

OR? OR QUESTION THE CASE FROM TOJOLABAL

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Traditional analyses of conjunction and yes-no questions include the following sorts of primes. For conjunctions (a) and, but, and or, or perhaps (b) and, but, or-inclusive, and or-exclusive, for questions (a) a Question-marker, or (b) a higher sentence with a performative verb of asking. All analyses employ both some operator of disjunction and some underlying marker for questions.

In this paper, we examine both disjunctions and questions in Tojolabal, a Mayan language. In Tojolabal, the same lexical item (ma) signals inclusive and exclusive or and questions. There are no native conjunction words for and or but in Tojolabal.<sup>1</sup> What we find in Tojolabal are conjoined constituents unaccompanied by native conjunction words except for the or constructions, and for these, the marker is the same as for questions. The evidence suggests that disjunction in Tojolabal derives from questions on conjunctions and that ma is a predicate of questioning.

Several works on English yes-no questions pertain to and anticipate this paper. In 1970, Langacker related the rising intonation of yes-no questions to the non-falling intonation of non-final clauses in either-or disjunction. Langacker maintained that sentence (1) derives from an either-or disjunction like that in (2) plus a question marker.

- (1) Is Ellen drunk?
- (2) Either Ellen is drunk, or she isn't drunk

Previously, Kim (1968) had proposed that every sentence in the deep structure carries a feature [- Breath Group], which is interpreted phonologically as falling pitch. Kim identified two rules that change [- Breath Group] to [+ Breath Group], which is interpreted as non-falling pitch. (a) a rule that alters the value on all sentences except the rightmost one in a phrase marker, and (b) a rule that alters the value on yes-no questions, which are identified by Q + whether.

Actually, disjunction and yes-no questions were related in Katz and Postal (1964), where two primes for questions were used Q markers and WH(OR). The latter was viewed as deleted in matrix sentences but becoming 'whether' in embedded questions.

In a 1973 paper, Browne observed that the only type of conjoined yes-no questions permitted in Serbo-Croatian are those that are disjunctions. Only the first clause is formulated as a question, although semantically both clauses are interpreted as questions.

- (3) Učite li sami ili idete u školu?  
 you-study Q self or you-go to school  
 'Do you study by yourself, or do you go to school?'

but not

- (4) \*Učite li sami ili idete li u školu?  
 you-study Q self or you-go Q to school

Accordingly the only genuine examples of conjoined questions seemed to be examples of disjunctions marked by ili 'or'. The conjunctions ali 'and' and a 'but' are not used in questions. The 'insubstantial' conjunction i 'and' will join sentences having no direct relation to one another, and when it joins questions, all conjuncts are formulated as questions.

- (5) Da li učite sami, i da li dobro napredujete?  
 that Q you-study self, and that Q well you-progress  
 'Do you study by yourself, and are you progressing well?'

Browne related these data to the behavior of markers of relative clauses in Serbo-Croatian and suggested that there may be a constraint on the positions of these elements in clauses.

Bresnan (1970), Baker (1970), and Langacker (1974a) have all considered the nature of the question marker. Bresnan identified it with complementizers. Baker regarded it as an operator. Langacker gave evidence against the existence of a segmental Q in the analysis of English, although he did not argue directly for the performative clause analysis of questions.

Finally, Ross (1967) reported that Peters (in preparation) was investigating the idea that disjunctions derive from negations of conjunctions with and

In all the work mentioned on English, the rising intonation of yes-no questions has been the primary concern for explanation. In Tojolabal, however, all sentences end with rising intonation, and so the situation is simpler in one sense and more complicated in another. Whereas the English data have tended to persuade investigators that questions may be derived from disjunctions, the Tojolabal material suggests to us just the opposite—that disjunctions derive from questions. Further, the evidence from Serbo-Croatian suggests to us a similar situation.<sup>2</sup>

Four transformational rules are predominately involved in Tojolabal disjunction and yes-no questions—PRUNING, PREDICATE RAISING, ma HOPPING, and CONCORD. The first of these is the most familiar. PRUNING deletes nodes that do not branch.

PREDICATE RAISING is attested elsewhere in the language, where it functions as a word-formation rule in a manner similar to that described by Langacker (1973) for Uto-Aztecán. It applies to roots and stems, raising them to members of a set of abstract predicates that surface as transitivizing or intransitivizing morphemes. For example, the intransitive verb helw 'to change' in (3), derives from the transitive verb hel 'to lend something, to transfer something'

- (3) wa-š-hel-w-iy-e? ha winik-e?  
 present progressive - incompletive - to lend -  
 intransitivizer - main clause inflection - 3 p pl  
 noun the men - pl  
 'The men are changing'

PREDICATE RAISING also raises stative predicates to ma when ma is the highest verb in a sentence. The statives include wa, present progressive tense, wan, present progressive auxiliary, oh, future progressive tense, ay, 'there is', mi, the negative, ti, the locative, ha, the specifier-determiner, and nominals functioning as stative verbs, for example, hel, intensifier, and kečkan, 'only, alone, one that is unique'. PREDICATE RAISING will also raise any of these but ma to ha, the specifier-determiner. Thus, ma and ha stand in a hierarchical relationship to one another.

There are three kinds of predicates in Tojolabal (1) transitive, or two-place predicates, such as hel 'above' or mak' 'to kill someone', and two sorts of one-place predicates, (2) intransitive verbs such as wah 'to go' and (3) the statives Only the transitives and intransitives take complete verbal inflection The statives are either defective verbs carrying grammatical categories of tense (wa, oh, wan), specification (ha), location (t<sub>1</sub>), negation (m<sub>1</sub>), or existence (ay), or they are nominals functioning as verbs (kečan, hel) Some of them inflect for mood, but none will inflect for aspect of completeness, which is the test of a true verb It is the stative group that raises to ma

Saying that a noun can function as a verb is sufficiently unorthodox to require explanation Such constructions are equational sentences, in Tojolabal, however, there is no copula morpheme For example,

- (4) ıšuk-on 'I am a woman'  
woman-1p

- ıšuk-uk-on 'I would be a woman'  
woman-subjunctive-1p

One might postulate a zero copula except the pronominal inflection clearly places these statives in one-place predicate structures Tojolabal is a nominative-ergative language, pronouns indicating objects of transitive verbs are identified with the pronouns indicating subjects of intransitive or stative verbs

- (5) TV wa-š-h-mak'-aw-a 'I am hitting you'  
pres prog -incomplete-1p erg -  
to hit-main clause inflection-2p sg nom

- ø-ha-mak'-aw-on 'You hit me '  
completive-2p erg -to hit-  
main clause inflection-1p sg nom

- wa-š-h-mak'-aw-ø 'I am hitting him "  
pres prog -incomplete-1p erg -  
to hit-main clause inflection-3p sg nom

- IV wa-š-waj-i(y)-ø 'He is going '  
pres prog -incomplete-to go-  
main clause inflection-3p sg nom

Øwah-iy-on 'I went'  
completive aspect-to go-  
main clause inflection-lp sg nom

STATIVE	<u>ay-a</u> there is-2p sg nom	'You are, you exist '
	<u>moh-on</u> companion-1p sg nom	'I am a companion '

The 'subject' pronouns of the intransitives and statives are the same as the 'object' pronouns of transitive sentences. They are the nominative-accusative set, in the singular the forms are -on, 1p., -a, 2p., and -ø, 3p. The nominative-ergative set marks transitive subjects, they are, before consonant-initial stems, h-, 1p., ha-, 2p., and s-, 3p., before vowel-initial stems, k-, 1p., haw-, 2p., and y-, 3p.

Possessed nouns carry the nominative-ergative pronoun to indicate the possessor, since these constructions derive from underlying sentences with the transitive verbs 1? 'to have, to possess something'. Thus,

h-moh 'my companion'  
lp erg -companion

When possessed nouns are the predicates of equational sentences, however, they still have the nominative-accusative pronoun as the subject, which indicates that the underlying possessive clause is embedded under a predicate node in a one-place predicate structure, since (6) means 'You are my companion' not 'I am your companion'

(6) h-moh-a  
1p erg -companion -2p sg nom

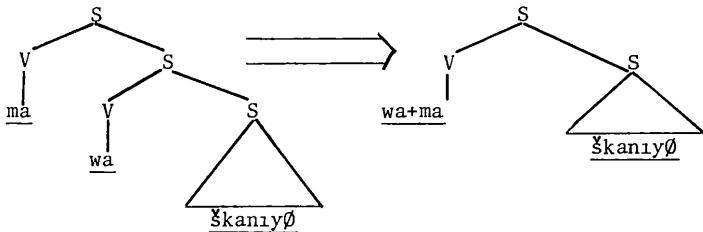
To return to the rule of PREDICATE RAISING, the questioning of a sentence such as

(7) wa-š-kan-iy-Ø 'He is staying'  
 pres prog -incomplete-  
 to stay-main clause inflection-  
 3p sg nom

is signaled by the presence of ma after the present progressive tense marker *wa*, which has been raised to it

(8)

## PREDICATE RAISING + PRUNING



wa-ma-~~s~~-kan-iy-~~Ø~~ 'Is he staying?'  
pres prog -Q-incomplete-to  
stay-main clause inflection-  
3p sg nom

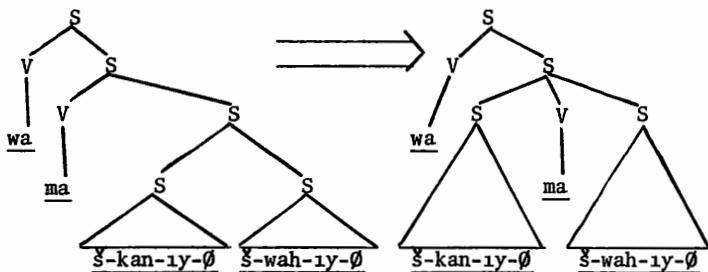
The third rule, ma HOPPING, moves a ma predicate in between the conjoined elements in its argument, be they simple noun phrases or embedded sentences. All disjunctions derive by this rule. For example, both of the following sentences contain inclusive-or constructions.

(9) Ø-h-mak'-aw-Ø Hose ma Maqwel 'I hit Jose or Manuel'  
 complective-lp erg -to hit-main  
 clause inflection-3p sg nom  
 Jose Q Manuel

(10) wa-š-kan-iy-Ø ma wa-š-wah-iy-Ø 'He is staying or he  
 pres prog incompletive- to stay-  
 main clause inflection-3p sg nom  
 Q pres -prog -incompletive-to go-  
 main clause inflection-3p sg nom

(10) is derived by ma HOPPING and PRUNING, as in (11)

(11)

ma HOPPING  
+ PRUNING

The fourth rule, CONCORD, moves a verb of tense so that it immediately dominates a true predicate, from this position, it is later copied onto the verb (or verbs in the case of conjoined elements)

We have seen examples of simple yes-no questions, and of inclusive-or constructions. The two other relevant constructions for this paper are the exclusive-or constructions and questions with disjunctions, both of which carry two occurrences of ma

Following are two examples of sentences with the exclusive-or disjunction, in (12) the disjunction is in an embedded clause and in (13) the disjunction is in the main clause

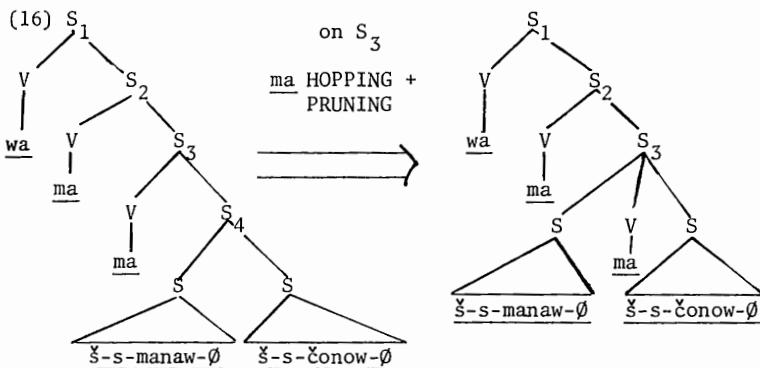
- (12) wa-š-s-k'ulan-∅ pensar ha Hwan-ih ke  
 he-is-thinking-it the John-here that  
ma wan-∅ s-čonhel ma wan-∅ s-manhel ha Maria-ih  
 Q she-is-in-state her-selling Q she-is-in-state her-  
 buying the Maria-here  
 'John is thinking that either Maria is selling or she  
 is buying '

- (13) ma wa-š-s-manaw-∅ ma wa-š-s-čonow-∅  
 Q he-is-buying-∅ Q he-is-buying-it  
 'Either he is buying it or he is selling it '

The exclusive-or disjunctions in (12) and (13) may be compared with their respective inclusive-or forms in (14) and (15)

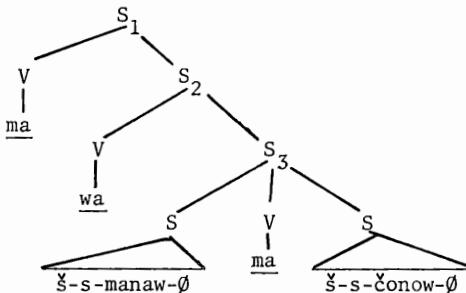
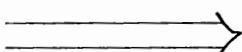
- (14) wa-š-s-k'ulan-∅ pensar ha Hwan-ih ke wan-∅ s-čonhel  
he-is-thinking-it the John that she-is-in-state her-  
selling  
ma wan-∅ smanhel ha Maria-ih  
Q she-is-in-state her-buying the Maria-here  
'John is thinking that Maria is selling or she is  
buying '
- (15) wa-š-smanaw-∅ ma wa-š-s-čonow-∅  
he-is-buying-it Q he-is-selling-it  
'He is buying it or he is selling it '

The either-or disjunction, like the inclusive-or disjunction, derives by the rule of ma HOPPING, as in (16)



on  $S_2$ , all rules fail

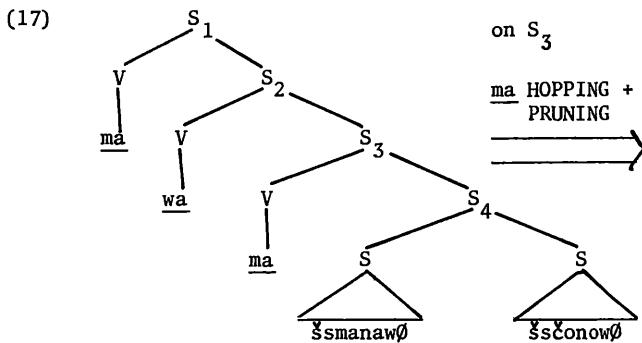
on  $S_1$     ma HOPPING fails  
             PRED RAISING fails  
             CONCORD applies

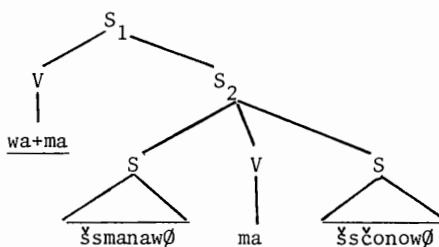
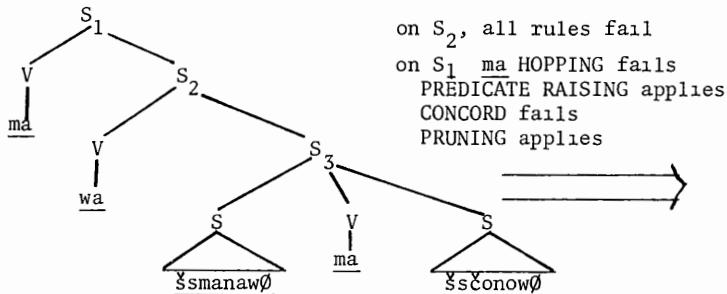


ma-wa-š-s-manaw-∅ ma wa-š-s-čonow-∅  
 'Either he is buying it or he is selling it '

Notice that the exclusive-or structure involves adjacent ma predicates. The rule order is (1) ma HOPPING, (2) PREDICATE RAISING, (3) CONCORD, and PRUNING. On  $S_4$ , all rules fail. On  $S_3$ , ma HOPPING moves the lower ma between the conjuncts. All rules fail on  $S_2$ . PREDICATE RAISING fails because ma is not the highest predicate in the sentence. ma does not move by CONCORD, and of course with no changes in the structure, there is nothing to be pruned. On  $S_1$ , both ma HOPPING and PREDICATE RAISING fail, but CONCORD moves the tense verb wa so that it immediately dominates the true verbs šmanaw∅ and ščonow∅.

For all yes-no questions in Tojolabal, the highest predicate of the sentence is always ma, which appears in the second position on the surface because of the rule of PREDICATE RAISING. In questions with disjunction, there are two mas, the lower of which has been moved by ma HOPPING to between conjuncts and the higher of which appears on the surface in second position because the predicate immediately below it is raised to it by PREDICATE RAISING. Questions with disjunction can be derived by the rules we have discussed, as in (17)





wa-ma-š-s-manaw-∅ ma wa-š-s-čonow-∅  
'Is he either buying or is he selling?'

Thus, in Tojolabal, ma HOPPING is the rule of disjunction and PREDICATE RAISING the rule of yes-no questioning. The fact that PREDICATE RAISING is the rule of yes-no question formation explains why affirmative answers to question in Tojolabal are repetitions of the verb phrase. There is no word in Tojolabal equivalent to English 'yes', instead the predicate of the questioned sentence is repeated for an affirmative answer. For example,

- |  |                            |
|--|----------------------------|
| (18) <u>Šwahiy∅</u> <u>ma</u> <u>Hwan?</u>                         | 'Does John go?'            |
| <u>Šwahiy∅</u>   | 'He goes '                 |
| <u>?oh</u> <u>ma</u> <u>wahuk∅</u> <u>Hwan?</u>                    | 'Will John go?'            |
| <u>?ohoh</u>   | 'He will '                 |
| <u>wa-ma-šwahiy∅</u> <u>Hwan</u><br><u>wan</u> or <u>wašwahiy∅</u> | 'Is John going?'           |
|  | 'He is ' or 'He is going ' |

Further, the aspect markers such as š, the incompletive, are not independent predicates in the way tense markers (wa, oh) are and so cannot dominate two sentences with ma predicates. Thus, it is not possible to have an exclusive-or statement such as (19) since ma would be the highest verb in the sentence and thus would undergo PREDICATE RAISING--that is, the form would be a question with the predicate šsmanawØ raised to the ma as in (20)

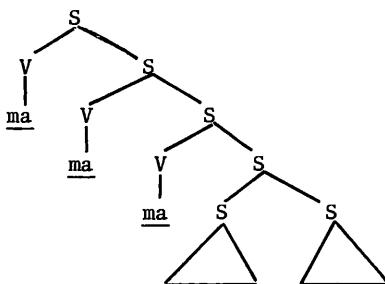
- (19) \*ma šsmanawØ ma ššconowØ  
       'He is either buying or he is selling '

- (20) šsmanawØ ma ma ššconowØ  
       'Is he either buying or is he selling?'

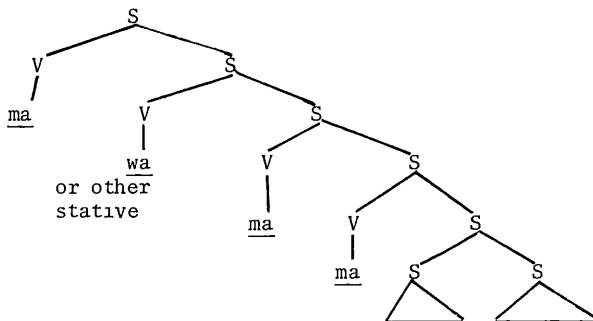
When the incompletive aspect š carries also a tense morpheme wa, however, the exclusive-or statement is possible since wa originates as the highest verb, as in (16) above

Our analysis is not without problems. It would at least be more pleasing esthetically if questions on exclusive-or disjunctions were derived from structures that carried three ma predicates, something like (20) for a sentence without a stative and (21) for a sentence with a stative

(20)



(21)



If Tojolabal has a constraint against more than two mas in a sentence, these would be possible structures. We find no evidence to compel such an analysis, however, and we do find some evidence to suggest that this is not the case. All questions with disjunction are interpreted as exclusive-or questions, that is, the inclusive/exclusive-or distinction does not exist in questions, so it appears that two mas do an exclusive construction make, regardless of whether or not one of them originates as the highest verb of the sentence.

Sentences of the following types present a different sort of problem

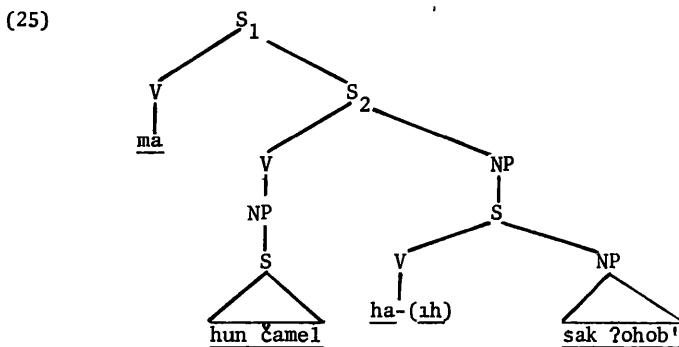
- (22) hun čamel ma ha sak ?ohob'-ih?  
 one disease Q the tuberculosis-here  
 'Is tuberculosis a disease?'

- (23) če?el sak ?ohob' ma?  
 cold tuberculosis Q  
 'Is tuberculosis cold?'

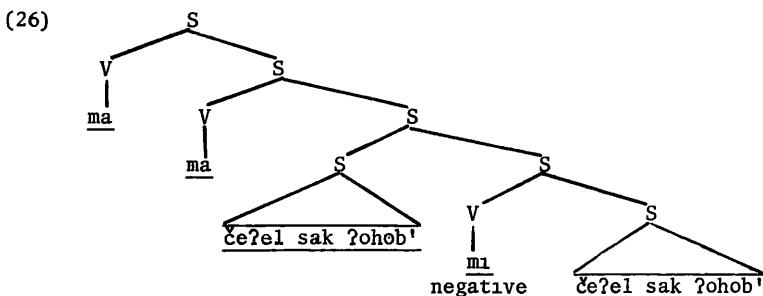
Since, as we discussed previously, nominals can function as predicates, (22) accords with the analysis we have given. hun čamel has been raised by PREDICATE RAISING to the dominate predicate ma, giving us the question. If this is correct, however, we would expect (23) to be as in (24).

- (24) \*če?el ma sak ?ohob'?

A key difference is probably the specification of sak ?ohob' (with ha ih) in the first example, since sak ?ohob' must originate under the ha predicate there, in a structure such as (25)



(23) may derive from a questioned disjunction in which the second clause is a negative of the first, which is then deleted by IDENTICAL CONJUNCT DELETION If, as Langacker suggested, (1) is reduced from a structure that includes (2), then (23) may derive from a structure such as (26) by ma HOPPING, PREDICATE RAISING, and IDENTICAL CONJUNCT DELETION



In that case, however, PREDICATE RAISING would have to be able to lift any next lowest predicate to ma, not just one on the next lowest node. Further, it is not clear how the negative m<sub>1</sub> is deleted since it is identical to nothing in the preceding conjunct.

Two pieces of evidence can be offered for the validity of such a structure. First, tag questions in Tojolabal on sentences (but not on specified noun phrases) carry a questioned negative, in the subjunctive, after the main sentence

- (27) wašwahiyØ Hwan, miyuk ma?  
 'John is going, isn't he?'

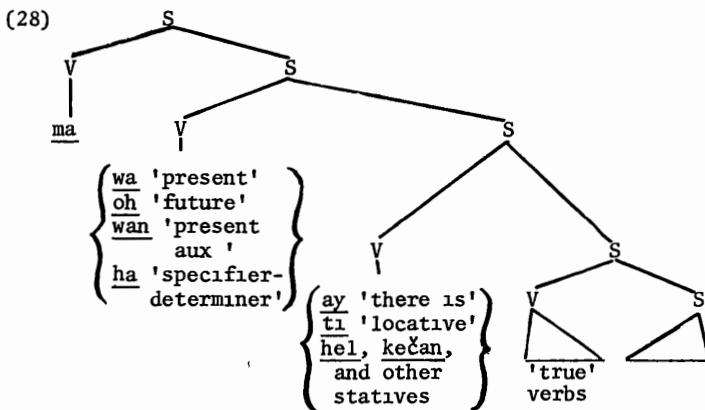
Second, negative answers to questions are miyuk 'it wouldn't be so' and me?yuk 'there wouldn't be any'. In both instances, the negative predicate is the answer, just as affirmative answers to questions have repetitions of the predicate in the questioned sentence--in these terms, the predicate of the first conjunct All of which suggests that the negative answers are repetitions of the highest verb (the negative ma) of deleted negated conjuncts, plus, in the case of me?uk, the next lower predicate ?ay 'there is'

From this examination of yes-no questions and disjunctions in Tojolabal we draw these generalizations

First, in the axioms of Tojolabal grammar, both Q and or are not needed. Rather the underlying prime is the Question, specifically a verb of questioning, and disjunctions result from questioned conjunctions

Second, ma HOPPING is the rule of disjunction in Tojolabal, PREDICATE RAISING, the rule of questioning

Third, there is a hierarchy of predicates that raise in questioning. ma is always the highest verb of a questioned sentence. The predicates of tense (wa, wan, oh) and the specifier-determiner (ha) optionally may be the second highest, all other statives occupy the third positions. Schematically, this is represented in (28)

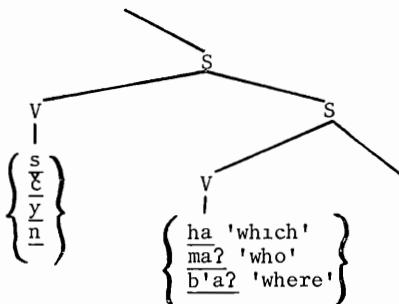


Thus, one may have any of the following

- (29) wamašwahiyØ? 'Is he going?'  
wanØ ma wahel? 'Is he going to go?'  
oh ma wahukØ? 'Will he go?'  
ha ma sak ?ohob? 'Is it tuberculosis?'  
ay ha ma sak ?ohob? 'Is there tuberculosis?'  
ti ha ma b'a? Tuxtla ha Hwan-ih? 'Is John in Tuxtla?'  
hel ha ma pegasido sak ?ohob'-ih? 'Is tuberculosis contagious?'  
šwayiyØ ma ha Hwan-ih? 'Does John go?'

Fourth, this study has not treated WH questions, but they too would seem to be derived from the relatives ma? 'who', ha, the specifier-determiner, 'which, what', and b'a? 'where'. The morphemes s, č, y, and n all appear in various interrogative forms PREDICATE RAISING in this case, like that of verb derivation, is a word-formation rule.

(30)



Again, ha, this time with ma? and b'a?, is embedded just below the question markers (s, č, y, n) PREDICATE RAISING yields interrogatives such as has 'what?', hač 'thus?', ma?č 'who?', b'a?y 'where?', hay 'how many?', and han 'how many?'

The second position of ma and of the question morphemes s, č, y, and n on the surface seems to result from their all coming from similar structures and their both being derived by PREDICATE RAISING. These facts of second position occurrence for question markers in Tojolabal may correlate with the facts of distinctive intonation in other languages such as English. In any case, the Tojolabal material suggests strongly to us what the facts of non-falling intonation in English and restrictions on questioned conjunctions in Serbo-Croatian only hint at. That the axioms of any language may not require both a Q marker and one or more types of disjunction. The primes for natural logic perhaps should include Question and Conjunction, but not Disjunctions, since the last may be derived from questioned conjunctions.

## NOTES

The authors thank the Faculty Research Council of the University of Missouri-Columbia for support of this work.

<sup>1</sup>In Tojolabal, pero or pe from Spanish pero is used for 'but' and í from Spanish y and sok from Tzeltal-Maya sok are used in constructions where we gloss the two as 'and'. The Tzeltal borrowing, sok, derives from a subjunctive nominal construction in Tzeltal, literally, 'it would be his companion', and can no more be considered a conjunction in Tzeltal than in Tojolabal.

<sup>2</sup>Serbo-Croatian ili 'or' might derive from i 'and' plus li question, however, ali 'and' and a 'but' suggest the case is not so simple

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