that must be introduced. The first one is NOT, which occurs in the logical structure of verbs like *remove, drain* and *take* (as in *x took y from z*). This is illustrated in the lexical representation in (13b). The second one is *&* meaning 'and then' to express the successive states of affairs involved in motion and transfers of possession. For instance, the lexical representation in (13c) means that *Tom* does something that causes (i) *the prisoner* to lose possession of *the knife* and (ii) *Tom* come into possession of it.

(13) a. Tom took the knife from the prisoner

   b. [**do´** (Tom, Ø)] CAUSE [BECOME NOT **have´** (prisoner, knife)]
   c. [**do´** (Tom, Ø)] CAUSE [BECOME NOT **have´** (prisoner, knife) & BECOME **have´** (Tom, knife)]

Logical structures are associated fundamentally with the meanings which verbs express, and a given logical structure is intended to represent a particular meaning or interpretation of a lexical item. It is not necessarily the case that there is a single logical structure underlying all of the uses of a particular lexical item. Because of this, it is possible to distinguish between the basic lexical meaning of a verb, e.g. *drink* as an activity verb, from its meaning in a particular context, e.g. *drink a glass of beer* as an active accomplishment predication. Compare the two lexical representations in (14).

(14) a. John drank beer   Activity
       a'. **do´** (John, [**drink´** (John, beer)]

   b. John drank a beer   Active accomplishment
       b'. **do´** (John, [**drink´** (John, beer)]) & BECOME **consumed´** (beer)

This is true for creation verbs, e.g. *write a poem/letter, novel, paint a picture/portrait, build a house/model*, etc. and for consumption verbs, e.g. *drink a glass of wine, eat a pizza, read a book*, as well as for motion verbs involving a bounded and delimited active

verb, active accomplishments, e.g. *run to the store*. Instead of giving two logical structures (two different entries in the lexicon), VV&LP (p. 111) propose to list only the activity form and to derive the active accomplishment uses.

(15) a.   Motion verbs:
do´ (x, [**pred´** (x)]) $\longleftrightarrow$ **do´** (x, [**pred´** (x)] & BECOME **be**-LOC´ (y, x)

   b. Creation/consumption verbs:
do´ (x, [**pred´** (x, y)]) $\longleftrightarrow$ **do´** (x, [**pred´** (x, y)] & BECOME **pred´** (y)

Once the lexical representation of a verb has been established, it is necessary to determine the semantic relationships between the verb or other predicators and their arguments. RRG posits two types of semantic relations: (1) the traditional thematic roles, which are defined in terms of argument position in the decomposed logical structure representation, and the semantic macroroles, **Actor** and **Undergoer**, which are generalizations across the argument types of particular verbs and are neutralized for various thematic relations.
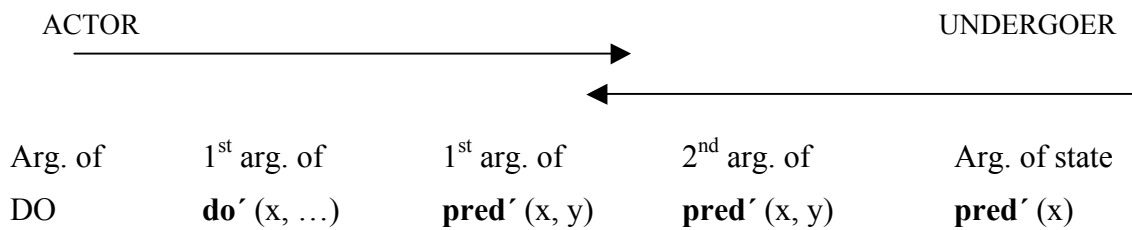
LSs form the heart of the lexical entry for a verb, and they correspond to the thematic relations/_-role list that other theories associate with a verb in its lexical entry. There is, however, no listing of thematic relations in a verb's lexical entry in RRG, but rather thematic relations are defined in terms of the argument positions in the decomposed logical structure representation (Jackendoff 1976). For instance, the single argument of a one-place state predicate like **broke´** (x) is a patient, while the single argument of **exist´** (x) is a theme. The first argument of a two-place state predicate like **hear´** (x, y) is a perceiver whereas the second argument is a stimulus. The single argument of an activity predicate like **run´** (x) is an effector, while the first argument of a two-place activity predicate like **do´** (x, [**eat´** (x, y)]) is a consumer and the second argument a consumed.

The five distinctions correspond to the five possible argument positions in logical structures. The thematic relations defined in terms of the LS argument position seems to be more motivated (less arbitrary) than other theoretical treatments. For instance, in a two-place predicate, the participant denoted by the first argument is more active and hence more agent-like than the participant referred to by the second argument, and accordingly, the first argument is closer to the agent end of the hierarchy than the second argument.

The representation of arguments in the logical structure of a verb or predicator provides a strict definition of 'core argument': all arguments that appear in the core of a simple clause must be linked to argument position in the logical structure of the predicate in the nucleus, and in the default situation, all arguments in the logical structure of the predicate must appear in the core of the clause. However, it is not always the case that an argument in the logical structure occurs in the core; in a passive construction, for example, the effector is realized as an oblique constituent in the periphery. Among core arguments, a further distinction is made between direct and oblique core arguments, and this contrast is based on the morphological coding of the arguments: direct core arguments are those that are morphologically unmarked or coded with a direct case, whereas oblique core arguments are those marked by an adposition or by an oblique case.

The second type of semantic roles consists of the two macroroles, Actor and Undergoer, each of which subsumes a number of specific thematic relations. These are the two primary arguments of a transitive predicate, either one of which may be the single argument of an intransitive verb. Prototypically, an agent-type argument is the actor, and a patient-type argument is the undergoer, but the macrorole status is determined

irrespective of the thematic roles. The relation between macroroles and logical structure argument positions is captured in the Actor-Undergoer Hierarchy in Figure 3.4.[7]

ACTOR   UNDERGOER

Arg. of	1st arg. of	1st arg. of	2nd arg. of	Arg. of state
DO	**do´** (x, …)	**pred´** (x, y)	**pred´** (x, y)	**pred´** (x)

['→' = Increasing markedness of realization of argument as macrorole]
Figure 3.4: The Actor-Undergoer Hierarchy [AUH]

This double hierarchy simply says that, given the logical structure of a transitive verb, the leftmost argument will be the actor, and the rightmost argument will be the undergoer. This is the default situation; marked assignments to the undergoer are possible, as in the 'dative shift' alternation in English. The prototypical actor is an agent, the prototypical undergoer a patient, but effectors and arguments bearing other thematic relations can also function as actor, and arguments bearing thematic relations other than patient can also serve as undergoer; this depends on the logical structure of the particular verb. The number of macroroles that a verb takes is generally predictable form its logical structure, whereas macrorole assignment, whether it is an actor or an undergoer, generally follows the default principles stated in (16):

(16) Default Macrorole Assignment Principles (VV&LP: 152-153)
    a. Number: the number of macroroles a verb takes is less than or equal to the number of arguments in its logical structure:
        1. If a verb has two or more arguments in its LS, it will take two macroroles.
        2. If a verb has one argument in its LS, it will take one macrorole.

---

[7] Agents and Effector thematic relations are distinguished. For verbs that demands a human agent, such as *murder*, the representation of 'DO (x, [**do´** (x,…' is used, whereas for verbs that allows inanimate entities, such as *kill*, just **do´**(x, …)' is used, i.e., *Malaria kills/*murders people*. Hence, DO appears only in the LS of those verbs which lexicalize agency. Animate and human effectors may be construed as agents (Holisky 1987, Van Valin and Wilkins 1996).

b. Nature: for verbs which take one macrorole:
   1. If the verb has an activity predicate in its LS, the macrorole is actor.
   2. If the verb has a non-activity predicate in its LS, the macrorole is undergoer.

The macrorole number of a verb corresponds closely to the characterization of a verb in terms of the traditional notion of transitivity: single macrorole verbs are intransitive, two macrorole verbs are transitive. In terms of RRG, however, the traditional notion refers to the number of direct NPs that appear in the syntax, and this corresponds to the number of direct core arguments. That is, the syntactic valence of a verb is the number of overt morpho-syntactically coded arguments it takes, i.e. direct and oblique core arguments, whereas the semantic valence of the verb refers to the number of semantic arguments that a particular verb can take. There are three transitivity possibilities in terms of semantic macroroles (M-transitivity): zero-transitivity or M-atransitive, M-intransitive, and M-transitive. Syntactic and semantic macrorole transitivity need not coincide. The verb *rain*, for instance, has no arguments semantically but in English it has one syntactic argument, as in *it rains*. *Eat* can have one argument, as in *Mary ate*, or two as in *Mary ate a sandwich*. *Put* can have three core arguments, as in *Dana put the book on the table*, or it can have only two, as in *Dana put the book away*. Some grammatical processes can also be described in terms of changing the valence of the verbs. For example, the passive voice is a syntactic valence-changing rule because in sentences like *John was killed*, the syntactic valence of the verb is reduced from two to one. It is not necessary, however, for the semantic valence to change as in *John was killed by the policeman*. The *by*-phrases are peripheral adjuncts and therefore do not count as part of the syntactic valence of the passive verb, but the actor NPs are semantic arguments of the verb.

If a verb does not have the predicted M-transitivity by the principles in (16), the [MR_] feature specification must be entered into the lexical entry, e.g. *belong* is **have**'(x, y) [MR1]. Although most English verbs follow these defaults, there are some systematic exceptions to the principle in (16.a.1). First, the majority of activity verbs, regardless of how many arguments they have, take no more than one macrorole, and it is always the actor; only activities of directed perception and of use, e.g. *watch* and *use*, take two macroroles. Second, verbs of location and change of location are normally M-intransitive in many languages, despite having two arguments (the moving entity and location) in their logical representation, whereas in many languages they are M-transitive

One more important thing is that RRG does not consider the grammatical relations of the subject, direct object and indirect objects as primitives. Just as the actor is not equivalent to the agent, it is likewise not equivalent to the syntactic subject. Instead, this approach uses the concept of Privileged Syntactic Argument (PSA) that requires a restricted neutralization of semantic roles for syntactic purposes, whereas non-PSA arguments are referred to as *direct* or *oblique core arguments*. In order to determine the PSA, RRG posits the Privileged Syntactic Argument selection hierarchy given in (17) and the accessibility to the PSA principles in (18).

(17) Privileged Syntactic Argument selection hierarchy
      Arg of DO > 1st arg of **do**′ (x, …) > 1st arg of **pred**′ (x, y) > 2nd arg of **pred**′ (x, y)
    > arg of **pred**′ (x)

(18) Accessibility to Privileged Syntactic Argument Principles
    a. Accusative constructions: highest ranking direct core argument in terms of (17)
    b. Ergative constructions: lowest ranking direct core argument in terms of (17)
    c. Restrictions on PSA in terms of macroroles status:
        1. Languages in which only macrorole arguments can be PSA: German, Italian, Dyrbal, Jacaltec, Sama…

2. Languages in which non-macrorole direct core argument can be PSA: Icelandic, Georgian, Japanese, Korean, Kinyarwanda…

Although the PSA selection hierarchy is similar to the Actor-Undergoer Hierarchy in that it refers to the same argument position in the LSs, it is different in that it is unilateral, taking the agent (argument of DO) as the highest ranking and the patient (argument of **pred´**(x)) as the lowest ranking. Grammatical functions such as case marking and verb agreement are determined based on the PSA hierarchy. For instance, in accusative languages, the PSA within a M-transitive active clause will be the actor, the first argument of **do´** or **pred´** (x, y), whereas the lower argument will be the undergoer. Since the actor is also the highest ranking argument in the hierarchy in (17), it is selected as the PSA. In verbs where verb-agreement is required, the finite verbs often agree with the highest ranking argument in the PSA hierarchy, the actor. On the other hand, within a M-intransitive clause, the single macrorole is the highest ranking in (18a) or the lowest ranking in (18b). Hence the single macrorole will be the PSA regardless of which macrorole it is.

Case marking rules also make crucial reference to macroroles and direct core argument status, although inherent lexical content may play a role, e.g. animacy. The case-marking rules for accusative constructions are the following.

(19) Case assignment rules for accusative constructions
    a. Assign nominative case to the highest ranking macrorole in terms of (17).
    b. Assign accusative case to the other macrorole argument.
    c. Assign dative case to non-macrorole arguments (default).

These case assignment rules apply to direct core arguments only. In English, for instance, they apply only to pronouns, and the equivalent for lexical NPs is prepositional

case marking. The adpositions that mark oblique core arguments are not listed in the lexical entry of the verb but rather are predicted by general principles.

In addition to agreement and case marking, the notions of macroroles and core arguments account for other syntactic relations such as passive voice. There are usually (but not always) two facets of a passive construction, the occurrence of a marked privileged syntactic argument choice (the original 'direct object'), and the omission of the actor or its appearance as an oblique element in the periphery. The former is referred to as PSA MODULATION, the latter as ARGUMENT MODULATION (VV&LP 294-295). The universal formulation of the basic voice oppositions is presented below.

(20) General characterization of basic voice constructions
    a. PSA modulation voice: permits an argument other than the default argument in terms of (17) to function as the privileged syntactic argument
    b. Argument modulation voice: gives non-canonical realization to a macrorole argument.

An important motivation for factoring voice constructions into these two parts is that they occur independently of each other in some languages. A clear example is impersonal passives with intransitive verbs in German, Latin, and Turkish.

The third step in the exploration of the syntax, semantics, and pragmatics interface in a language is to characterize the language's encoding of the information structure. Because the present analysis of Yaqui focuses on the syntactic and semantic representation of complex constructions, the information structure principles will not be commented on here.

3.1.3 The linking algorithm. The syntactic, semantic and pragmatic representations are linked together by the linking algorithm. The general linking schema in RRG is also sketched as in Figure 3.5. The relation between logical structure and

macroroles is mediated by the Actor-Undergoer Hierarchy. The relation between macroroles (and non-macrorole) arguments and morpho-syntactic functions is subject to extensive cross-linguistic variation and is affected by the privileged syntactic argument selection hierarchy in (17) and the selection principles in (18). The opposition labeled 'universal' vs. 'language-specific' in Fig. 3.5, next page, reflects the fact that there is very little cross-linguistic variation in the lexical phase of the linking and a great deal of cross-linguistic variation in the syntactic phase. The primary variation in the lexical phase is limited to three areas: what role animacy plays in macrorole assignment, whether a language allows variable undergoer selection, and whether the language follows the 'indirect object' pattern of lowest-ranking argument in LS as undergoer.

The RRG linking algorithm is bidirectional; that is, it links the semantic to the syntactic representation, and it also links the syntactic to the semantic representation. Viewed in terms of a language processing, the semantics-to-syntax linking concerns the production process, while the syntax-to-semantics linking concerns the comprehension process. The linking between semantic and syntactic representation is governed by a very general constraint, the Completeness Constraint, which is stated in (21).

(21) Completeness Constraint (VV& LP):
 All of the arguments explicitly specified in the semantic representation of a sentence must be realized syntactically in the sentence, and all of the referring expressions in the syntactic representation of a sentence must be linked to an argument position in a logical structure in the semantic representation of the sentence.

For the semantic-to-syntax linking, the information in the semantic representation is crucial for the selection of the syntactic template(s) constituting the syntactic representation. RRG also posits principles governing the selection of the appropriate core template:
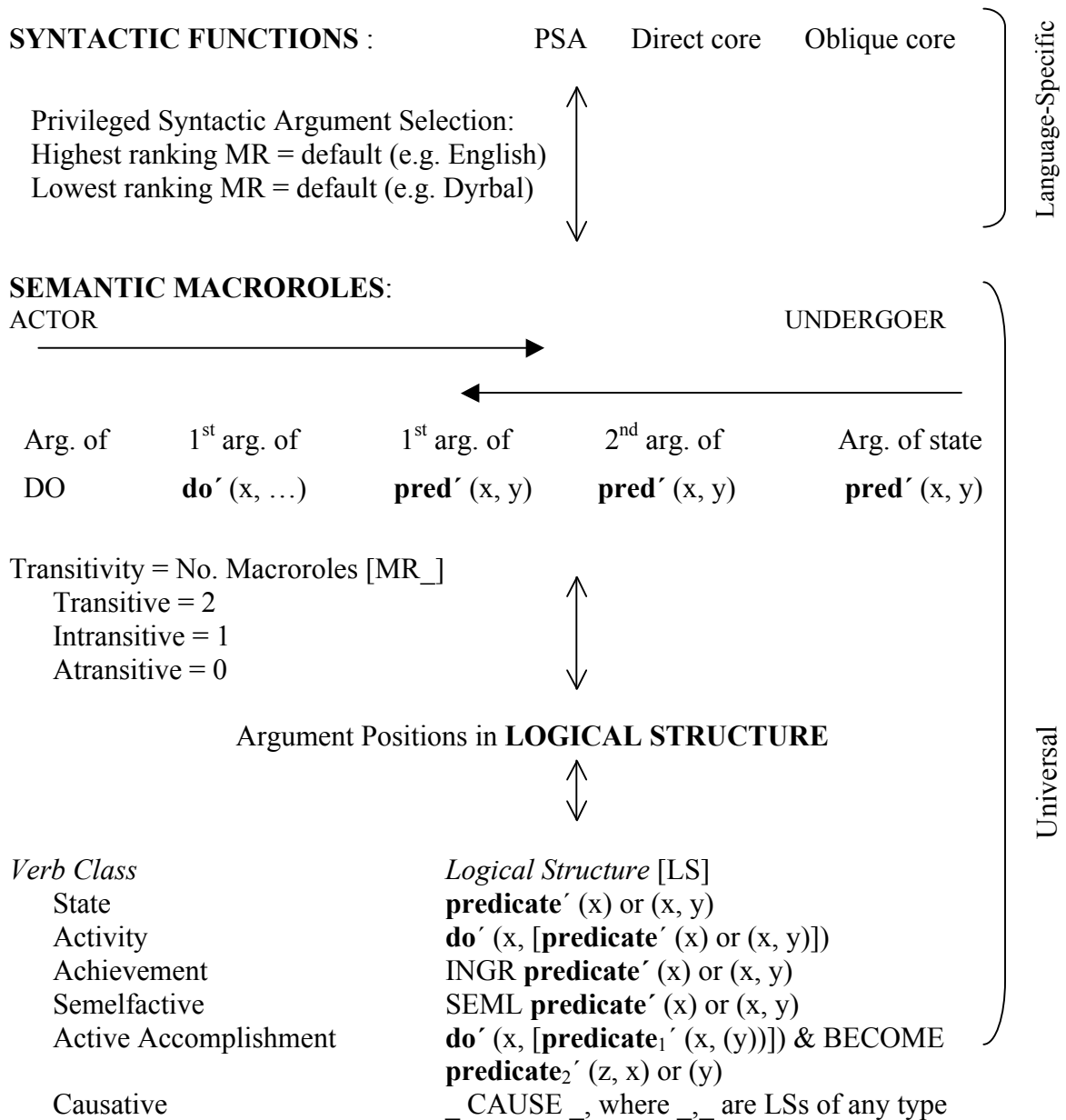
SYNTACTIC FUNCTIONS : PSA   Direct core   Oblique core ⎫ *Language-Specific*

    Privileged Syntactic Argument Selection:
    Highest ranking MR = default (e.g. English)
    Lowest ranking MR = default (e.g. Dyrbal)

SEMANTIC MACROROLES:

ACTOR   UNDERGOER

Arg. of	1st arg. of	1st arg. of	2nd arg. of	Arg. of state
DO	**do′** $(x, …)$	**pred′** (x, y)	**pred′** (x, y)	**pred′** (x, y)

Transitivity = No. Macroroles [MR_]
    Transitive = 2
    Intransitive = 1
    Atransitive = 0

            Argument Positions in **LOGICAL STRUCTURE**

Verb Class	*Logical Structure* [LS]
State	**predicate′** (x) or (x, y)
Activity	**do′** $(x, [$**predicate′** (x) or $(x, y)])$
Achievement	INGR **predicate′** (x) or (x, y)
Semelfactive	SEML **predicate′** (x) or (x, y)
Active Accomplishment	**do′** $(x, [$**predicate$_1$′** $(x, (y))])$ & BECOME **predicate$_2$′** (z, x) or (y)
Causative	_ CAUSE _, where _,_ are LSs of any type

⎫ *Universal*

Figure 3.5: Summary of RRG linking system

(22) a. Syntactic template selection principle:
      The number of syntactic slots for arguments and argument-adjuncts within the core is equal to the number of distinct specified argument position in the semantic representation of the core.

    b. Language-specific qualifications of the principle in (a):
        1. All cores in the language have a minimum syntactic valence of 1.
        2. Argument-modulation voice constructions reduce the number of core slots by 1.
        3. The occurrence of a syntactic argument in the pre/postcore slot reduces the number of core slots by 1 [may override 1. above]

This theoretical framework recognizes the importance of grammatical constructions, and they are represented in terms of constructional templates. Cross-constructional and cross-linguistic generalizations are captured in terms of the general principles and constraints that constitute the linking algorithm, e.g. the actor-undergoer hierarchy, the layered structure of the clause, the privileged syntactic argument selection hierarchy. Only the idiosyncratic, language-specific features of constructions are represented in constructional templates. Each constructional template contains syntactic, morphological, semantic and pragmatic information about the construction in question.

3.2 The Yaqui verbal system

In the last section, we saw that the first step for the semantic-to-syntax linking is to construct the semantic representation of the sentences, based on the logical structure of the predicator. We also saw that, although the syntactic and semantic diagnostic tests for determining verb classes are intended for cross-linguistic use, modifications may be needed to accommodate language-specific characteristics. This section briefly comments on some previous analyses of verb classification and then presents eight diagnostic tests for determining the Yaqui verb classes in terms of RRG's lexical decomposition system.

Split intransitivity has been studied from three main perspectives. First, the syntactic approach denies that split intransitivity is fully semantically predictable and claims that each class has in common a particular syntactic configuration. Although the Unaccusative Hypothesis (UH) originally assumed that the distinction between unaccusative and unergative intransitive verbs is semantically determined but syntactically represented, most studies following this hypothesis assume the distinction is syntactic. The UH claims the existence of two syntactically distinct intransitive verb classes, as first formulated by

Perlmutter (1978) within Relational Grammar (RelG), and later adopted by Burzio (1986) within Government-Binding theory. In terms of argument structure, unergatives have an external but not a direct internal argument (no direct object), whereas unaccusatives have a direct internal but no external argument (no subject). The auxiliary selection in French and Italian, resultative clauses in English, Japanese and Korean, causative paraphrases in Spanish (Levy 1994), passive-impersonals in German, Dutch and French (Perlmutter 1978, Cummins 2000), are used as syntactic diagnostics. Second, the semantic approach denies that the split is syntactically encoded but claims instead that membership in the two classes is predictable on the basis of meaning (Van Valin 1990). Several recent studies have converged on the conclusion that semantic notions such as agency, activity and change of state are crucial to verb classification (Van Valin 1990, Mithun 1991, Tenny 1992, Yang 1998, Toratani 1998, Megerdoomian 2001). Finally, Levin & Rappaport-Hovav (1992, 1995) argue that there is no reason to assume that all verbs having the syntactic properties attributed to unaccusatives will form a semantically homogenous class and, vice versa, there is no reason to assume a semantically homogenous class among specific but different syntactic constructions such as unaccusatives and transitive objects. The authors then proposed to return to Perlmutter's definition in which split intransitivity is semantically determined but syntactically represented.

Regardless of the terminology, two major classes of intransitives are generally recognized. Typically, the Actor-type class (S_A) denotes events performed, effected, instigated and controlled by their participants, e.g. *run, jump*, while the Undergoer-type class (S_U) denotes states affecting their participants, e.g. *dry, melt, burn*. Moreover,

certain change of position and motion verbs, e.g. *fall, enter, move, return to,* and certain internal change of state or emotions verbs, e.g. *get tired, get scared, get angry,* show a variable behavior depending on the language and/or the unaccusative diagnostics. As far as Yaqui is concerned, analyses of split intransitivity have focused on defending the syntactic basis position (Escalante 1990, Jelinek 1998, Jelinek & Escalante 2000). They claimed that unergative verbs are those that may appear in an impersonal passive construction, while unaccusative verbs are those that cannot appear in this type of clause. The reason is because unergatives imply an animate, controller, actor-type subject. The present analysis offers an alternative semantic account, arguing that lexical aspect (*Aktionsart*) motivates split intransitivity. I examine eight tests that determine the verb classes in the language.

3.2.1 Test 1: Intransitive subject. Escalante (1990) Jelinek (1998), and Jelinek and Escalante (2000, henceforth J&E) argued that Yaqui presents a split intransitive system: unergative verbs may appear in an impersonal passive –*wa* clause, while unaccusative verbs do not. The claim is that unergatives have an active agent subject and hence are compatible with the impersonal passive construction. Based on the fact that 'all involve an active experiencer subject' (J&E: 179), change of position, motions, internal change of emotions, and even verbs like *die*, *give birth* are grouped into the same unergative class. The first test explores the semantic role of the sole argument for M-intransitive verbs. In terms of RRG, the selection of actor or undergoer is based on the class the verb belongs to: activity verbs take an actor and state predicates take an undergoer. A state predicate taking an undergoer as the unique argument (S_U) is exemplified in (23).

(23) U   ili   uusi-Ø   ian   ko'okoe-Ø.
     the little child-NOM   now sick-PRES

'The child is sick now.'

Since achievement and accomplishment are derived from states, it is expected that they also take a participant which does not perform, initiate, control the event, but rather it is affected by it. In the examples below, the sole argument of the verb *beete* 'burn' in (24a) and *pejte* 'burst' in (25a) corresponds to the undergoer. Notice that, in the causative versions of these non-activity predicates ending in -*(t)a* in (24b) and (25b), the argument in question keeps its semantic role. In other words, the semantic roles of the arguments are maintained among the two clause types, non-causative and causative.

(24) a. U   kari-   beete-k   S$_U$= kari
         the house-NOM burn-PRFV
         'The house burned'

     b. Nepo   kari-ta   beeta-k   A= nepo U= kari
         1SG:NOM house-ACC   burn-PRFV
         'I burned the house'

(25) a. Pajko-po   kuete-m   pejte-Ø   S$_U$ = kuete
         Celebration-LOC   firework-PL   burst-PRES
         'The fireworks burst during the party'

     b. Pajko'ola-m   kuete-m   pejta-k   A= pascolas, U=kuete
         ritual dancer-PL   firework-PL   burst-PRFV
         'The pascolas (ritual's dancer) burst the fireworks.'

Activity verbs take an actor-type as the unique argument (S$_A$), a participant which performs, initiates and controls the event. In the clause in (26), the argument *Iban* functions as a S$_A$ in (a) as well as the actor of the causative version in (b). The object *pluma* 'pen' cannot appear as a unique argument (S$_A$) as shown in (c).

(26) a. Iban-Ø   Guayma-me-u   notte-k.   S$_A$ = Iban
         Ivan-NOM   Guaymas-PL-DIR   return-PRFV
         'Ivan returned to Guaymas.'

     b. Iban-Ø u-ka   pluma-ta   ne-u   notta-k.   A= Iban, U=pluma
         Iva-NOM the-ACC   pluma-ACC 1SG-DIR   return-PRFV
         'Ivan returned the pen to me.'

c.* U pluma-Ø   ne-u   notte-k.
    'The pen returned to me.'

J&C group together (internal) emotion predicates such as *gomte* 'scare', *lotte* 'get tired', *bwalgotte* 'exhaust', *potte* 'get indigestion, stretch out', *yeu tomte* 'give birth', among others, verbs entailing change of position such as *fall, enter, stand, sit, lie down*, as well as activity verbs such as *move, jump, run, arrive*, since 'all of them may take an animate participant and hence may trigger passivization'. Nonetheless, these verbs hardly represent a consistent and homogenous group, even in terms of animacy. If we understand *agentivity* as the volitional instigator of the action, examples in (27) will be problematic for J&E analysis, since the sole argument of these motion verbs is inanimate. Although some restrictions on animacy hold, they obey the "facts of the world" rather than the "facts of the language". Thus, agentivity seems not to be the fundamental semantic parameter for the intransitive split in Yaqui.

(27) a. Goyo-ta-t   ojbo-Ø   yeu weeye-Ø   yeka-po lula.
       Goyo-ACC-LOC blood-NOM out walk(sg)-PRES nose-LOC hole
       'Blood comes out of Goyo's nose.'

    b. U   batwe-Ø   pueblo-u bicha   bwite-Ø.
       the river-NOM town-DIR toward   run(sg)-PRES
       'The river runs toward the town.'

    c. Jita   betti-wa-me   teopo-po   yeu   siika.
       thing   burn-PASS-CLM church-LOC out   go(sg):PRFV
       'A fire occurred in the church.'

    d. U   sankoa-Ø   cora-u   kibake-k.
       the garbage-NOM corral-DIR enter(sg)-PRFV
       'The garbage entered the corral.'

In terms of macroroles, the unique argument of emotion predicates is the undergoer, whereas the unique argument of motion predicates is the actor. In my data, only a few of one-place predicates can be passivized and they often correspond to activity predicates

coding cultural or general knowledge events such as dancing, singing, crying in a ceremony. The following tests reveal some morpho-syntactic differences among emotional and motion predicates.

3.2.2 Test 2: V-*la* clause. The second test explores the inherent temporal duration of events over a period of time. Although the Yaqui suffix –*la* has been classified as an adjectival derivational marker (D&C; Estrada 2001), I consider it an aspectual suffix marking the completed stage of the event. Evidence comes from examples like those in (28), where –*la* is added to transitive verbs.

(28) a. Aurelia-Ø   wakabak-ta   pojta-k.
      Aurelia-NOM wakabaki-ACC boil-PRFV
      'Aurelia boiled the wakabaki.'

    b. Aurelia-Ø   wakabak-ta   pojta-la.
      Aurelia-NOM wakabaki-ACC boil-CMPL
      'Aurelia has boiled the wakabaki (sometime before, the soup is ready to eat).'

    c. Goyo-Ø   nim   wai   teenku-k.
      Goyo-NOM 1SG:GEN sister dream-PRFV
      'Goyo dreamed about my sister.'

    d. Goyo-Ø   nim   wai   jaikisia   teenku-la.
      Goyo-NOM 1SG:GEN sister several-times dream- CMPL
      'Goyo has dreamed about my sister several times (sometime before).'

The clauses in (28c-d) are crucial since –*la* occurs with an activity verb which, by definition, cannot derive an adjectival phrase. The aspectual difference between (c) and (d) is that the –*la* clause entails that the action has taken place several times in the past, while the perfective does not give any extra information beside the fact that *Goyo* dreamed about her, presumably, only once. The function of –*la* within intransitive verbs is very interesting since it shows two readings depending on the verb class. On the one hand, when -*la* is added to inherent temporally bounded events as in (29), it expresses a

continuative state clause, where the S_U argument has been changed or affected, and this change may be irreversible (permanent) or may continue.

(29) a. U   kari-Ø   betti-la.
         the   house-NOM   burn-CMPL
         'The house is burned (completely).'

    b. U-me   kuete-m   pejti-la.
        the-PL   firework-PL   burst-CMPL
        The fireworks have exploded (and are not useful anymore).'

When *–la* is added to verbs involving an inherent endpoint and change of state, it gives the interpretation of past events that are significant to the current state. The same continuative state reading is true for the intransitive emotion verbs in (30a-b), and the change of position verbs in (30c). All of these clauses refer to an obtained state after the event takes place, or a change of state that continues until the present.

(30) a. Maria-Ø   gomti-la.
         Maria-NOM   scare-CMPL
         'Maria is scared (she is trembling).'

    b. Maria-Ø   muuk-la.
        Maria-NOM   die(sg)-CMPL
        'Maria is dead.'

    c. Maria-Ø   kom   wet-la.
        Maria-NOM   down   fall-CMPL
        'Maria has fallen down (she is still on the floor).'

On the other hand, when *–la* is added to a temporally unbounded activity verb, it is interpreted as an *episodic* clause expressing a completed, delimited event which took place sometime in the past, but does not continue at the present, although it may continue in the near future. An episodic clause requires some sort of delimited (object-argument) or quantifier phrase expressing the 'completed' part of the event. For instance, *manmisi* in (31a) indicates how many times Peter has danced so far, leaving open the possibility

for more dancing. In (31b), it focuses on the temporally unbounded feature of *tekipanoa* 'work'; although *Peo* has already worked the field, he may work on it several times in the near future.

(31) a. Peo-Ø   manmi-si   yi'i-la.
    Pedro-NOM five-times   dance-CMPL
    'Pedro has danced five times.'

  b. Peo-Ø   wajpo-ta   tekipanoa-la.
    Pedro-NOM   field- ACC   work-CMPL
    'Pedro has worked the field.'

The fact that V-*la* clauses may co-occur with adverbs like *jaibu* 'already', *si'ime* 'completely' but not with unfinished adverbs like *abe* 'almost', corroborates the idea that –*la* expresses completed stages of the events.

(32) a. U   kari-Ø   jaibu   betti-la.
    the   house-NOM already burn-CMPL
    'The house is already burned.'

  b.* Maria-Ø   abe   gomti-la.
    Maria-NOM   almost   scare-CMPL
    'Maria is almost scared.'

The episodic reading is maintained for activity verbs that show a variable syntactic valence, as the activity *pomte* 'drink' in (33a), and its active accomplishment counterpart *pomta* in (33b). Note that the sole argument of both verbs must be of type S_A; if it is a type S_U as *tequila* in (33c), the clause is ungrammatical. The same episodic reading is interpreted for motion verbs in (33d).

(33) a. Peo-Ø   jaikisia   pomti-la.
    Pedro-NOM   several-times drink-CMPL
    'Pedro has drunk several times (he knows how this drink tastes).'

  b. Peo-Ø   serbesa-ta   pomta-la.
    Pedro-NOM   serbesa-ACC   drink-CMPL
    'Pedro has drunk beer.'

c. * U tekila-Ø   pomti-la.
   'The tequila has been drunk / the tequila is drunk.'

d. Maria-Ø   si osi weey-la.
    Maria-NOM   a lot   move(sg)-CMPL
    'Maria has walked a lot (so, she has taken a rest).'

Although most of the state verbs do not accept the occurrence of –*la*, some may take

it expressing an episodic reading. See the examples in (34). This suggests that the

semantic properties of the suffix –*la* are not necessarily tied to the feature [+static], since

not all stative verbs may take this suffix.

(34) a. U   ili   uusi-Ø   si osi ko'okoi-la.
         the little child-NOM very   sick-CMPL
         'The child has been very sick (but he recovered).'

   b.* Aurelia-Ø   waati-la.
       Aurelia-NOM   love:STA-CMPL
       'Aurelia has been loved (but now she is single, unloved).'

Another crucial difference between states and achievement/accomplishment verbs is

that the former cannot take any other TAM operators, while the latter can. The examples

in (35) illustrate the sequence –*tu-kan* 'copula-past imperfect' and –*tu-ne* 'copula-future'.

(35) a. U   kari-Ø   betti-la-tu-ne.
         the house-NOM   burn-CMPL-BE-EXPE
         'The house will be burned (completely).'

   b. U-me   kuete-m   pejti-la-tu-kan.
       the-PL cuete-PL burst-CMPL-BE-PASTC
       'The cuetes were exploded (completely).'

   c.* U ili uusi-Ø ko'okoi-la-tu-kan.
       'The child has been sick.'

   d. U   ili   uusi-Ø   ko'okoi-wet-la-tu-kan.
       the little child-NOM sick-fall-CPLM-BE-PASTC
       'The child got sick (lit. has fallen sick).'

The example in (35c) shows that pure completed states cannot be modified by any other TAM operators, unless an accomplishment verb, such as *ko'okoi-wetchia* 'fall-sick' is derived. Moreover, even when *–tune* expresses an event that has not yet taken place, *–la* still refers to an obtained state after the event takes place. Activity and active accomplishment verbs never take any tense-aspect operators.

(36) a.* Peo-Ø manmi-si yi'i-la-tu-kan.
         'Pedro was dancing five times.'

    b.* Peo-Ø jaikisia pomti-la-tu-kan.
         'Pedro was drinking several times'

The addition of the aspectual suffix *–la* allows us to explore both the static and the temporal duration of events. This test distinguishes, then, two intransitive classes: those verbs that allow a continuative state reading (inherent bounded and change of state), and those that allow an episodic reading (inherent unbounded and no change of state).

(37) The aspectual interpretation with *-la*

	Non-Causative verbs	**Causative verbs**
States	Rare, but episodic reading	Rare, but episodic reading
Achievements	Continuative state reading	Continuative state reading
Accomplishments	Continuative state reading	Continuative state reading
Activities	Episodic reading	Episodic reading
Active accomplishments	Episodic reading	Episodic reading

3.2.3 Test 3: The causative paraphrase. The third test explores if the transitive counterpart ending in *–ta* has roughly the same meaning of 'cause to V-intransitive' (Levy 1994, Levin & Rappaport 1995), by keeping both the same number and the same semantic relations between the arguments. By definition, this test is restricted to two-place predicates because it would be impossible to make a causative paraphrase with a single participant. In English, for instance, causative verbs can be paraphrased with a phrase such as 'cause', e.g. *the dog frightened the boy* can be paraphrased into *the dog caused the boy to be frightened*. All Yaqui causative verbs involving an inherent terminal

point and change of state pass this test. The causative accomplishment *jamta* 'break' in (38a) can be paraphrased by adding the causative suffix –*tua* as in *jamti-tua* 'make break' in (38b). Note that *u baso* 'the glass' keeps its undergoer statues in both the transitive and causative paraphrases.

(38) a. U   jeeka-Ø   baso-ta   jamta-k.
       the wind-NOM   glass-ACC   break-PRFV
       'The wind broke the glass.'

    b. U   jeeka-Ø   baso-ta   jamti-tua-k.
        the wind-NOM   glass-ACC   break-CAUSE-PRFV
        'The wind caused the glass to break.'

The causative paraphrase is also allowed for emotion (39) and change of position verbs (40). Once again, the causative paraphrase indicates that there is an external cause that provokes the change of state in the undergoer.

(39) a. U   waj-po   tekipanoa-wa-me Aurelia-ta   lotta-k.
       the field-LOC   work-PASS-CLM   Aurelia-ACC   tire-PRFV
       'The field work tired Aurelia.'

    b. U   waj-po   tekipanoa-wa-me   Aurelia-ta   lotti-tua-k.
        the field-LOC   work-PASS-CLM   Aurelia-ACC   get tire-CAUSE-PRFV
        'The field work made Aurelia tired.'

(40) a. U   yoeme-Ø baso-ta   watta-k.
       the man-NOM   baso-ACC   fall-PRFV
       'The man threw the glass.'

    b. U   yoeme-Ø   basp-ta   wechia-tua-k.
        the man-NOM   baso-ACC   fall- CAUSE-PRFV
        'The man caused the glass to fall.'

Neither two-place state verbs like *love* in (41) nor activity verbs like *gore* in (42) pass this test, since the semantic statues of the arguments are not maintained. Although obligated, the causee still behaves as an actor-type, the person who loves or gores.

(41) a. Goyo-Ø   Aurelia-ta   waata-Ø.
       Goyo-NOM Aurelia-ACC   love-PRES

'Goyo loves Aurelia.'

b.* Goyo-Ø Aurelia-ta waati-tua.
   'Goyo makes Aurelia miss/love.'

(42) a. U   toro-Ø   enchi   aakta-k.
         the bull-NOM 2SG:ACC gore-PRFV
         'The bull gored you.'

   b.* U toro-Ø enchi aakti-tua-k.
       'The bull made you gore.'

The causative alternation is not compatible either with those bounded activities taking

an object such as *drink* in (43). It means, taking an object-complement is not enough to

allow the causative paraphrase. Also, motion verbs like *carry on* (44) do not pass the test.

(43) a. Selmo-Ø   serbesa-ta   pomta-k.
         Anselmo-NOM serbesa-ACC   drink-PRFV
         'Anselmo drank the beer.'

   b.* Selmo-Ø serbesa-ta pomti-tua-k.
       'Anselmo made the beer drink.'

(44) a. U   yoeme-Ø   kuta-ta   weeya-n.
         the man-NOM   stick-ACC move-PASTC
         'The man was moving, carrying a stick.'

   b.* U yoeme-Ø kuta-ta weeye-tua-k.
       'The man made the stick move.'

To conclude, the causative paraphrase allows us to identify two verb classes: those in

which the transitive allows the causative alternations and those that disallow it. This test

also distinguishes between emotion or change of position verbs, and motion verbs.

3.2.4 Test 4: The Vi /Via result state phrase. The fourth test explores the inherently

lexical property of change of state after a causative event has taken place. Since the result

state phrase points out the obtained state and the endpoint of the event, its occurrence is

expected only with telic verbs such as accomplishment and achievement, which is true in

Yaqui. In this language, the result state clauses are marked by the verb suffixes V-*i* and V-*ia*. Even though both suffixes have been classified as participial or stative derived forms (D&C; Estrada 2001), I termed V*i*/V*ia* clauses as result state in order to avoid the Indo-European participial term. Accomplishment and achievement non-causative verbs take the suffixes -*i* or -*ia* to express that the event has come to an end and, consequently, there is a result state, as shown below. Although result state clauses may be translated into Spanish as adjectival phrases, e.g., *the house is burned*, they are interpreted as being derived from a causative event and therefore imply an external cause or force, e.g., *the house burned because somebody/something did it*.[8]

(45) a. U   kari-Ø   bett-i / bett-ia.
         the house-NOM   burn-STA
         'The house is/has been burned.'

     b. U-me   kuete-m   pejt-i / pejt-ia.
         the-PL cuete-PL   burst-STA
         'The fireworks are/have been burst.'

Emotion verbs (46) and change of position verbs (47) pass this test, corroborating their characteristic lexical property of an inherent endpoint and obtained state.

(46) a. Aurelia-Ø   gomt-i / *gomt-ia.
         Aurelia-NOM   scare-STA
         'Aurelia is/has been frightened.'

     b. U   chu'u-Ø   muuk-ia / *muuk-i.
         the dog-NOM   die(sg)-STA
         'The dog is/has been dead.'

(47) a. U   juya-Ø   weech-ia / *weech-i.
         the tree-NOM   fall(sg)-STA
         'The tree is/has fallen.'

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[8] The result state endings -*i* and -*ia* belong to the set of suffixes involving morpho-phonological changes on the stem, i.e. vowel raising when added to the intransitive ending in –*(t)e* as in [beete + i] > [beeti-i] > [beeti] 'be burned'. D&C argue that –*i* and –*ia* may also derive nouns, e.g. *tenkui* 'dream', *nooki* 'words', *ripti* 'blind person', *bwaani* 'weepy, *tasia* 'cough', *muukia* 'corpse', *chuktia* 'wound', *naamuukia* 'alcoholic person'. However this process does not seem to be very productive.

b. U sankoa-Ø kari-u kibak-ia / *kibak-i.
   the garbage-NOM house-DIR enter(sg)-STA
   'The garbage entered the house.'

As the examples above illustrate, although most non-activity, telic verbs take either V*i* or V*ia*, a few take just one of the two. Verbs that do not take the V*ia* resultant form are *bwalgotte* 'weary up', *gomte* 'scare' and *sipe* 'get cool'. Verbs that do not take the V*i* resultant form are all change of position verbs, *lotte* 'tire', *muuke/koko* 'kill(sg/pl)', *naamuuke* 'get drunk', *tuuke* 'go out', and *weecha/waate* 'fall (sg/pl)'. It seems that V*i* and V*ia* distribution depends on the inherent lexical aspect of these verbs: V*ia* seems to entail some sort of punctual change from one state to another, whereas V*i* apparently expresses a gradual change toward the endpoint. It may be the case that the first group corresponds to achievement, and the latter to accomplishment verbs. Nevertheless, the precise conditions for the distribution of –*i* and –*ia* remain to be investigated. The ending –i may be also added to certain causative verbs, as illustrated below.

(48) a. Aurelia-Ø wakabak-ta pojta-i.
        Aurelia-NOM wakabaki-ACC boil-STA
        'Aurelia has the wakabaki boiled / has boiled the wakabaki.'

     b. U teeko-Ø tekipanoareo-ta lotta-i.
        the employer-NOM worker-ACC tire-STA
        'The employer has the worker tired /has provoked the workers to get tired.'

     c. Anselmo-Ø wakes-im kora-u kibacha-i.
        Anselmo-NOM cow-PL coral-DIR enter-STA
        'Anselmo has entered the cow in the corral / has put the cows into the corral.'

State verbs in (49) do not allow a result state form, since they are inherently unbounded events and so do not imply a terminal point.

(49) a. * U ili uusi-Ø ko'oko-i.
          'The child is/has been sick.'

     b.* Aurelia-Ø waat-i.
         'Aurelia is/has been loved, missed.'

c.* Goyo-Ø   Aurelia-ta waata-i.
      'Goyo is/has loved Maria loved.'

The same is true for activity verbs as shown in (50) which, by definition, are [-telic].

(50) a.* U mansana-Ø   bwa'-i /bwa'-ia.
          'The apple is/has been eaten.'

   b.* U yoeme-Ø   bwit-i / bwit-ia.
       'The man has run.'

   c.* Iban-Ø   Guayma-me-u noit-i /noit-ia.
       'Ivan came from Guaymas (Lit. has gone to and got back from Guaymas).'

   d.* Iban-Ø u-ka tomi-ta aabo noita-i / noita-ia.
       'Ivan has got the money back (Lit. came back with the money).'

   e. * U   kuta-Ø   weey-i / weey-ia.
        'The stick is/has been moved, carried.'

In fact, this test crucially distinguishes between two types of activity verbs. On the one hand, there is a group that completely disallow the result state, e.g. *kinakte/kinakta* 'make faces at', *kitte/kitta* 'knead, mix', *omte/omta* 'get angry/hate', *pu'e/pu'a* 'pick up', *weeye/weeya* 'move, carry on', etc. Some examples are below.

(51) a.   Fredy-Ø   kinakte-k.
          Fredy-NOM   make faces-PRFV
          'Freddy made faces.'

   b.   Fredy-Ø   Flor-ta   kinakta-k.
        Fredy-NOM   Flor-ACC   make faces-PRFV
        'Freddy made faces at Flor.'

   c.* Flor-Ø   kinakt-i / kinat-ia.
       'Flor is/has been making faces.'

On the other hand, there is a group which may take the V*i* (but not V*ia*) result state form, within an clause taking an active accomplishment predicate, in which the sole participant functions as the thing that has been moved or changed as in (52). Note that the V*i* form is avoided within a S_A clause in (52d). Examples of this group are *notta/notte*

'return', *tubukta/tubukte* 'jump', *pomta/pomte* 'drink', *wiukta/wiukte* 'swallow', *yeewa/yeewe* 'play', among others.

(52) a. U   capitán-Ø   barko-ta   aabo notta-k.
      the capitan-NOM ship-ACC   here return-PRFV
      'The Capitan returned the ship here.'

    b. U   barko-Ø   aabo notte-k.
       the ship-NOM   here return-PRFV
       'The ship returned here.'

    c. U   barko-Ø   aabo nott-i / *nott-ia.
       the ship-NOM   here return-STA
       'The ship is/has been returned here (e.g. it did not pass the inspection).'

    d. * Joan-Ø   aabo nott-i / nott-ia.
        'Juan was/has been returned.'

One more example is shown below. The active accomplishment form *yeewa* 'play' takes an object-complement to delimit and bound the event, while the activity form *yeewe* does not take any object. The V*i* result form may be allowed when the object-complement is functioning as an intransitive subject as in (53b), but not when the subject is the actor as the ungrammatical clause in (53d) shows.

(53) a. Goyo-Ø   ili   uusi-m-mak   ye'ewe-k.
      Goyo-NOM   little child-PL-COM   play-PRFV
      'Goyo played with the children.'

    b. Goyo-Ø   pelota-m   ye'ewa-k.
       Goyo-NOM   ball-PL   play-PRFV
       'Goyo played (with) the ball.'

    c. Pelota-m   ye'ew-i / ? ye'ew-ia
       ball-PL   play-STA
       'The ball is/has been played (with).'

    d.* Goyo-Ø ye'ew-i.
       'Goyo is/has been played.'

Although few active accomplishments pass the result state test, they completely avoid the occurrence of *-tukan* and *–tune* TAM sequences. In contrast, accomplishment and achievement verbs are perfectly compatible with them, as shown below.

(54) a. U   kari-Ø   betti-tu-ne.
          the   house-NOM   burn-BE-EXPE
          'The house will be/have been burned (completely).'

     b. U-me   kuete-m   pejti-tu-kan.
         the-PL   cuete-PL   burst-BE-PASTC
         The fireworks were/have been exploded (completely).'

     c.* Peo-Ø   yi'i-tu-kan.
         'Pedro was/has been dancing.'

     d. * Peo-Ø   pomti-tu-kan.
          'Pedro was/has been drinking.'

To conclude, the result state test distinguishes two types of non-causative verbs: non-activity verbs taking either V*i*/V*ia* clauses, and activity verbs avoiding them. There is also a group of inherently temporally unbounded activity verbs which allow the occurrence of V*i* forms. The first two differ in terms of the telicity feature: telic events are compatible with the result state test, whereas atelic events are incompatible; the third one consists of a sub-class of activity verbs: active accomplishment telic verbs in (53). The results are summarized in (55).

(55) Summary of the result state form test

	Non-Causative verbs	Causative verbs
States	No	No
Achievements	Yes	Yes
Accomplishments	Yes	Yes
Activities	No	No
Active accomplishments	Only V*i*	No

The result state test focuses on the inherent endpoint feature which involves a change of state, a property that is absent in atelic verbs. This suggests that the suffixes V*i*/V*ia* are

a morphological device to derive the relevant state for telic verbs. Accordingly, it is possible to postulate that the result state is derived by the lexical rule presented in (56).

(56) a. Achievement/accomplishment + *i* ~ ia $\longrightarrow$ result state

     b. ING/BECOME **pred'** (x) $\longrightarrow$ **pred'** (x)

3.2.5 Test 5: The resultative clause –*taka ta'awak*. The fifth test also explores the inherent temporal end point of events denoted by verbs through their possible co-occurrence within a resultative clause. A resultative clause denotes the state achieved by the referent of the subject argument predicated as a result of the action denoted by the verb (Levin & Rappaport-Hovav 1995:34). In Yaqui, the resultative clause is expressed by adding –*taka* 'being' to the result state form followed by the verb *ta'awa* 'remain/end up'.[9] This test is compatible only with non-causative verbs. The examples in (57) illustrate the co-occurrence of accomplishment and achievement verbs followed by –*taka ta'awa*.

(57) a. U   kari-Ø   bet-ti-taka   ta'awa-k.
        the house-NOM burn-STA-being end up-PRFV
        'The house ended up burned.'

     b. U-me   kuete-m   pej-ti-taka   ta'awa-k.
        the-PL   cuete-PL   burst-STA-being end up-PRFV
        'The fireworks ended up exploded.'

Emotion (58a) and change of position verbs (58b) also pass this test, confirming their obtained change of state property.

(58) a. Maria-Ø   lot-ti-taka   ta'awa-k.
        Maria-NOM tire-STA-being remain-PRFV
        'Maria remained tired.'

     b. U   juya-Ø   bo'o-po   lu'ula   wetach-ia-taka   ta'awa-k.
        the tree-NOM road-LOC along fall(sg)-STA-being remain- PRFV
        'The tree remained fallen along the road.'

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[9] Estrada (2001) glossed the suffix –*taka* as inchoative, whereas D&C (p. 22) gloss it as a participializer meaning 'being in a particular (usually the last stage of) state of affairs'.

Neither states (59a), activities (59b) nor motion predicates (59c) are compatible with this test. More interesting is the fact that active accomplishments do not pass the resultant clause test, as the example in (59d) shows, even though they have a result state V*i* form.

(59) a. * Anselmo-Ø   waa-ti-taka ta'awa-k.
   'Anselmo ended up being loved.'

 b.* Empo   aak-ti-taka ta'awa-k.
   'You ended up being gored.'

 c.* U juya-Ø   weey-i-taka   ta'awa-k.
   'The tree remained moved, carried'

 d.* U barko-Ø   aabo not-ti-taka   ta'awa-k.
   'The ship remained returned.'

Instead, some state, activity, and active accomplishment verbs seem to allow the construction of some sort of simultaneous same-subject constructions expressed by the suffix –*ka(i)* on the activity predicate plus *ta'awa* as illustrated in (60).

(60) a. Goyo-Ø alle'a-ka ta'awa-k.
   Goyo-NOM happy-CLM end up-PRFV
   'Goyo ended up being happy.'

 b. Nim   achai ansu-k bwaana-kai.
   2SG:GEN father end-PRFV cry-CLM
   'My father ended up crying.'

 c. Nim   achai om-te-ka ta'awa-k.
   2SG:GEN father angry-CLM remain-PRFV
   'My father remained being upset/angry.'

To conclude, the resultative clause test confirms the non-inherent telic feature of active accomplishments: even when they may express some sort of change of state, the change does not hold permanently. Only inherently telic verbs involving an endpoint and temporally extended change of state pass the test. This test also confirms that emotion and change of position verbs form a different group from motion verbs.

3.2.6 Test 6: V *into jiba* V, the continuous event. The sixth test differentiates dynamic events consisting of internally complex stages from static events consisting of internally uninterrupted and inseparable phases. As (61a-b) show, accomplishments and achievements do not pass this test since they imply an uninterrupted change of state. Emotion and change of position verbs are also incompatible, as seen in (61c-d).

(61) a. * U kari-Ø bette-k into jiba bette-Ø.
       'The house burned and keeps burning.'

    b.* U-me kuete-m pejte-k into jiba pejte-Ø.
       'The fireworks exploded and keep exploding.'

    c.* Maria-Ø gomte-k into jiba gomte-Ø.
       'Maria gets scared and keeps getting scared (ct: when watching a scary movie).'

    d.* Maria-Ø weeche-k into jiba weeche-Ø.
       'Maria has fallen down and keeps falling down (=she is still on the floor).'

As seen in (62a), states are incompatible with this test since, by definition, they express uninterrupted and inseparable phases of one single event. In contrast, activity and active accomplishment verbs pass the continuous event test as shown in (62b-c). The same is true for motion verbs in (62d-e).

(62) a. * Aurelia-Ø Goyo-ta-u waate-k into jiba waate-Ø.
       'Aurelia missed and keeps missing Goyo'

    b. U toro-Ø aakte-Ø into jiba aakte-Ø.
       the bull-NOM gore-PRES and always gore-PRES
       'The bull gores and keeps goring.'

    c. U barko-Ø aabo notte-n into jiba notte-n.
       the ship-NOM here return-PASTC and always return-PASTC
       'The ship has returned here, and keeps returning (the other port was closed).'

    d. U teeko-Ø omte-k into jiba omte-Ø.
       the employer-NOM angry-PASTC and always angry-PRES
       'The employer got angry and keeps getting angry (he is bad-tempered).'

e. U   teeko-Ø   weeye-k   into jiba   weeye-Ø.
   the employer-NOM move(sg)-PRFV and always move(sg)-PRES
   'The employer walks, and keeps walking.'

The continuous event test permits, then, the division between dynamic events

consisting of complex stages, i.e. activity and active accomplishments, from non-

interrupted and inseparable phases of the same event such as state, accomplishments and

achievements. In terms of lexical aspect, the first group is defined by the features [-static,

+dynamic], whereas the second group is defined by the features [-static, -dynamic].

(63) Summary of the result state form test

	Non-Causative verbs	Causative verbs
States	No	No
Achievements	No	No
Accomplishments	No	No
Activities	Yes	Yes
Active accomplishments	Yes	Yes

3.2.7 Test 7: *laulauti* "slowly"-test. This test is designed to explore the compatibility

with the adverb *laulauti* 'slowly' in order to observe the durative feature of the verbs. The

adverb *laulauti* can occur with verbs involving a durative [-punctual] event which holds

for an extended period of time. For instance, *laulauti* is compatible with activity verbs

like *walk, run, work*, as well as with active accomplishment verbs like *return* or *drink*.

(64) a. Goyo-Ø   laulauti bwante-k
        Goyo-NOM   slowly   run(sg)-PRFV
        'Goyo ran slowly, little by little (jogging)'

     b. Anselmo-Ø   laulauti   serbesa-ta   pomta-k
        Anselmo-NOM   slowly   beer-ACC   drink-PRFV
        'Anselmo drank the beer slowly'

Additionally, *laulauti* may appear with accomplishment verbs indicating that the

process took place over an extended period of time. Causative verbs are also compatible

with this test, as observed in the causative version of *muuke* 'died' in (65d).

(65) a. U kari-Ø   laulauti beete-k
       the house-NOM slowly   burn-PRFV
       'The house burned slowly'

    b. U   o'ou-Ø   laulauti bwalgotte-ka-su   ta'amu-k
       the man-NOM slowly   exhaust-PASTC-FINISH faint-PRFV
       'The man got exhausted little by little, (and suddenly) he lost consciousness'

    c. U   maso-Ø   laulauti muuku-k
       the deer-NOM slowly   die(sg)-PRFV
       'The deer died slowly'

    d. U yoeme-Ø u-ka   maso-ta   laulauti me'a-k
       the man-NOM the-ACC deer-ACC slowly   kill(sg)-PRFV
       'The man killed the deer slowly'

Some change of position verbs such as *wechia/waate* 'fall (sg,pl)' and *kibake/kiimu*

'enter (sg, pl)' seem odd when taking *laulauti,* while the appearance of this adverb with

sit, stand up and *lie down* sounds better. This suggests that verbs like *fall* and *enter* may

correspond to achievements, processes occurring within a very short period of time.

(66) a. ? Goyo-Ø   laulauti kom   wechia-k.
         Goyo-NOM slowly   down fall(sg)-PRFV
         'Goyo fell down slowly.'

    b. ?U   kaba'i   laulauti kora-u   kibake-k.
       the   horse:NOM slowly   coral-DIR enter(sg)-PRFV
       'The horse entered the corral slowly (short and slow steps).'

    c. U kaba'i-Ø   laulauti bo'ote-k.
       the horse-NOM slowly   lie down(sg)-PRFV
       'The horse lay down slowly.'

Laulauti is incompatible with achievement verbs such as *burst* and *crash*, since this

verb class cannot involve an extended duration event, but only instantaneous events.

(67) a. *U bomba-Ø   laulauti pejte-k.
        'The bomb burst slowly.'

    b. *U baso-Ø   laulauti jamte-k.
       'The glass shattered slowly.'

The incompatibility of *laulauti* with achievements corroborates that these verb classes express change of state taking place instantaneously or within a very short period of time, a property that defines [+punctual] events, while activity, active accomplishment and accomplishment verbs are compatible with *laulauti* since they encode [-punctual] events.

3.2.8 Yaqui verb classes. Table 3.3 summarizes the results of the diagnostic tests, which identify the *Aktionsart* classes in terms of the lexical decomposition system. According to these results, Yaqui effectively shows two types of intransitive verbs. Rather than the agentivity parameter proposed by Jelinek and Escalante (2000), the diagnostic tests developed here suggest that the lexical aspectual properties are the fundamental parameter to determine verb classes in this language.

Briefly, the first group of intransitive verbs, the S_U-class, corresponds to telic events, accomplishments and achievements, involving inherently temporally bounded events, endpoint and obtained state, as a consequence of an external cause or force. This class also groups emotion verbs and change of position verbs. The second group, the S_A-class, consists of atelic events, activities and active accomplishments, expressing inherently temporally unbounded events, without endpoint and obtained state. When activities are used as telic, they share certain properties with accomplishment and achievement verbs. More interesting is the fact that these tests distinguish between (internal) emotion and change of state verbs as belonging to the S_U-class, and motion verbs as belonging to the S_A-class, which were classified within the same group of verbs (unergatives) by Jelinek and Escalante.

Table 3.3 Diagnostic test for verb classes in Yaqui

	Test-1 S_A / S_U	Test-2 V-*la*	Test-3 Causative paraphrase	Test-4 V*i*-V*ia*	Test-5 -*taka* *ta'awak*	Test-6 *V into jiba V*	Test-7 *laulauti*
State	S_U	Episodic	No	No	No	No	Rare
Achievement	S_U	Continuative	No	Yes	Yes	No	No
Accomplishment	S_U	Continuative	No	Yes	Yes	No	Yes
Activity	S_A	Episodic	No	No	No	Yes	Yes
Active Accomplishment	S_A	Episodic	No	Rare, Vi	No	Yes	Yes
Causative state	Irrel.	Episodic	No	No	No	No	Rare
Causative Achievement	Irrel.	Continuative	Yes	Yes	No	No	No
Causative Accomplishment	Irrel.	Continuative	Yes	Yes	No	No	Yes
Causative Activity	Irrel.	Episodic	No	No	No	Yes	Yes
Causative active Accomplishment	Irrel.	Episodic	No	No	No	Yes	Yes

(irrel) on Test 1 indicates that the participant acting as the subject of a causative verb will be always an actor type.

3.3. Number suppletion as a semantic phenomenon

Although most verbs do not encode number in the Uto-Aztecan family, suppletion has traditionally being considered as an instance of number agreement. The general assumption proposed by Langacker (1977) and adopted by all subsequent studies is that in an intransitive clause, stems alternate according to the number of the subject, whereas in a transitive clause, stems alternate according to the number of the object. According to this pattern, it has been said that suppletion exhibits a 'proper and true' ergative relation to argument structure (Hale et al 1991: 262). However, when analyzing the suppletive processes in detail, the general assumption leads us to some incorrect generalizations since (i) the 'ergative' pattern in a transitive clause is not always present and (ii) a plural stem is not limited to the enumeration of participants but it can also express several instance of an event (Guerrero 2003).

There are a dozen Yaqui singular-plural suppletive forms confined to a set of verbs with basic meanings including *go, run, walk*; intransitive motion verbs alternate

according to the number of the intransitive subject. There are some verbs coding change
of position or state distinguishing number of the subject, e.g. *fall, sit, lie, stand* and *die*,
which have a morphological transitive pair which agrees with the number of the object.

(68) Number marking determined by the intransitive subject and transitive object

	Singular		Plural	
	Intransitive	**Transitive**	**Intransitive**	**Transitive**
Die, kill	muuke	me'a	koko	sua
Fall, drop	weeche	watta	watte	watta
Enter, bring into	kibake	kibacha	kiimu	kiima
Sit, put	yejte	yecha	jo'ote	joa
Stand up, put	kikte	kecha	japte	ja'abwa
Lay down, put	bo'ote	teeka	to'ote	to'a

The singular-plural distinction for an intransitive-transitive pair is shown below.
While *muuku* in (69a) reflects a singular entity dying, *koko* in (69b) refers to multiple
deaths; for the transitive version, *me'a* in (69c) reflects that a single entity has been killed
and *sua* in (69d) indicates the death of multiple participants. Agreement with the
transitive subject is avoided.

(69) a.   U-Ø   maso-Ø   *muuku*-k.
           the-NOM   deer-NOM   die:SG-PRFV
           'The deer died.'

     b.   U-me   maaso-m   *koko*-k.
           the-PL   deer-PL   die:PL-PRFV
           'The deer died.'

     c.   U-Ø   o'ou-Ø   maso-ta   *me'a*-k.
           the-NOM   man-NOM   deer-ACC   kill:SG-PRFV
           'The man killed a deer.'

     d.   U-Ø   o'ou-Ø   maso-m   *sua*-k.
           the-NOM   man-NOM   deer-PL   kill:PL-PRFV
           'The man killed the deer.'

     e. * U-me o'ou-im   maso-ta   *sua*-k.
           'The men killed the deer.'

In a passive construction, the transitive object serves as the passive subject, while the original subject is always omitted. Note that in the passive version, the stem alternates according to the number of the passive subject.

(70) a.　U-Ø　　　maso-Ø　　*me'a*-wa-k.
　　　　the-NOM　deer-NOM　kill:SG-PASS-PRFV
　　　　'The deer was killed.'

　　b.　U-me　maso-m　*sua*-wa-k.
　　　　the-PL　deer-PL　kill:PL-PRFV
　　　　'The deer(s) were killed.'

This object agreement is maintained in derived causative verbs. When the causative suffix *–tua* is added to an intransitive verb showing suppletion, the derived complex predicate agrees with the accusative cause (74a), never with the syntactic (logical) subject (74b). The fact that it is the number of the accusative argument that determines the suppletive form is not an accident, since morphological causative and lexical transitive triggering suppletion are semantically related and both agree with the participant undergoing the change.

(71) a.　U-Ø　　　o'ou-Ø　　maso-m　　*koko*-tua-k.
　　　　the-NOM　man-NOM　deer-PL　die:PL-CAUSE-PRFV
　　　　'The man caused the deer(s) to die.'

　　b.　* U-me o'ou-im　maso-ta　*koko*-tua-k.
　　　　'The men caused the deer to die.'

　　c.　U-me　　maso-m　　*koko*-tua-wa-k.
　　　　the-PL　deer-PL　　die:PL-CAUSE-PASS-PRFV
　　　　'The deer were caused to die.'

Mithun (1988: 214) claimed that for most North American indigenous languages, stem alternation is an extremely frequent device for encoding the number of intransitive subjects and transitive objects, and she explained this pattern by saying that the primary function of suppletion in these languages is not to enumerate entities, but to quantify the

effect of actions, states, and events; see also the cross-linguistic studies of number marking as multiple instances of an event in Frajzyngier (1985), Durie (1986), Yu (1999). However, this ergative (or absolutive) verb-agreement relation does not always hold in Yaqui. Activity verbs such as *bring, pick up, pull,* and *push* are expressed by highly lexicalized compound verbs, where V2 encodes a directional or manner adverbial relation. Regardless of the number of the transitive object, verbs like *nuk-siime* 'pick up', *wik-siime* 'pull', *yu'uu-siime* 'push', *nu'u-siime* 'bring', reflect the number of the subject. The clause in (72a) *Mary picked up the glass*, literally *moved* and *took it*, shows the singular stem *siika*; there is no way to know if the agreement is with the subject or the object since both are singular. In (72b), the subject is singular and the object is plural and, surprisingly, the stem is singular. In (72c), the subject is plural and the object singular and the stem agrees with the subject. Agreement with the object is completely avoided.

(72) a.   Maria-Ø   baso-ta   nuk-*siika*   .
             Maria-NOM   glass-ACC take-go:SG:PRFV
             'Maria picked up the glass (=moved and took it).'

      b.   Maria-Ø   baso-m   nuk-*siika*.
             Maria-NOM   glass-PL   take-go:SG:PRFV
             'Maria picked up the glasses.'

      c.   U-me   jaamuchi-m   baso-ta   nuk-*saja*-k.
             the-PL woman-PL   glass-ACC take-go:PL-PRFV
             'The women picked up the glass.'

      d. * U-me jaamuchi-m baso-ta nuk-*siika*.
             'The women picked up the glass.'

Interestingly, the passive version of compound motion verbs does not behave the same way as other transitive constructions: regardless of the number of the object functioning as the passive subject, the suppletive portion of the compound is always plural. Rather than a

passive, clauses like those in (73) express an impersonal construction, implying an indefinite plural subject.

(73) a.   U-Ø   baso-Ø   nuk-*saka*-wa-k.
           the-NOM glass-NOM   take-go:PL-PASS-PRFV
           '(Some people) picked up the glass.'

   a′. * U   baso-Ø nuk-*siime*-wa-k.
          'The glass was picked up.'

One cannot talk about number marking as a syntactic rule in (73) for the simple reason that there is nothing in the clause for the motion verb to agree with as a plural entity. Neither can one talk about suppletion in terms of an ergative relationship based on the argument structure of the predicate, since it is the transitive subject that triggers the number marked on motion stems. Nonetheless, this phenomenon is well explained in terms of *syntactic valency* and *semantic valency*. As proposed by RRG, these two notions need not coincide such that having two arguments in the syntax does not guarantee two arguments in the semantics. In terms of semantic arguments, actor and undergoer, there are three possibilities. For verbs taking 0 or 2, the identity of the macroroles is unambiguous, but for verbs taking 1, it can be either actor or undergoer. By definition, if the verb has an activity predicate in its LS, the single macrorole is an actor; otherwise it is an undergoer.

Accordingly, one place activity predicates such as *run, walk,* or *go* all take an actor as the single argument. One place accomplishment predicates such as *die, fall, enter,* or *sit,* all take an undergoer. When deriving the causative version of accomplishment predicates, a new semantic argument is added to the LS, the actor, resulting in a semantically M-transitive predicate. According to the lexical decomposition system, the argument structure and the semantic representation of a basic predicate do not need to change when

adding the expression of causality. It means that the subject of *die* and the object of *kill* are the same argument semantically: *die* is '*y* becomes dead' and *kill* is '*x* causes [*y* become dead]' in the lexical representation in (74). This semantic representation makes perfect sense in Yaqui since stems reflecting the number of the object correspond, precisely, to the causative versions of accomplishment predicates, meaning that they reflect the number of the undergoer, the unique argument of the state predicate, regardless of whether or not the predicate is causative.

(74) a. *muuku* 'die (sg)'   BECOME **dead´** (y_U)
     b. *me'a*   'kill (sg)'   [**do´** ($x_{,A}$ Ø) CAUSE [BECOME **dead´** (y_U)]

Since number suppletion is a semantic matter, the facts regarding compound stems discussed above are to be expected. Regardless of how many syntactic arguments they have, the majority of activity verbs take no more than one macrorole. This means that compound verbs meaning *pick up, push, bring,* and *carry on* take only one macrorole. Regardless of the syntactic valency of the basic predicate, the motion stem of these compound activity predicates reflects the number of the actor. In other words, for the purpose of number marking, only the verb of motion matters. As in many other languages, the second member of activity predicates has unique properties among all of the argument types.[10] In Yaqui, the object-type argument of compound activity predicates cannot serve as the subject of a passive clause, since compound predicates marked by –*wa* in (73) do not express a passive, but an indefinite plural impersonal clause. The

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[10] Interestingly, Hale et al. (1991:263) claimed that there is 'one single exception' for the ergative pattern in Hopi: the two place predicate *tuumoyta/noonova* 'eat (sg/pl)' for which suppletion correlates with the number of the subject (actor), not the object (undergoer). This 'imperfect' pair corroborates our semantic rather than syntactic analysis. That is, beside the fact that these verb forms take two syntactic arguments, the singular or plural form is not determined by the number of the 'object', but the number of the actor participant.

important point here is that compound verbs involving a motion stem take one single macrorole, the actor, such that Yaqui motion stems agree with the actor.

3.4 Summary

This chapter first introduced the relevant aspects of Role and Reference Grammar, particularly the issues related to the syntactic and semantic representation of a sentence, as well as the linking algorithm that interfaces these representations. It also developed diagnostic tests for determining the lexical properties of verb classes in Yaqui. The current study demonstrated that *telicity*, understood as a complex feature indicating the inherent endpoint, the result of a previous causative event, and the extended change of state, is the relevant factor distinguishing the two types of Yaqui intransitive verbs. This analysis corroborated the work by Van Valin (1990) which suggests that either lexical aspect or agentivity is the crucial parameter to distinguish split intransitive systems cross-linguistically. The last section has provided evidence that the so-called verb agreement in Yaqui is not a grammatical but a semantic phenomenon. Regardless of the number of syntactic arguments, activity predicates reflect the number of the actor and accomplishment predicates encode the number of the undergoer; this is also true for the causative alternation of accomplishment predicates. The advantages of this analysis are, first, that it does not posit a mixed system, i.e., an accusative case marking and an ergative suppletion pattern; second, there are no exceptions for number marking in terms of macroroles; and third, it is consistent with the fact that suppletion applies only to certain lexical predicates. The next chapter analyzes the syntactic-semantic interface in simple clauses.