COMPLEMENT-TAKING PREDICATES IN YAQUI

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ABSTRACT. It is well known that there are systematic correlations between the semantic structure of complement-taking predicates and the morpho-syntax of their complements (Silverstein 1976; Givón 1980; Haiman 1985). This function-form iconicity is neatly captured by Van Valin and LaPolla's Interclausal Relations Hierarchy (1997). This hierarchy predicts that the closer the semantic relationship between the two events is, the stronger will be the syntactic link joining them. The complement-taking predicates in Yaqui present interesting challenges to that iconicity principle. First, the tighter syntactic construction (i.e., the morphological type), that is assumed to express closer semantic relations at the top end of the hierarchy has been extended down to express looser semantic notions. Second, at the middle portion of the scale, most complement-taking predicates show alternative coding, one grammatical construction being syntactically tighter then the others. Given these paradoxical data, I show that the Yaqui-specific relations between event integration and predicate-complement constructions are compatible but not identical to the cross-linguistic predictions of the Interclausal Relations Hierarchy.

1. Introduction. As originally proposed by Silverstein (1976), Haiman (1985) and Givón (1980), there is an iconic correlation between the syntactic and semantic representations of complex sentences. Among the predictions that this correlation makes is that the two representations can be organized together in a scale of clause union, where the stronger the semantic bond between two events, the more integrated will be the two propositions into a single clause. This iconic principle has had great theoretical impact on the research of English complex constructions, e.g., Bolinger (1968, 1972), Kiparsky and Kiparski (1970), Karttunen (1971), Ross (1973), Hopper (1975), Kirsner and Thompson (1976), Frajzyngier and Jasperson (1991), as well as of the typologically oriented studies, e.g., Foley and Van Valin (1984), Dixon (1991, 1995), Noonan (1985), Ransom (1986), Wierzbicka (1988), Dik and Hengeveld (1991), Horie (1990, 1993, 2000), Van Valin and Wilkins (1993). This iconic correlation can be neatly captured by Van Valin & LaPolla's Interclausal Relations Hierarchy provided in Figure 1, within the framework of Role and Reference Grammar (Van Valin 1993, 2004; Van Valin and LaPolla 1997). In addition to the syntactic and semantic continuum, this framework also assumes an implicational hierarchy linking the two representations.

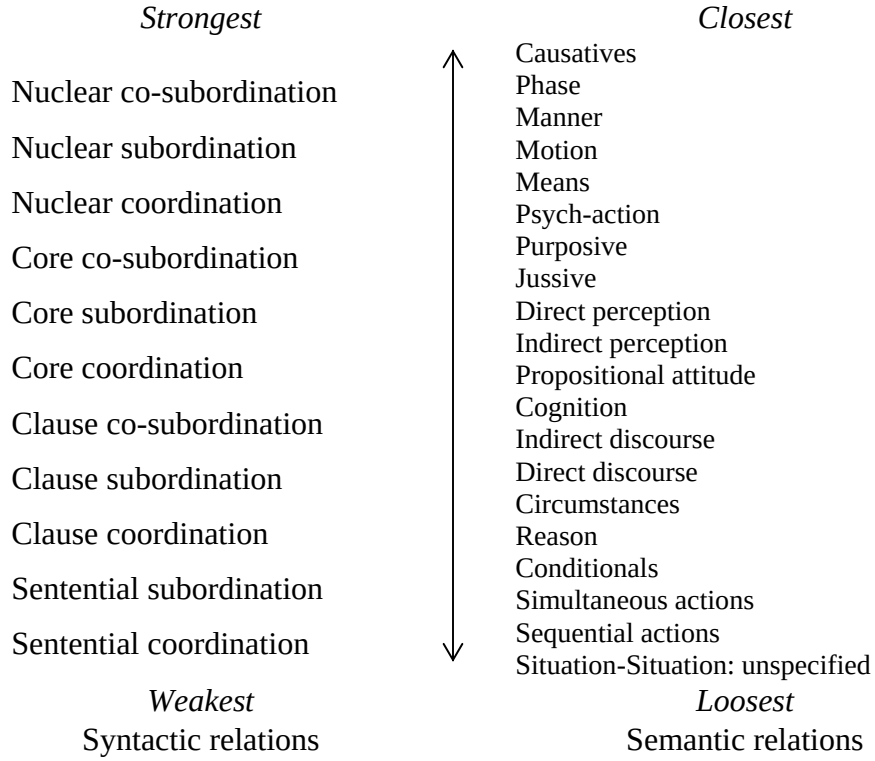

Figure 1: Interclausal Relation Hierarchy (VV&LP 1997; VV 2004).

The central issue of this study is to explore the morpho-syntactic realization of complement-taking predicates in Yaqui,[1] a Uto-Aztecan language spoken in Mexico, and to investigate to what extent the complement types available with a given verb can be predicted from the semantics of such a verb. 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. The organization of this talk is as follows. Section 2 lays out the grammatical construction types available in the language. Following the principles of Role and Reference Grammar, section 3 establishes the syntactic relation among the matrix predicate and its complement in terms of juncture-nexus types. Section 4 inquires into the iconic correlation

[1] 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). This paper is a short version of my dissertation on complex sentences, and the data comes from my own fieldwork based on the Sonora dialect. Many thanks to Robert D. Van Valin, Jr. for his invaluable comments and directions on the analysis. Any errors are mine.

between these abstract linkage types and the semantics of the matrix predicate. Section 5 summarizes this paper.

2. Complement types in Yaqui. Yaqui is a synthetic/agglutinant type of language with a nominative-accusative case system (Lindenfeld 1973; Escalante 1990; Dedrick and Casad 1999). As illustrated in (1a), the nominative is unmarked and the accusative is marked by the suffix *–ta*. There is no dative case but postpositions are used to mark 'indirect' objects as shown in (1b).[2] Passive voice distinguishes between object arguments. When the passive suffix *–wa* is added to a verb taking an accusative NP, the agent must be omitted, and the theme functions as the passive-PSA and hence is marked nominative; this is illustrated in (1a´). When the passive is added to a verb taking a NP marked by a postposition, the postpositional NP must remain without change and the clause is understood as impersonal in (1b´). The clause in (1c) shows that accusative and plural marking on nouns are mutually exclusive.

(1) a. Empo Peo-ta bicha-k.
2SG:NOM Pedro-ACC see-PRFV
'You saw Pedro.'

a´. Peo-Ø bit-wa-k.
Peo-NOM see-PASS-PRFV
'Pedro was seen.'

b. U o'ou-Ø jamut-ta-u nooka-k.
the man-NOM woman-ACC-DIR talk-PRFV
'The man talked to the woman.'

b´. Jamut-ta-u nooka-wa-k.
woman-ACC-DIR talk-PASS-PRFV
'(Someone) talked to the woman.'

c. U goi-Ø u-me chu'u-im ke'e-kan.
the coyote-NOM the-PL dog-PL bite-PASTC
'The coyote was biting the dogs.'

In the discussion of complement constructions, I will use the following terms: *Privileged syntactic argument* [PSA] as the traditional subject; *direct* and *oblique core arguments* naming direct and indirect objects; the NUCLEUS which consists of the predicate, the CORE, which

[2] Abbreviations: ACC=Accusative, CLM=Complementizer, DIR=Directional, EXPE=Expected, GEN=Genitive, LOC= Locative, NEG=Negation, NMZ=Nominalizer, NOM=Nominative, PASS=Passive, PASTC=Past continuative, PoCS = post-core slot; PRFV= Perfective, PL=Plural, PRES=Present, PSA=Privileged Syntactic Argument, RDP=right-detached position; SG= Singular.

contains the nucleus and the core arguments; the PERIPHERY, which contains the adjuncts, and the CLAUSE which contains core and peripheral arguments; Tense-Aspect-Mood markers are termed operators. Regarding the semantics, I will refer to the actor as the most agent-like argument, and the undergoer as the most patient-like. Accordingly, accusative NPs in Yaqui are direct core arguments, reason why they may function as a passive-PSA; postpositional NPs are oblique core arguments, and they cannot serve to this function. Only direct core arguments can be assigned macroroles; oblique core arguments are non-macroroles.

Yaqui has three complement types: nominalized, syntactic-like, and morphological complements. Some predicates only take one type, some can take two, and some can take three. The first type is a nominalized complement marked by the complementizer *–m*, followed by the accusative suffix, as illustrated in (2). Here, (i) the PSA of the matrix predicate and the PSA 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. This complement is both a semantic and syntactic argument of the matrix predicate. When the passive suffix *–wa* is added to matrix predicate *jikka* 'hear' in (2b), the actor *Aurelia* is omitted and the whole complement keeps its status of a non-PSA direct core argument (i.e., the accusative marker is obligatory), resulting in an impersonal construction. Since the linked verb cannot be marked by any operator except the perfective, the complement is not a clause, but a core unit.

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

b. [enchi laaben-ta pona-ka-m-ta] jikka-wa-k.
2SG:ACC violin-ACC play-PRFV-NMZ-ACC hear-PASS-PRFV
'(Someone) heard that you play the violin.'

There are two sub-types of syntactic-like complements. In the first one, the most common type, the linked verb overtly expresses its PSA, is fully marked for operators, and its position with respect to the main clause is variable. In the second one, the linked verb must omit its PSA, does not take any operator, and its position is relatively fixed. The first sub-type is illustrated in (3). 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 PSA of the matrix predicate and the PSA

of the linked verb are non-coreferential as in (3a), the embedded-PSA is marked accusative; when they are coreferential as in (3b), the embedded-PSA may be marked by genitive pronouns.

(3) a. Nepo si majae-n [ka enchi loteria-ta yo'o-ne-po].
1SG:NOM a lot be afraid-PASTC NEG 2SG:ACC lottery-ACC win-EXPE-CLM
'I was afraid that you would not win the lottery.'

b. Nepo si majae-n [ka nim loteria-ta yo'o-ne-po].
1SG:NOM a lot be afraid-PASTC NEG 1SG:GEN lottery-ACC win-EXPE-CLM
'I was afraid I would not win the lottery.'

The position of the complement with respect to the main clause is crucial to determine both, whether the linkage is symmetrical or not, and whether the complement functions as a syntactic core argument or not. On the one hand, it is well know that the so-called complementation is a marked construction since it derives an asymmetrical linkage, i.e., the embedding of a full clause as a core argument of a predicate. Languages have means of resolving this asymmetry, and one of these is extraposition. The syntactic-like complement marked by *–'u* or *–po* may appear in three positions: embedded, in the post-core slot, and in the right-detached position. In (4a), the complement appears embedded in the main clause; since there is clausal unit linked to a core, the linkage is asymmetrical. Actually, embedded complements are significantly less frequent than extraposed complements, meaning that the language shows a strong tendency to avoid asymmetrical linkage by placing the complement outside the core. In doing that, some predicates places the complement immediately after the main verb, without a pause between the two, as in (3). This position is termed the post-core slot, i.e., there is no a pause between the matrix verb and the complement, and the matrix verb does not take a resumptive pronoun. Other predicates places a pause between the main clause and its complement as (4b), in which case the matrix predicate obligatorily takes a resumptive pronoun. This is termed the right-detached position.

(4) 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.'

The position of the complement also provides some information regarding whether or not the complement serves as a syntactic argument of the matrix predicate, i.e., it fills a syntactic slot.

With respect to passive voice, when the suffix *–wa* is added to a construction taking an embedded clause in (5a), the complement clause is the only syntactic argument of the matrix predicate. The same is true when added to a construction taking a complement in the post-core slot in (5b). In both cases, the resulting sentence is understood as an impersonal construction. When added to a construction where the complement is in the right detached position in (5c), the accusative resumptive pronoun in the matrix predicate serves as the passive-PSA, while the complement unit remains without change. That is, embedded complements and complements in the post-core slot serve as a semantic and syntactic argument of the matrix core, whereas complements in the right-detached position do no serve to this function. It means that there is a syntax-semantic mismatch: the complement in the right-detached position is a semantic but not a syntactic argument of the matrix predicate.

(5) a. [kaba'i-m enchi jinu-ka-'u] suale-wa-n. (cf. (4a))
horse-PL 2SG:ACC buy-PRFV-CLM believe-PASS-PASTC
'(Someone) was believed that you had bought the horses.'

b. Si majae-wa-n [ka enchi loteria-ta yo'o-ne-po]. (cf. (3a))
a lot be afraid-PASS-PASTC NEG 2SG:ACC lottery-ACC win-EXPE-CLM
'(Someone) was afraid that you wouldn't win the lottery.'

c. A_i suale-wa-n [kaba'i-m enchi jinu-kan-'u]$_i$ (cf. (4b))
3SG:NOM believe-PASS-PASTC horse-PL 2SG:ACC buy-PASTC-CLM
'It is believed, that you bought the horses.'

The second sub-type of syntactic-like complement is marked by *–kai*, as shown in (6). Here, the linked verb is missing a syntactic argument (its PSA), which is understood to be the same than the PSA of the matrix predicate; because the linked verb is missing a syntactic argument and cannot carry operator information, we are dealing with a core, rather than a clause. From the syntactic point of view, complements marked by *–kai* do not function as a syntactic argument since the matrix core cannot be passivized as shown in (6b). This is another example of syntax-semantic mismatch.

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

b. * Bo'obicha-wa-Ø [sim-bae-kai].
'(Someone) hopes to leave.'

And finally, the third complement type consists on a morphological structure. In (7), 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, meaning that there is a core linked to another core.

(7) 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 stoles 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 fact, the morphological structure is the most intriguing complement type in the language. For one hand, it expresses a wide range of semantic notions from direct causation in (7a) and propositional attitudes in (7b-c) to indirect discourse in (7d). For the other, it represents another syntax-semantic mismatch since the complement is a semantic but not a syntactic argument of the matrix core. As illustrated below, when the passive is added to the clauses in (7), it is the PSA of the complement unit that functions as the passive-PSA. In other words, rather than the complement itself, there is an argument of the complement unit serving as a direct core argument of the matrix predicate.

(8) a. Goyo-Ø toto'i-m sua-tua-wa-k. (cf. (7a))
Goyo-NOM hen-PL kill-cause-PASS-PRFV
'Goyo was made to kill the hens.'

b. Tibu-Ø tuuka siim-maachia-wa-Ø. (cf. (7b))
Tibu-NOM yesterday go-believe-PASS-PRES
'Tibu was believed to have left yesterday.'

c. Tibu-Ø wakas-ta etbwa-ka-t-'ee-wa-n. (cf. (7c))
Tibu-NOM cow-ACC steal-PRFV-CLM-think-PASS-PASTC
'Tibu was thought to have stolen the cow.'

d. Tibu-Ø wakas-ta etbwa-k-tia-wa-n. (cf. (7d))
Tibu-NOM cow-ACC steal-PRFV-say-PASS-PASTC
'Goyo was said to have stolen the cow.'

In sum, there are three grammatical complements types in the language and each type shows specific properties. However, when analyzing the syntactic relation among the matrix predicate and its complement, different properties are found even within the same complement type. Following the Role and Reference Grammar's approach to clausal-internal relational structure, the next section establishes the juncture-nexus types for these complement constructions.

3. Syntactic interclausal relations. Role and Reference Grammar [henceforth RRG] (Van Valin 1993, 2004; Van Valin and LaPolla 1997) proposes three main components for the study of clause union: the theory of juncture, the theory of nexus, and the interclausal semantic relation. For the one hand, the theory of juncture deals with the units which make up complex sentences: nuclear, core and clause. In a nuclear juncture, there is a single core containing two nuclei taking a single set of core arguments. In a core juncture, there is a single clause containing more than one core, each with its own set of arguments. In a clausal juncture, whole clauses are joined and each clause may be fully independent of the others. For the other hand, the theory of nexus concerns the syntactic relationship between the units in the juncture, termed subordination, coordination, and co-subordination, which are distinguished on the basis of structural and operator dependency. In subordination, the linked unit functions either as an argument, as in complementation, or as a modifier. In coordination, the two units are 'added together in a sequence' in a relationship of equivalence and independence. Cosubordination shows properties of both: there are two units of equivalent size joined together, as in coordination, but one unit depends on the other, as in subordination. The dependency is in terms of operators. What distinguishes co-subordination from coordination is operator sharing: in the former, the linked verb must dependent upon the matrix verb for expression of one or more operators at the level of juncture, whereas in the latter, the two verbs can, but not need be independently specified for the relevant operators.

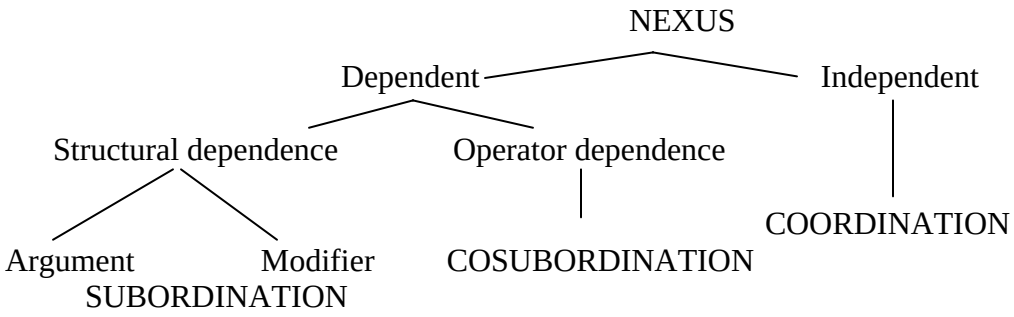

Figure 2: Nexus Relations (VV& LP, 1997)

These syntactic combinations are organized into the Syntactic Relation Hierarchy[3] in which they are ranked in terms of the syntactic tightness. The linkage types at the bottom are combinations of whole clauses constituting sentences, e.g. clausal coordination. As one goes up the hierarchy, the linked units loses more and more features of an independent clause until it is reduced to a bare nucleus or predicate, e.g. nuclear co-subordination. That is, linkage types at the bottom are less tight than linkage types at the top end, which are tighter. At the middle portion, in a non-subordinate core juncture, the two cores obligatorily share one core argument; in a subordinate core juncture, the linked core serves as a syntactic argument of the matrix core. It is important to keep in mind that these juncture-nexus types are abstract linkage relations, not grammatical constructions types. It means that each linkage type may be realized by more than one grammatical construction in a language, and vice versa, the same grammatical construction may involve different linkage types.

For Yaqui, I define syntactic tightness based on the following properties: the use of certain complementizers, operator dependency, the syntactic status of the complement, and coreferential vs. argument sharing. The idea is that, 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.

(1) *The use of complementizers*. At the clause level, the complement is marked by *-po* or *-'u*. At the core level, the complement may be marked by *–m, –t, –kai*, or zero. At the nuclear level, there are no complementizers. That is, a construction without complementizers is tighter than a construction marked by *-m, –t*, or *–kai*, which is tighter than a construction marked by *–'u* or *-po*.

[3] More recently, Van Valin (2004) included two more juncture-nexus types involving the linking of whole sentences: sentential coordination and sentential subordination.

(2) *Operator dependency*. Although the operator information on the linked verb is mainly determined by the semantics of the matrix predicate, there are certain generalizations across the complement types. That is, those constructions in which the linked verb may be independently marked for tense and negation are less tight than constructions in which the linked verb may be marked by aspectual operators or must be a bare form. As typical in the family, Yaqui shows little indication of pure tense suffixes, except for the past continuous *–n ~ -kan*. The same lexical forms can function as either deontic/epistemic markers as well as matrix predicates, meaning that there are not pure modal operators neither. Instead, the usual situation is to display a range of meanings that include tempo-aspectual suffixes such as the perfective *–k ~ ka* and the expected *–ne*. Accordingly, those constructions in which the linked verb may be fully marked for tense (3-5), are less tight than constructions in which the verb is marked only by aspectual suffixes (2) and (7b-d), which are less tight than constructions taking bare forms (6) and (7a).

(3) *Complement as a core argument.* This feature only applies to nominalized and syntactic-like complements. Those constructions in which the complement is not a syntactic argument are less tight than those constructions in which the complement serves a syntactic argument. Embedded complements and complements in the post-core slot fill a syntactic slot of the matrix predicate, whereas complements in the right-detached position do not. It means, those constructions in (2, 3, 4a) are tighter than the construction in (4b, 6). Regarding morphological structures, all show a syntax-semantic mismatch since the linked unit is a semantic but not a syntactic argument of the matrix predicate.

(4) *Coreferential vs. argument sharing.* Those constructions in which there are two NPs that may be coreferential are less tight than constructions in which there is a missing syntactic argument, such as the two units share that argument. An example of coreferential-PSAs was given in (3b); an example of argument sharing was provided in (6). All morphological structures share either a semantic or a syntactic argument. In the causative clause *Pedro made Goyo to kill the hens* in (7a), *Goyo* is both the actor of 'kill' and the undergoer of 'order', but it is expressed only once. Since it is the undergoer of the matrix core and the controller of the missing argument, this is an example of undergoer control relation. In the propositional attitude clause *Goyo thought Tibu to have stolen the cow* in (7c), *Tibu* is the actor of 'steal' only, it is not a semantic argument of 'think'; what *Goyo* thinks is 'Tibu stole the cow'. Because the actor *Tibu* functions as a direct core argument of the matrix predicate for the purpose of passive voice, the

matrix predicate and the linked core share a syntactic argument; this is an example of 'raising' construction.

Based on these criteria, Yaqui presents six juncture-nexus types: nuclear co-subordination, core co-subordination, core subordination, core coordination, clausal subordination and sentential subordination.[4]

These syntactic combinations are used to express a wide variety of semantic relations between the units in the juncture, e.g., causation, psych-action, perception, cognition. The theory of interclausal semantic relations establishes that the semantic relations themselves can be organized in the Semantic Relation Hierarchy, where they are ranked in terms of degree of semantic cohesion among the units. RRG juxtaposes the syntactic and the semantic hierarchies to create the Interclausal Relations Hierarchy in Fig. 1. The basic principle governing the syntactic-semantic correlation is: the closer the events denoted by a predicate and its complement are, the more syntactically integrated the predicate-complement construction will be. However, because there are fewer juncture-nexus types than distinct semantic relations, a language invariably has fewer linkage types expressing more than one semantic relation. It is also the case that a given semantic relation can be conveyed by more than one juncture-nexus type. In this line, RRG offers a rigorous theory of the syntactic-semantic iconicity through a linking system: the tightest syntactic linkage realizing a particular semantic relation should be tighter than, or as tight as, the tightest syntactic linkage realizing a looser semantic relation (VV&LP 1997: 478-83). The next and final section lays out the choice of juncture-nexus types in Yaqui based on the semantics of the matrix predicate, from the closest to the loosest semantic relations.

4. Semantic interclausal relations. Causation is one of the most complex semantic classes and hence can be expressed by multiple syntactic combinations. In the most typical situation, the causer imposes a change on the undergoer directly or by verbal means. In Yaqui, direct causation is mainly expressed by a morphological structure taking *–tua* 'cause to do' as illustrated in (9a). Because the two units must share all operators and their arguments are 'pooled' to create a single set of core arguments, we are dealing with the tightest syntactic linkage in the language: nuclear co-subordination. Verbal causation, that is jussive predicates, as opposed to physical causation,

[4] Yaqui also shows peripheral core and clausal subordination, e.g., temporally related clauses, as well as clausal coordination (e.g., conjunctions), which are not included here since they are not predicate-based linkage.

can be expressed by a morphological structure in (9b) and a syntactic-like complement in (9c). The first one corresponds to core coordination: the two cores obligatory share a semantic argument, the undergoer, such as there is a missing argument in the complement; the linked verb can be unmarked or be marked by the expected suffix *–ne*, and can be independently negated. The second one consists of clausal subordination: the two cores show a coreferential NP, the linked verb may be marked by the expected suffix, the complement is marked by *–'u* and it is placed in the post-core slot. Given that the causee is overtly expressed as a direct core argument in (9c), this is the argument that functions as the passive-PSA. The two jussive constructions can be further distinguished in terms of agentive control: in (9c) the causee is acting according to his own intentions, as he cannot obey the actor's order, whereas in (9b) the causee can hardly resists the actor's command, meaning that the latter codes a closer semantic relation than the former. That is, the tightest syntactic linkage in (9a) correlates with the closest semantic relation, direct causation, whereas the less tight linkage in (9c) correlates with the loosest relation, verbal causation. The core coordinate combination in (9b) is less tight than the construction coding physical causation but tighter than the other jussive construction in (9c).

(9) *Direct causation and verbal (jussive) causation*

Nuclear co-subordination

a. Ivan-Ø Flor-ta tubukti-tua-k.
Ivan-NOM Flor-ACC jump-cause-PRFV
'Ivan made / let Flor jump.'

Core coordination (undergoer control)

b. U tata paare-Ø ili uusi-ta teopo-ta tu'ute-ne-su'utoja-k.
the priest-NOM little child-ACC church-ACC fix-EXPE-allow-PRFV
'The priest allowed the child to clean the church.'

Clausal subordination

c. U tata paare-Ø ili uusi-ta$_i$ su'utoja-k [a$_i$ teopo-ta
the priest-NOM little child-ACC allow-PRFV 3SG:ACC church-ACC

tu'ute-ne-'u]
fix-EXPE-CLM
'The priest allowed the child that he clean the church.'

The next semantic class expresses a phase of an event, e.g. *begin, stop, suspend*. As exemplified in (10), the two units must share all the operators and there is a single set of core

arguments, meaning that the two units are linked by the tightest syntactic construction: nuclear co-subordination.

(10) Phase predicates as nuclear co-subordination

a. U kape-Ø sebe-taite-Ø.
the coffee-NOM be cold-begin-PRES
'The coffee begins to become cold.'

b. U-me o'ow-im kuete-m pejta-yaate-k.
the-PL man-PL firework-PL burst-stop-PRFV
'The men ceased setting off the fireworks.'

Psych-action predicates refer to the mental disposition on the part of the actor toward a state of affairs involving himself. In Yaqui, this semantic notion can be realized by different linkage types. For instance, the expression of a personal desire or intention is encoded by nuclear co-subordination as shown in (11a). The expression of a promise on the part of the speaker is realized by core co-subordination in (11b). The two differ in that, in the former, the two nuclei take a single set of core arguments, whereas in the latter, the two cores share a single argument; because the shared argument is the actor, this is an instance of actor control construction. In (11c), the matrix predicate *teenku* 'dream' expressing self-oriented expectations takes a core complement marked by *–kai*. Here, the linked unit is a semantic but not a syntactic argument of the matrix predicate; so, subordination is ruled out; instead, the two cores share a semantic argument, the actor; and the linked verb depends on the matrix verb for operator information. This yields core co-subordination. When the same predicates express the expectation regarding another participant, the construction is realized as core subordination coded by the nominalized complement in (11d). That is, the same predicate can take two linkage types: the tighter construction involves a self-oriented interpretation, whereas the less tight construction expresses other-oriented attitude sense. Notice also that the same linkage type, core co-subordination, can be realized by two grammatical constructions in (11b-c).

(11) *Psych-action predicates*

Nuclear co-subordination

a. Ne kaa yi'i-bae-Ø.
1SG:NOM NEG dance-DESID-PRES
'I don't want to dance.'

Core co-subordination (actor control)

b. Empo Joan-ta et-po ania-roka-n.
2SG:NOM Joan-ACC sown field-LOC help-PROMISE-PASTC
'You promised to help Juan in the sown field.'

Core co-subordination (actor control)

c. Tuuka beako Lupe-Ø teenku-k [Peo-ta kuna-kai].
yesterday night Lupe-NOM dream-PRFV Peo-ACC marry-CLM
'Last night, Lupe dreamed of (herself) marrying Pedro.'

(Symmetrical) core subordination

d. Nepo [Peo-ta enchi kuna-ka-m-ta] teenku-k.
1SG:NOM Peo-ACC 2SG:ACC marry-PRFV-NMZ-ACC dream-PRFV
'I dreamed of Pedro marrying you!'

Other psych-action predicates involving coreferential-PSAs such as *kopte* 'forget' and *wawaate* 'remember' are coded by either, asymmetrical core subordination when the complement clause is embedded (12a), or clausal subordination when the complement clause is in the right-detached position (12b). When the two PSAs are non-coreferential as in (12c), the semantic interpretation of the predicate changes from psych-action to propositional attitude/ cognition meaning. Interestingly, the preferred option for the second interpretation is a clausal subordination, the less tight linkage type.

(12) *Psych-action predicates*

(Asymmetrical) core subordination

a. Nepo [pueta-ta nim eta-ka-'u] wawaate-k
1SG:NOM door-ACC 1SG:GEN close-PRFV-CLM remember-PRFV
'I remembered to have closed the door.'

Clausal subordination

b. Empo au_i wawaate-k [u-me jiosia sewa-m enchi
2SG:NOM 3SG-DIR remember-PRFV the-PL paper flower-PL 2SG:ACC

ya'a-ne-'u]$_i$
make-EXPE-CLM
'You remembered to do the paper flower.'

Clausal subordination

c. Empo au_i wawaate-k [u-me jiosia sewa-m Carmen-ta
2SG:NOM 3SG-DIR remember-PRFV the-PL paper flower-PL Carmen-ACC

ya'a-ka-'u]$_i$
make-PRFV-CLM
'You remembered it, that Carmen did the paper flower.'

Next in the semantic hierarchy are perception predicates, which denote states or activities in which one comes to have knowledge of an occurring event directly through the senses. There are two ways in Yaqui to express direct perception. In (13a), the matrix predicate *jikka* 'hear' takes a nominalized complement; given that this complement serves as an argument of the perception verb, this is an instance of core subordination. In (13b), the linked verb is attached to the matrix predicate; here, the complement is not a syntactic argument of the matrix predicate, rather the two cores share a syntactic argument: the embedded-PSA; that rules out subordination. The two constructions differ also in operator dependency. The first type encodes a punctual/completive event such as the linked verb may be marked by the perfective, whereas the second denotes a durative/continuous state of affairs meaning that the speaker perceives the whole event, from the beginning to the end, such as the linked verb must be unmarked. Since the linked verb cannot carry operator information and cannot be independently negated, it depends upon the information coded in the matrix predicate. This suggests core co-subordination. Indirect perception, in contrast, is always coded by the less tight construction. In (13c), the complement clause is embedded in the main clause, hence asymmetrical core subordination. In (13d), the complement is placed in the right-detached position, yielding clausal subordination.

(13) *Perception predicates*

Direct perception as (symmetrical) core subordination

a. Aurelia-Ø [enchi laaben-ta pona-ka-m-ta] jikka-k.
Aurelia-NOM 2SG:ACC violin-ACC play-PRFV-NMZ-ACC hear-PRFV
'Aurelia heard you play the violin.'

Direct perception as core co-subordination (raising)

b. Aurelia-Ø enchi laaben-ta pona-jikka-k.
Aurelia-NOM 2SG:ACC violin-ACC play-hear-PRFV
'Aurelia heard you playing the violin.'

Indirect perception as (assymetrical) core subordination

c. Aurelia-Ø [enchi laaben-ta pona-kan-'u] jikka-k.
Aurelia-NOM 2SG:ACC violin-ACC play-PASTC-CLM hear-PRFV
'Aurelia heard that you were playing the violin.'

Indirect perception as clausal subordination

d. Aurelia-Ø a_i jikka-k [enchi laaben-ta pona-kan-'u]$_i$
Aurelia-NOM 3SG:ACC hear-PRFV 2SG:ACC violin-ACC play-PASTC-CLM
'Aurelia heard it, that you played the violin.'

Going down in the semantic hierarchy are propositional attitude predicates. The language has two alternative constructions to express the notion of 'thinking'. The clause in (14a) is a clear example of clausal subordination: the complement marked by *–'u* is placed in the post-core slot, and the linked verb can be independently marked by operators. The clause in (14b) is core coordination: the two cores are joined by the complementizer *–t*, they share a syntactic argument, the embedded-PSA, and the linked verb can be independently marked by aspectual suffixes. The same alternative coding is observed when expressing the notion of 'wanting'. In (14c) the verb *junuen 'ea* 'wish, agree' expresses an opinion or judgment regarding the content of the proposition; it takes complement marked by *–'u* in the post-core slot, and the linked verb can be independently marked by *–ne*, hence clausal subordination. In (14d), the verb *–'ii'aa* 'want' expresses both an opinion and some sort of weak manipulation; here, the two cores share a semantic argument, the undergoer, which functions as the passive-PSA; this argument sharing rules out subordination. Since the linked verb cannot be marked by any aspectual operator, this is another instance of core co-subordination.

(14) *Propositional attitude predicates*

'thinking' as clausal subordination

a. Ne (nuen) 'ea-Ø [Aurelia-ta yooko yi'i-ne-'u].
1SG:NOM thus think-PRES Aurelia-ACC tomorrow dance-EXPE-CLM
'I think that Aurelia will dance tomorrow (but I am not sure).'

'thinking' as core coordination (raising)

b. Ne Peo-ta kaba'i-ta jinu-ka-t-'ea-n.
1SG:NOM Peo-ACC horse-ACC buy-PRFV-CLM-think-PASTC
'I thought Pedro bought a horse.'

'wanting' as clausal subordination

c. Aurelia-Ø junuen'ea-Ø [enchi kari-ta tu'ute-ne-'u].
Aurelia-NOM wish-PRES 2SG:ACC house-ACC fix-EXPE-CLM
'Aurelia wishes that you would clean the house.'

'wanting' as core core co-subordination (Undergoer control)

d. Aurelia-Ø kari-ta enchi tu'ute-'ii'aa-Ø.
Aurelia-NOM house-ACC 2SG:ACC fix-want-PRES
'Aurelia wants you to clean the house.'

Next are cognition predicates denoting the knowledge or acquisition of knowledge on the part of the speaker regarding another state of affair, e.g., *know, understand, realize, remember, forget*. In Yaqui, all cognition verbs are expressed by the less tight syntactic constructions,

clausal subordination. The predicate *ju'unea* 'to know' is shown in (15). The first example takes a clausal complement marked by –'*u* in the post-core slot, and the second one places the complement clause in the right-detached position; notice the occurrence of the resumptive pronoun *a* in (15b).

(15) *Cognition predicates*

Clausal subordination

a. Ne ju'unea-k [enchi kaba'i-ta jinu-kan-'u].
1SG:NOM know-PRFV 2SG:ACC horse-ACC buy-PASTC-CLM
'I knew that you were buying a horse.'

Clausal subordination

b. Ne a_i ju'uneeya-k [kaba'i-ta am jinu-kan-'$u]_i$
1SG:NOM 3SG:ACC know-PRFV horse-ACC 2PL:ACC buy-PASTC-CLM
'I knew it, that they were buying a horse.'

And finally, speech act predicates can also be realized by different linkage types depending on the semantic notions they encode. When coding the expression of reported speech, the language may choose between clausal subordination in (16a) when the matrix predicate *junuen jiia* 'say like this' takes a syntactic-like complement placed in the post-core slot, or core coordination in (16b) when the verbal form *–tia* and the linked verb are joined together in a morphological structure; notice that the linked verb can be independently modified by aspectual suffixes. When coding the direct quotation of a speech event, Yaqui uses the weakest syntactic linkage, sentential subordination, in (16c). In contrast to the first two examples, in a direct discourse situation, the complement is not marked by any complementizer, the PSA of the linked verb is in nominative case and, most importantly, the verb of the complement can be fully marked not only by tense and mood, but also by illocutionary force such as imperative suffixes, meaning that the complement is a sentence rather than a clause.

(16) Discourse predicates

Clausal subordination

a. Peo-Ø junuen jiia-Ø [Goyo-ta tuuka kaba'i-ta etbwa-ka-'u].
Peo-NOM this say-PRES Goyo-ACC yesterday horse-ACC steal-PRFV-CLM
'Pedro says that Goyo stole the horse yesterday.'

Core coordination (raising)

b. Peo-Ø Goyo-ta tuuka kaba'i-ta etbwa-k-tia-Ø
Peo-NOM Goyo-ACC yesterday horse-ACC steal-PRFV-SAY-PRES
'Pedro says Goyo have stolen the horse yesterday.'

Sentential subordination

c. Peo-Ø junuen jiia-ne: Goyo-Ø kaba'i-ta etbwa-'e.
Peo-NOM this say-EXPE Goyo-ACC horse-ACC steal-IMPER
'Pedro will say: "Goyo, steal the horse!"

To summarize, tables 1 and 2 list the six juncture-nexus type found in Yaqui and the semantic notions they encode.[5] They are ranked from the closest to the loosest semantic cohesion between the two events. This classification also reflects the syntactic tightness of the constructions. The tightest syntactic linkages, nuclear and core co-subordination, are the exclusive realization for direct causation, phase and certain psych-action predicates, the semantics relations at the top end. The less tight syntactic linkages, sentential and clausal subordination, encode direct discourse and cognition predicates, the semantic relations at the bottom. At the middle portion of the hierarchy, there is a wide selection of juncture-nexus types: jussives, perception and propositional attitude predicates may be realized as core co-subordination, core subordination, core coordination, and even clausal subordination.

6. Concluding remarks. To conclude, most cases of predicate-complement constructions in Yaqui support the primary principle governing the syntax-semantic interclausal relation: the closer the semantic relation between the events, the tighter the syntactic construction. However, the implicational mapping between the two representations is not always isomorphic. For the one hand, the language shows several syntax-semantic mismatches: cases were the complement does not function as a syntactic argument of the matrix predicate. For the other, as we go down the hierarchy, there is a markedness shift from syntactic to morphological structure: the looser the semantic relation, the more marked the morphological construction should be. Nevertheless, these are not arguments against the principles of clause linkage proposed by RRG, since the implicational relationship that links the syntactic and semantic representations of complement constructions is obeyed in all cases: when the same predicate may choose between two syntactic realization, the tighter syntactic linkage encodes a higher semantic relation between the two events, and vice versa. Therefore, Yaqui-specific relations between event integration and predicate-complement constructions are compatible but not identical to the cross-linguistic predictions of the Interclausal Relations Hierarchy.

[5] In the tables, column one indicates the predicate and column two its juncture-nexus linkage. For core and clausal junctures, column three specifies coreferential PSAs and column four indicates argument sharing; the next two columns identify control or raising constructions. Operators on the linked verb, use of complementizers, and the position of the complement with respect to the main clause, are indicated in the last three columns.

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Table 1. Nuclear junctures

	Predicate		Juncture-nexus	TAM linked verb	CLM	Position
Direct causation	-tua	'cause'	Nuclear cosubordination	–la		
	ya'a	'make'	Nuclear cosubordination	-Ø	-si	Embedded
Phase	-taite	'start'		-Ø		
	-japte	'start (pl)'				
	-ansu, -su	'finish'	Nuclear cosubordination			
	-yaate	'stop'				
	-kikte	'stop (sg)'				
Psych-action	-bae	'desire'		-Ø		
	-pea	'intent'	Nuclear cosubordination			

Table 2. Core and clausal junctures in Yaqui

	Predicate		Juncture-nexus	Corref. PSAs	Argument shared	Control Relation	Raising	TAM linked core	CLM	Position
Psych-action	-roka	‘promise’	Core co-subordination	Yes	Yes	A		-Ø		
	bo’obicha	‘hope’	Core co-subordination	Yes	Yes	A		-Ø	-bae-kai	PoCS
			Clausal subordination	No	No			-ne	-‘u	PoCS
	majae	‘afraid’	Clausal subordination	Opt.	No			-Ø, -ne	-‘u, -po	PoCS
	teenku	‘dream’	Core co-subordination	Yes	Yes	A		-Ø	-kai	
			Core subordination	No	No			-Ø, -ka	-m-ta	Embedded
	kopte	‘forget’	Core subordination (asymmetrical)	Yes	No			-Ø, -ne	-‘u, -po	(Embedded)
	wawaate	‘remember’	Core subordination (asymmetrical)	Yes	No			-Ø, -ne	‘u, -po	(Embedded)
Jussives	-sae, -su’utoja	‘order’ ‘allow’	Core coordination	No	Yes	U		-Ø, -ne		
	sawe su’utoja	‘order’ ‘allow’								
	lisensia	‘authorize’	Clausal subordination	No	No			-Ø, -ne	-‘u, -po	PoCS
	ajbwana	‘ask’								
	teuwa	‘tell’								
Direct Perception	bicha	‘see’	Core co-subordination	No	Yes		Yes	-Ø		
	jikka	‘hear’								
	i’nea	‘feel’	Core subordination (symmetrical)	No	No			-Ø, -ka	-m-ta	Embedded
	jupta	‘smell’								
	ji’ibwe	‘taste’								
	bicha	‘see’	Clausal subordination	No	Yes (copy)			all	-‘u -po	PoCS
	jikka	‘hear’								

Table 2. Core and clausal junctures (cont)

	Predicate		Juncture-nexus	Corref PSAs	Argument shared	Control Relation	Raising	TAM linked core	CLM	Position
Indirect Perception	bicha	‘see’	Core subordination	No	No					(Embedded)
	jikka	‘hear’	(asymmetrical)							
	i’nea	‘feel’	Clausal	No	No			all	-‘u	RDP
	jupta	‘smell’	subordination						-po	
	ji’ibwe	‘taste’								
Propositional attitude	-maachia	‘believe’	Core co-subordination	No	Yes		Yes	-Ø		
	Suale	‘trust in’	Core subordination (asymmetrical)	Opt.	No				-‘u	(Embedded)
			Clausal subordination	No				all	-po	RDP
			Clausal subordination	No	Yes (copy)					PoCS
	‘ea	‘think that’	Core coordination	Opt.	Yes		Yes		-t	
	‘ea	‘feel that’	Core subordination (asymmetrical)	Opt.	No			-Ø, -ne, -ka	-benasia	Embedded
	(nuen) ’ea	‘think that’	Clausal subordination	Opt.	No			all	-‘u	PoCS
	-‘ii’aa	‘want’	Core co-subordination	No	Yes	U		-Ø		
	Junuen’ea	‘wish, agree’	Clausal subordination	No	No			-Ø, ne	-‘u	PoCS
Cognition	June’an	‘know’	Clausal subordination	Opt.	No					PoCS
	Ju’uneeya	‘know it’	Clausal subordination	No	No					RDP
	mammate	‘realize’	Clausal subordination	Opt.	No			all	-‘u	RDP
	kopte	‘forget’	Clausal subordination	No	No				-po	RDP
	wawaate	‘remember’	Clausal subordination	No	No					RDP
Indirect discourse	tejwa	‘tell’	Clausal subordination	Opt	No			all		
	junuen jiia	‘say’							-‘u	PoCS
			Clausal subordination	Yes	No			-Ø, -ne	-‘u	PoCS
	etso	‘deny’	Clausal subordination	No	No			all	-‘u	RDP
	-tia	‘say’	Core coordination	Opt.	Yes		Yes	-Ø, -ne, -ka		
Direct discourse	Tejwa	‘tell’	Sentential							
	Junuen jiia	‘say’	subordination	Opt.	No			all	-Ø	RDP