

# Questions and Inversion in Ocotepc Mixtec\*

Roy Eberhardt

*Yes/No questions, Wh-questions, and embedded questions in Ocotepc Mixtec are described and analyzed within the Government and Binding framework. Questions involving prepositional phrases are unique in that the whole prepositional phrase must be fronted and then the question word is subsequently fronted again. Similar inversion occurs when a possessive phrase is questioned. Smith Stark (1988) documents this phenomenon as occurring across language families throughout Meso-America. Aissen (1996) analyzes it for Tzotzil, a VOS language, as secondary movement to the specifier of PP or DP. This analysis is not possible for Mixtec, a VSO language, so I posit adjunction to the moved phrase, following Black (1994) for Zapotec.*

## 1. Introduction

Mixtec languages are characterized by VSO word order. In the past VSO languages have been described in the literature with flat structures, making the relationships between Infl, the external argument, and the verb cumbersome to describe and characterize. In this paper I posit a deep structure SVO ordering with the subject as the specifier of the VP, following the Internal Subject Hypothesis (Koopman & Sportiche 1991, McCloskey 1991, among others). Verb movement to Infl derives the surface VSO order. When analyzed in this manner, the VSO word order of Mixtec complies with language universals such as the close relationship between a verb and its object, which has been shown to hold in other VSO languages (Chung 1983, McCloskey 1991, Black 1994).

Most of this paper is then devoted to describing Yes/No questions, Wh-questions, and embedded questions and to giving an analysis for the fronting which occurs. Finally, there is an interesting inversion of the Wh-word with its preposition after fronting in a question. I analyze this as Pied-Piping of the PP<sub>[+wh]</sub> with a secondary raising of the Wh-word. A similar secondary raising accounts for the inversion which occurs in a questioned possessive phrase. The analysis is presented within the Government and Binding framework (Chomsky 1981, 1982, 1986).

## 2. Basic Clause Structure

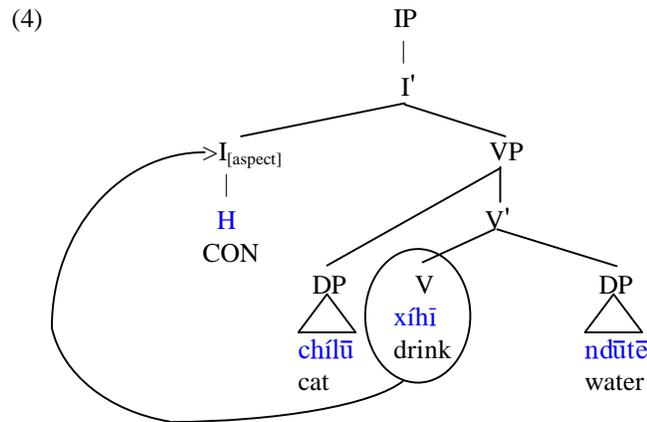
This section covers basic word order, focus constructions, nominal phrases, and prepositional phrases. This provides the necessary background for understanding the analysis of questions.

---

\* This paper was originally done as a squib for a Government and Binding class taught by Cheri Black at UND. I am grateful for her invaluable aid in assembling and editing this paper, but I remain totally responsible for its content.



morphological subcategorization of the aspect marker to attach to V (Rizzi and Roberts 1989). See figure (4) for example (1).



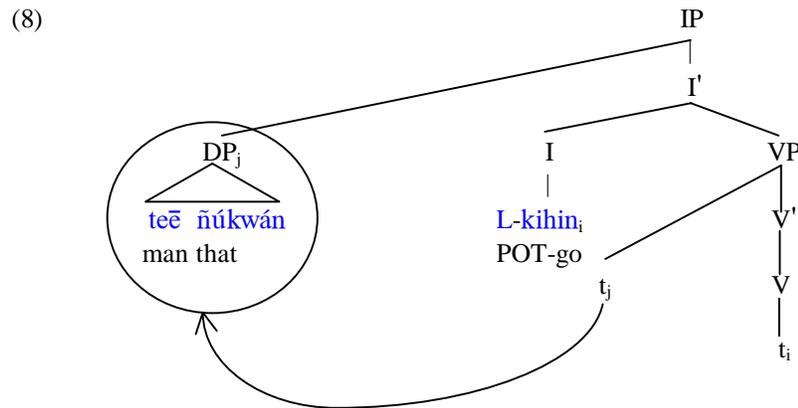
2.2. Focus Construction

One of the variations on the basic VSO order which can occur is due to focus. Subjects, as in (5), objects, as in (6), and adjuncts, as in (7), can be fronted. This focus fronting is analyzed as movement to the specifier of IP, as shown in (8) for example (5).

(5) *teē nūkwán kihin* (Alexander 1988:172)  
 man that POT:go  
*THAT MAN will go.*

(6) *ndíkā xehē ñā nuu de* (Alexander 1988:173)  
 banana COM:give she face his:RES  
*She gave him A BANANA.*

(7) *xehe tātá de shí:kó de nuni* (Alexander 1988:173)  
 foot father his:RES CON:sell he:RES corn  
*He sells corn FOR THE SAKE OF HIS FATHER.*



### 2.3. Nominal Phrases

Mixtec nominal phrases are not marked for case. A number of distinct positions are needed, most of which follow the noun. These first two examples show first a noun noun compound and second a noun modifier compound.

- (9) *yōhō ká:ā* (Alexander 1988:211)  
 rope metal  
*wire*
- (10) *ndūtē shéēn* (Alexander 1988:212)  
 water fierce  
*white rum*

Examples (11)-(17) show that determiners and quantifiers occur before the head noun. Note that quantifiers always come before the determiners *māá* and *ndá*. See (26) for the *ndá* example.

- (11) *māá<sup>5</sup> vēhē* (Alexander 1988:213)  
 SPEC<sup>5</sup> house  
*the very house*
- (12) *kumi māá teē* (Alexander 1988:213)  
 four SPEC man  
*four of only men*
- (13) *ndá de* (Alexander 1988:213)  
 PL he:RES  
*they*
- (14) *kumi teē* (Alexander 1988:213)  
 four man  
*four men*
- (15) *kwaha kītī* (Alexander 1988:213)  
 many animal  
*many animals*
- (16) *kwaha ña* (Alexander 1988:214)  
 many she  
*many of them*
- (17) *ūn ndivi* (Alexander 1988:214)  
 one egg  
*an egg or one egg*

---

<sup>5</sup> Alexander in this case uses SPEC as a grammatical category: “There are two elements that precede the nucleus, specifier and quantifier; the specifier occurs next to the nucleus.” (Alexander 1988: 212). The *māá* or *ndá* are both described as specifiers in Alexander’s work. They mean “that very one” or in the case of the plural, “those very ones.” The term SPEC as used by Alexander has nothing to do with Government and Binding’s use of the same word.

Quantifiers in adjectival position, following the noun, are interpreted as ordinals.

- (18) *kivi úshi* (Alexander 1988:218)  
 day ten  
*the tenth day*

The demonstrative pronoun follows the head noun, as shown in (19)-(20).

- (19) *sāhmā yáhá* (Alexander 1988:219)  
 cloth this  
*this cloth*
- (20) *tīna ñúkwán* (Alexander 1988:219)  
 dog that  
*that dog*

The following four examples introduce two degree words and show their position in relation to the head noun and to each other. The order is noun, adjective, and then degree words. The *nī* always follows the *ka* when they are both present. The degree words function as phrase-level clitics modifying the entire phrase preceding them.

- (21) *ndīkā nī* (Alexander 1988:219)  
 banana LIM  
*just a banana*
- (22) *sāhmā ñukwán nī* (Alexander 1988:219)  
 cloth that LIM  
*just that cloth*
- (23) *ndīka ka* (Alexander 1988:219)  
 banana ADD  
*more bananas*
- (24) *īta nī ka* (Alexander 1988:219)  
 flower LIM ADD  
*just more flowers*

Examples (25)-(26) show a combination of all the elements introduced thus far. Note the *ndá* plural marker preceding the head noun, the adjective following it and the demonstrative *ñúkwán* after the adjective.

- (25) *ndá sāhmā lúli ñúkwán* (Alexander 1988:220)  
 PL cloth little that  
*those little cloths*
- (26) *uu ndá ndīkā náhnú ñúkwán nī ka* (Alexander 1988:220)  
 two PL banana big:PL that LIM ADD  
*just those two big bananas*

Simple possession, with the possessor following the head noun, is shown in (27)-(28).

- (27) *shini tí:ñí* (Alexander 1988:222)  
 head mouse  
*the mouse's head*
- (28) *shīní vétu* (Alexander 1988:223)  
 hat Robert  
*Robert's hat*

The following two examples show the position of the possessor in relation to the other elements previously introduced. Note specifically that the possessor follows the adjective in (29) and it also follows the degree words in (30).

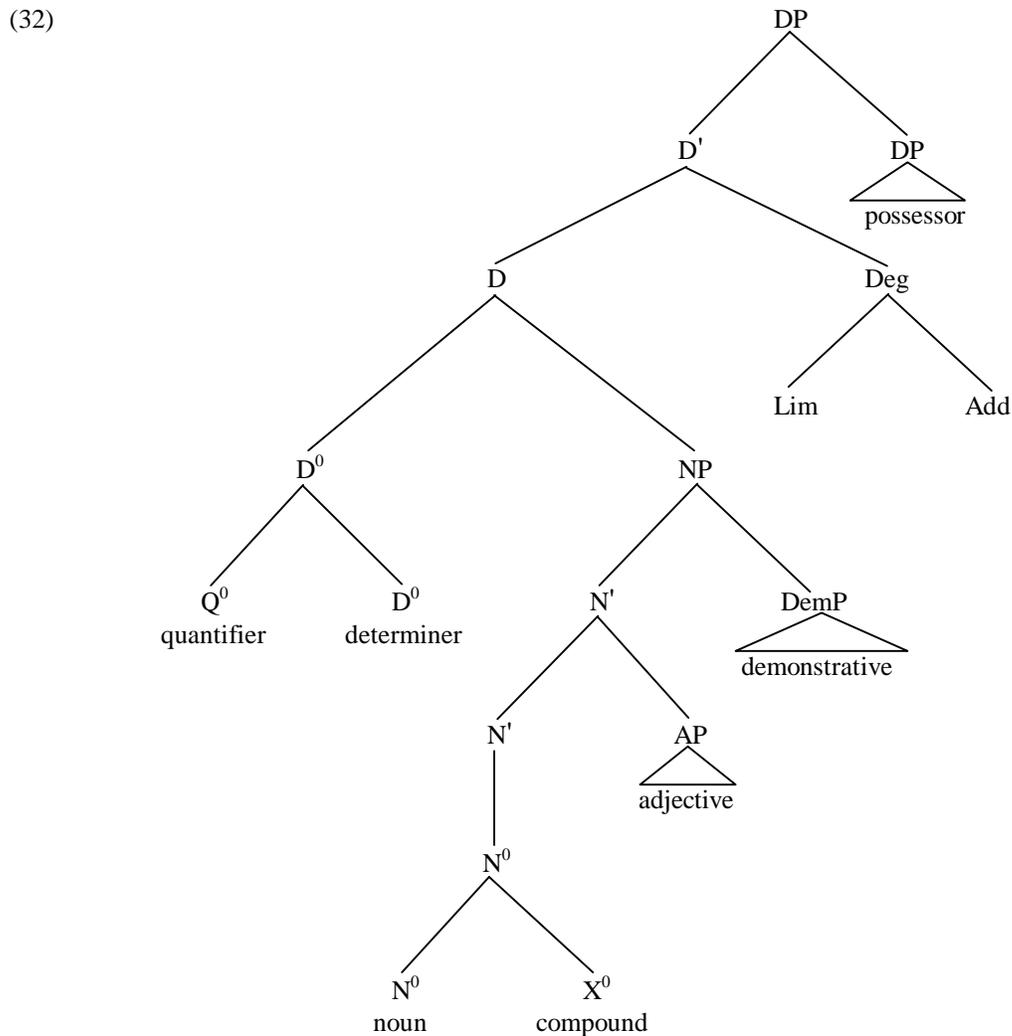
(29) uu sehē lūlī tīna (Alexander 1988:223)  
 two child little dog  
*the dog's two little pups*

(30) uu vēhē nī ka teē nūkwán (Alexander 1988:223)  
 two house LIM ADD man that  
*that man's only two houses*

This last example illustrates possessor nesting.

(31) [[[tīna] sehe] nāni] teē nūkwán (Alexander 1988:224)  
 dog child brother:ME man that  
*that man's brother's child's dog*

In order to accommodate all the distinct positions required, I use a version of the DP hypothesis (Abney 1987, Stowell 1989) as shown in the following tree diagram. Quantifiers and/or determiners head the DP. The possessor occupies the specifier of DP on the right and Degree words adjoin to D'. The NP complement has the demonstrative in its right specifier position, and adjectives right-adjoin to N'. The only required element is N<sup>0</sup>.



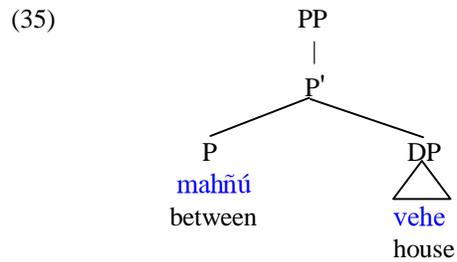
2.4. Prepositional Phrase

As expected for VSO languages, the P comes before its complement NP.

- (33) *xíin ndá sehē de* (Alexander 1988:242)  
 with PL child his:RES  
*with his children*

- (34) *mahñú vēhē* (Alexander 1988:242)  
 between house  
*between the houses*

A simple tree for (34) is given below in (35)



Body part nouns are also used as prepositions, as shown in (36)-(37).

- (36) *ini ñūnu* (Alexander 1988:301)  
 insides net:bag  
*in a net bag*

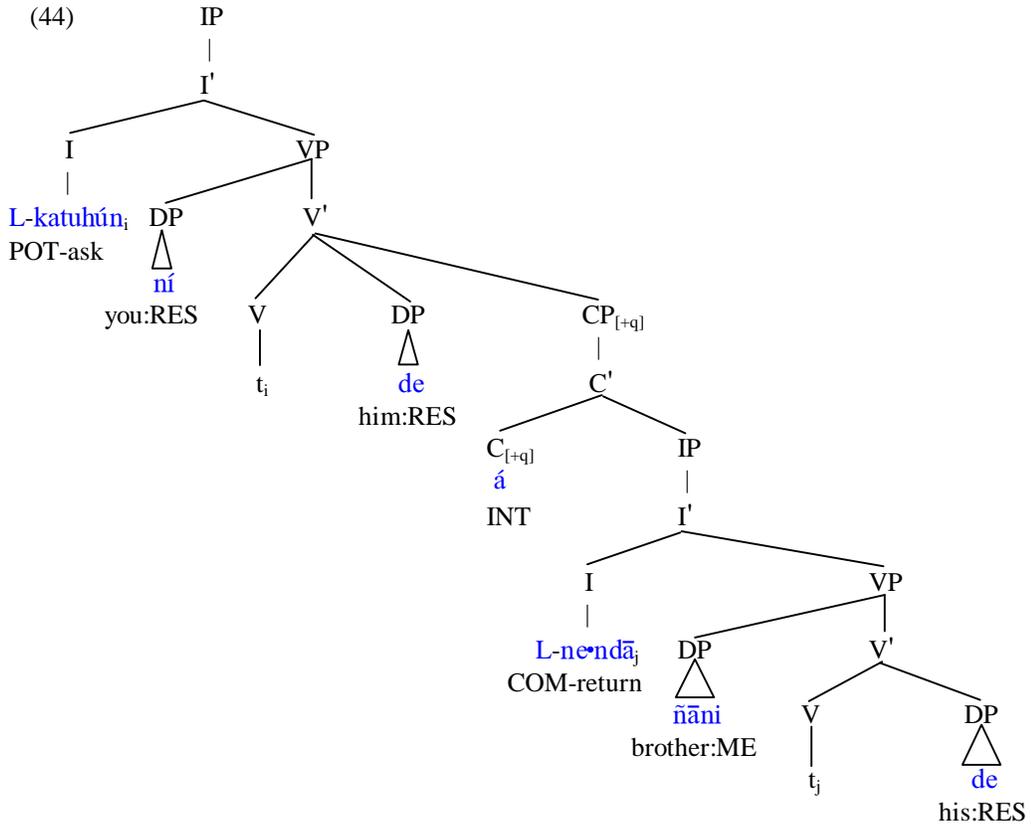
- (37) *nuu ñāhān* (Alexander 1988:227)  
 face woman  
*in front of the woman or to the woman*



3.2. *Embedded Yes/No questions.*

Embedded Yes/No questions have the same internal structure as main clause Yes/No questions. The CP<sub>[+q]</sub> is subcategorized for by the matrix verb and is thus connected at the V' node. Example (43) illustrates such a sentence, and its tree structure is shown in (44).

- (43) *katuhún ní de á ne•ndā<sup>6</sup> ñāni de*  
 POT:ask you:RES him:RES INT COM:return brother:ME his:RES  
*Ask him if his brother has returned.* (Alexander 1988:187)



<sup>6</sup> Colons are Alexander's way of expressing vowel length.

#### 4. Content Questions.

##### 4.1. Main Clause

The Wh-questions are formed in a manner similar to English questions. That is, the Wh-phrase starts in its subcategorized position in the clause and then is fronted. The subject, object or any nominal complement as well as adverbials can be questioned, as shown in the following examples.

##### *Questioning subjects and objects.*

- (45) *naá*<sup>8</sup> *chóho* (Alexander 1988:182)  
 what CON:cook  
*What is cooking?*
- (46) *naá* *kí:kū* *ñā* (Alexander 1988:183)  
 what CON:sew she  
*What is she sewing?*
- (47) *na* *ñāhān* *n-ku•nū* *shikin* *yáhá* (Alexander 1988:183)  
 what woman COM:weave tunic this  
*Who wove this tunic?*
- (48) *ní* *kúū* *xa* *váxī* (Alexander 1988:184)  
 who CON:be UN INC:come  
*Who is coming?*
- (49) *na* *njīvi* *n-ka•nā* *de* (Alexander 1988:183)  
 what person COM-COM:call he/him:<sup>9</sup>RES  
*Whom did he invite? or Who invited him?*
- (50) *ní* *kúū* *xa'* *n-ka•nā*<sup>10</sup> *de* (Alexander 1988:185)  
 who CON:be UN:COM COM-COM<sup>10</sup>:call he/him:RES  
*Whom did he invite? or Who invited him?*

##### *Questioning verbal complements.*

- (51) *naá* *kúu* *ñā* (Alexander 1988:183)  
 what CON:be she  
*What is she?*
- (52) *naá* *teē* *kúu* *de* (Alexander 1988:183)  
 what man CON:be he:RES  
*Who is he?*
- (53) *na* *sehē* *kúu* *xīn* (Alexander 1988:184)  
 what child CON:be he:FAM  
*Whose child is he?*

<sup>7</sup> The translation of *na* as *what*, and *ní* as *who*, or *where* is somewhat misleading perhaps. Ruth Mary Alexander tells me that they are really less specific and more specific counterparts of the same function. *na* is a general questioning word: any of many, *ní* is more specific. It is like English *which*, a selection from a known group.

<sup>8</sup> *naá* is an interrogative pronoun. *na* is an interrogative demonstrative.

<sup>9</sup> Without a context there is no way of knowing which argument raised.

<sup>10</sup> Com-Com is used because the aspect is represented here both by a tone and a prefix. This type of glossing is used in the source.

Questioning adjuncts.

When **nama**

(54) **nāmā n-ku·ū de prēsídente** (Alexander 1988:186)  
 when COM-COM:be he:RES president  
*When was he president?*

(55) **na kwiya n-ku·ū de prēsídente** (Alexander 1988:186)  
 what year COM-COM:be he:RES president  
*What year was he president?*

Why **nuku**

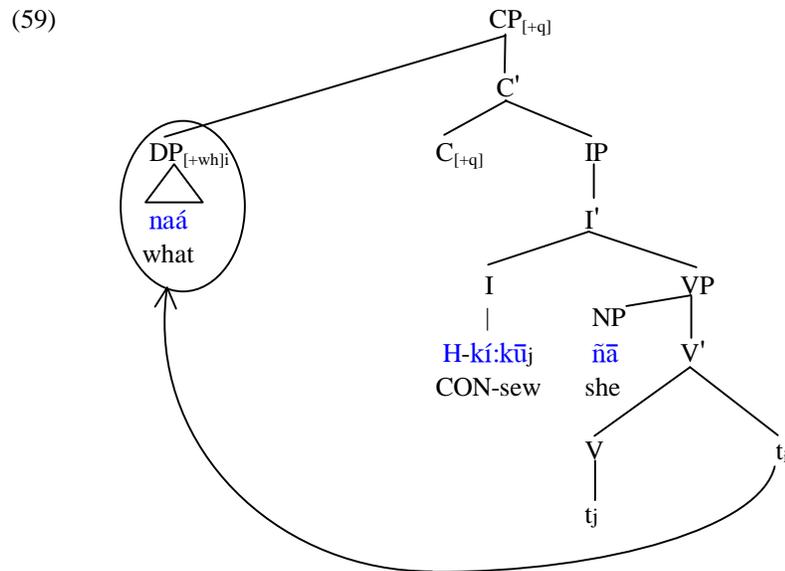
(56) **nukū sákwihná de ndātínú ñāni de** (Alexander 1988:186)  
 why CON:steal he:RES thing brother:ME his:RES  
*Why does he steal his brother's things?*

Where **ní**

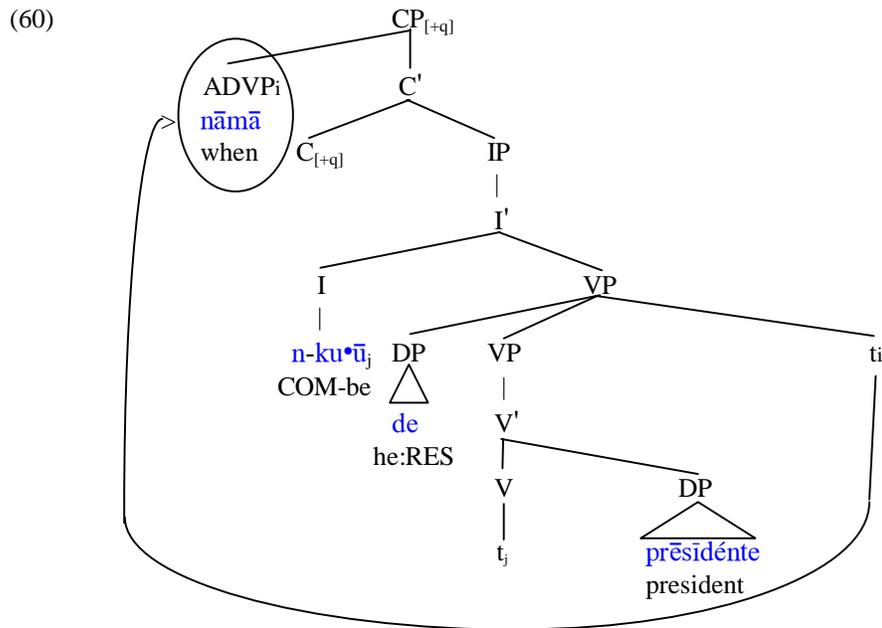
(57) **ní kwahan de** (Alexander 1988:185)  
 where INC:go he:RES  
*Where did he go?*

(58) **ní kúū nuu kikū ñā sāhmā** (Alexander 1988:185)  
 where CON:be face POT:sew she cloth  
*Where will she sew the cloth?*

For now, we will assume that this fronting is the normal movement of a [+wh] phrase to the Specifier of the CP<sub>[+q]</sub>, as shown in (59) for example (46). (In section 5.5 we provide a different analysis.)



Similarly the tree in (60) illustrates example (54) with an interrogative adjunct.



The following examples with the Wh-phrases in situ are ungrammatical.<sup>11</sup>

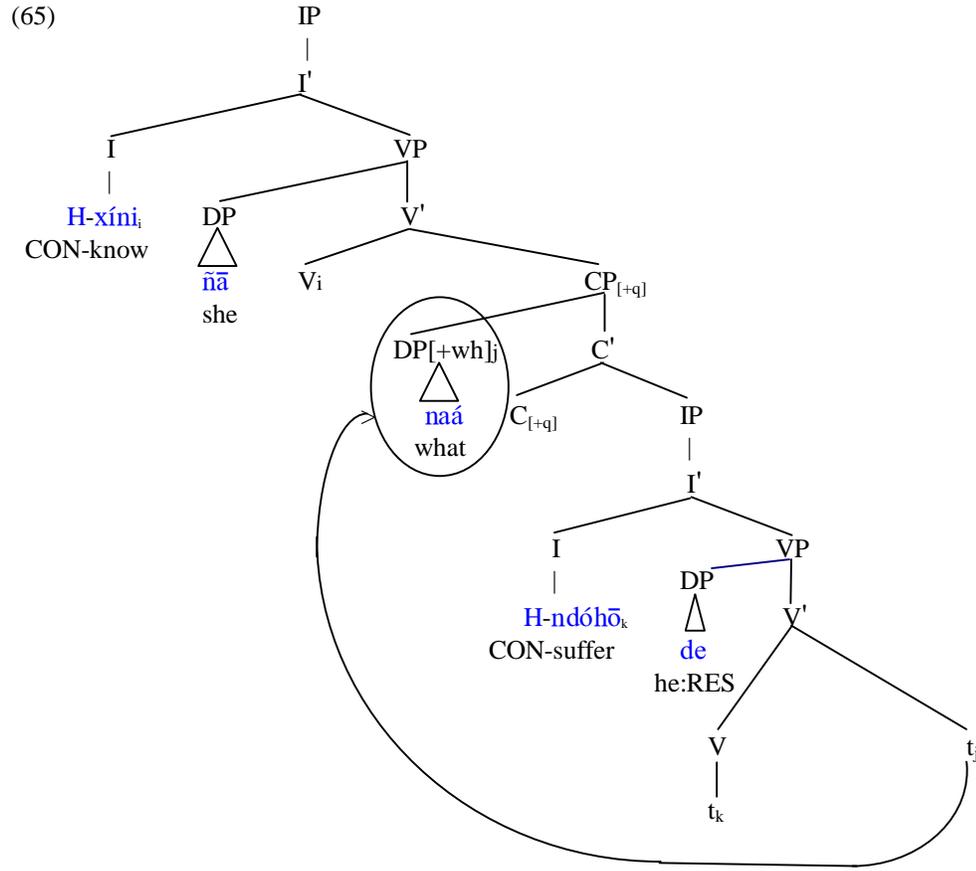
- (61) \*n-ku•nū            na    nāhān   shikin   yáhá  
 COM-COM:weave    what   woman   tunic   this  
 (*Who wove this tunic?*)
- (62) \*n-ka•nā            de            na    njīvi  
 COM-COM:call he/him:RES    what   person  
 (*Whom did he invite?*)
- (63) \*n-ka•nā            na    njīvi    de  
 COM-COM:call    what   person   he/him:RES  
 (*Who invited him?*)

<sup>11</sup> Personal conversation with Ruth Mary Alexander, July 1996.

4.2. Embedded Wh questions.

Example (64) demonstrates that embedded Wh-questions parallel main clause Wh-questions.<sup>12</sup> Its tree structure is given in (65)

- (64) *xíni*      *ñā*      *naá*      *ndóhō*      *de*      (Alexander 1988:187)  
 CON:know    she      what    CON:suffer    he:RES  
*She knows what is the matter with him. or She knows what has happened to him.*



<sup>12</sup> In the following example a question word appears in a nonfronted position. Notice that this is a declarative clause, not interrogative. That means the function of the interrogative is carried in the position of the CP[+q] specifier and not in the Wh-word alone.

- (i) *dē*      *ndūú*      *ná*      *íñí*      *yáhá*      (Alexander 1988:297)  
 and    NEG:CON:be    what    CON:stand    here  
*and there hasn't been anyone standing here.*

The following utterance is an interesting exception that seems to be reminiscent of Polish since it looks like more than one Wh-word is fronted.

- (ii) *na*      *ní*      *nuu*      *xíkā*      *ki*      *tū*      *nú*      (Alexander 1988:303)  
 what    where    face    CON:walk    recently    REP    you:FAM  
*Where were you walking just now?*

This is part of a text elicited from a native speaker. The free translation only gives a single question, making the function of these two question words unclear. Ruth Mary Alexander (p.c., July 1996) explained that she was uncertain whether this was normal speech. Until a native speaker of the language can be asked, or other data found, nothing else can be done to test or analyze this particular example.

## 5. Inversion in Questions

Inversion occurs in two constructions: interrogative prepositional phrases and interrogative possessive phrases. The phenomenon of inversion in question formation is shared by various language families throughout Meso-America (Smith Stark 1988). Data is presented in the first two sections, and then analyses which have been proposed for other languages are discussed. My proposal for Mixtec follows in section 5.5.

### 5.1. Pied-Piping with Inversion in interrogative prepositional phrases.

The following data illustrates the fact that interrogative prepositional phrases must front and invert. It is ungrammatical to extract just the Wh-phrase and leave the preposition in situ. Example (68) demonstrates that the final inversion is necessary.

- (66) ní nuu ndée ñā (Alexander 1988:185)  
 where face CON:sit she  
*Where does she live?*
- (67) na nuu xehē de tūtu (Alexander 1988:185)  
 what face COM:give he:RES paper  
*To whom did he give that paper?*
- (68) \*nuu na xehē de tūtu<sup>13</sup>  
 face what COM:give he:RES paper  
*(To whom did he give that paper?)*

### 5.2. Inversion in interrogative possessive phrases.

Interrogative possessive phrases also must front and invert much like the data in 5.1.

- (69) na sehē kúū xīn (Alexander 1988:184)  
 what child CON:be he:FAM  
*Whose child is he?*

The published data on Ocotepéc Mixtec had only this example for *whose*. In Ocotepéc Mixtec, *na* is used for *what* and *who*. In order to clarify that these are indeed possessors,<sup>14</sup> I also included here data from two other Mixtec languages which illustrate this fronting and inversion. In (70) the noun phrase *shó ñaha* *what person* acts as the possessor of *doo* *cloth*, and in (71) the possessor is *yō* *who* and it has fronted from after the adjective.

- (70) shó ñaha doo (Small 1990:359)<sup>15</sup>  
 what person cloth  
*whose clothes?*  
 Coatzacoapan Mixtec
- (71) yō tinā lōhō (Shields 1988:368)  
 who dog small:SG  
*whose little dog?*  
 Silacayoapan Mixtec

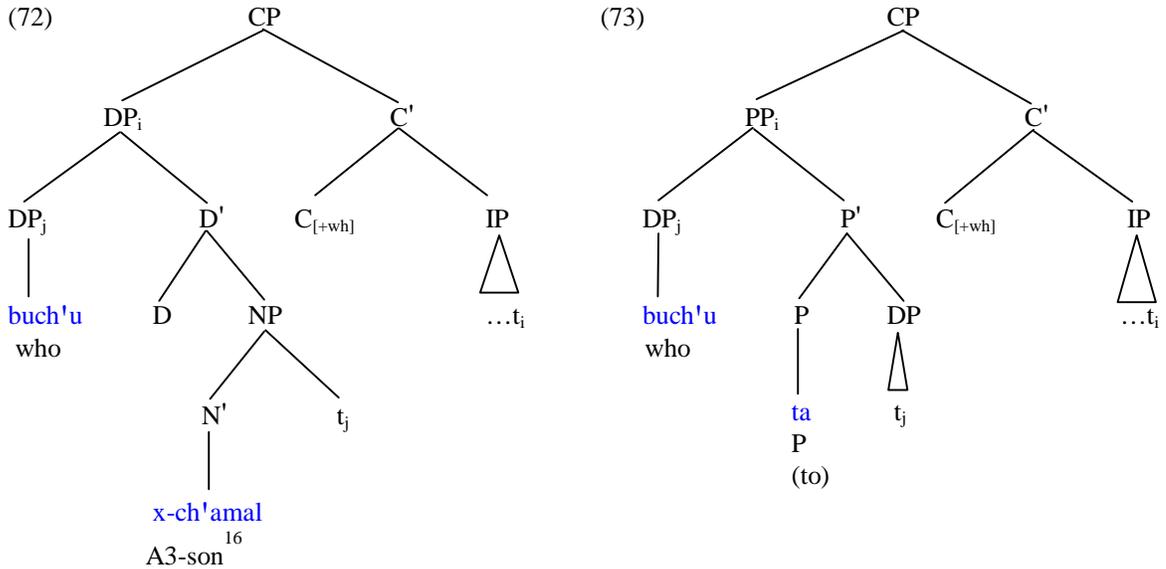
<sup>13</sup> Personal conversation with Ruth Mary Alexander, January 2000.

<sup>14</sup> Note that *na* *what* as a demonstrative would start in specifier of NP position and also undergo inversion.

<sup>15</sup> Although (70) and (71) are not complete sentences, the sources that contain them clearly state that they are ordered before the verb (Small 1990:357, Shields 1988:367).

5.3. Aissen's proposal for Tzotzil.

For both interrogative prepositional phrases and possessive phrases in Tzotzil, Aissen (1996:464, 471) assumes movement of the whole phrase to the specifier of CP with secondary movement to either the specifier of DP or PP. See (72) for an example with DP and (73) for an example of PP.



Aissen (1996:464) claims these movements are motivated by the need for abstract agreement. In (72) *buch'u* agrees with D and DP<sub>i</sub> through specifier-head agreement and the projection of a head to its phrase. DP<sub>i</sub> agrees with C<sub>[+wh]</sub> because it is in the specifier of CP. By transitivity, C<sub>[+wh]</sub> agrees with *buch'u*. Similarly in (73) *buch'u* agrees with P and therefore PP. PP agrees with C<sub>[+wh]</sub>. Transitivity again applies and *buch'u* agrees with C<sub>[+wh]</sub>.

This analysis works for Tzotzil since it is a VOS language. Specifiers of lexical phrases are on the right side, but functional specifiers are on the left side.

However in Mixtec, which is a VSO language, the specifier of the DP on the right is already filled with possessor, as shown in section 2.3. The case is not as clear for the PP, but Mixtec appears to follow Zapotec where all [-V] specifiers are on the right, with [+V] specifiers and extensions of V, like IP and CP, on the left (Black 1994:299-300).

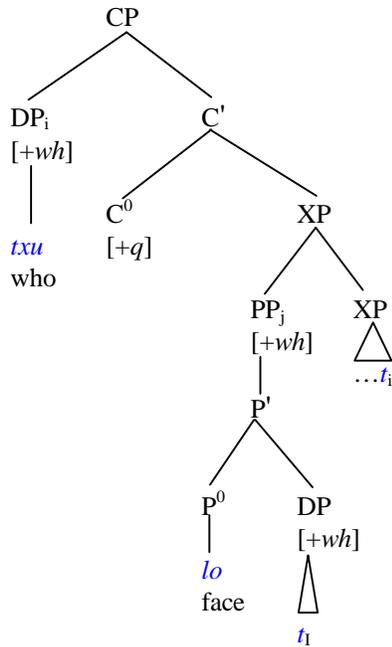
Therefore movement to the specifier of PP and DP is not an option for Mixtec languages.

<sup>16</sup> A3 is third person singular absolutive agreement (Aissen 1996:Appendix).

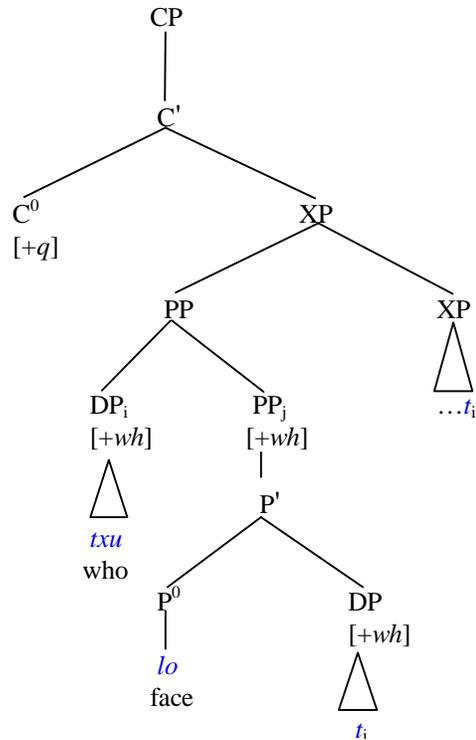
#### 5.4. Black's proposal for Zapotec.

At least some Zapotecan languages have an overt  $C_{[+q]}$  before the Wh-word or phrase, so Black (1994) argues that the Wh-phrase adjoins to the phrase immediately below  $C_{[+q]}$  (either IP or NegP), in a minimal government relationship. This leaves two options available for the secondary movement needed for inversion: to the Spec of  $CP_{[+q]}$  or adjoined to the moved Wh-phrase below  $C_{[+q]}$ . Black (1994:170) provides the following examples and analyses.

(74) a. In Specifier of CP



(75) b. Adjoined to the moved phrase below C<sup>0</sup>



Note that the adjunction option would also be possible if the whole phrase occupies the specifier of  $CP_{[+q]}$  position.

5.5. Proposed analysis for Mixtec

I have not found any cases in Mixtec of an overt  $C_{[+q]}$  co-occurring with a Wh-phrase. However, examples (76)-(77) show that focused phrases and Wh-phrases cannot co-occur in Mixtec. The focused phrase must be in situ after the verb.

(76) ní tee shi:kó nuni xehe tātá de<sup>17</sup>  
 which man CON:sell corn foot father he:RES  
*Who sells corn FOR THE SAKE OF HIS FATHER?*

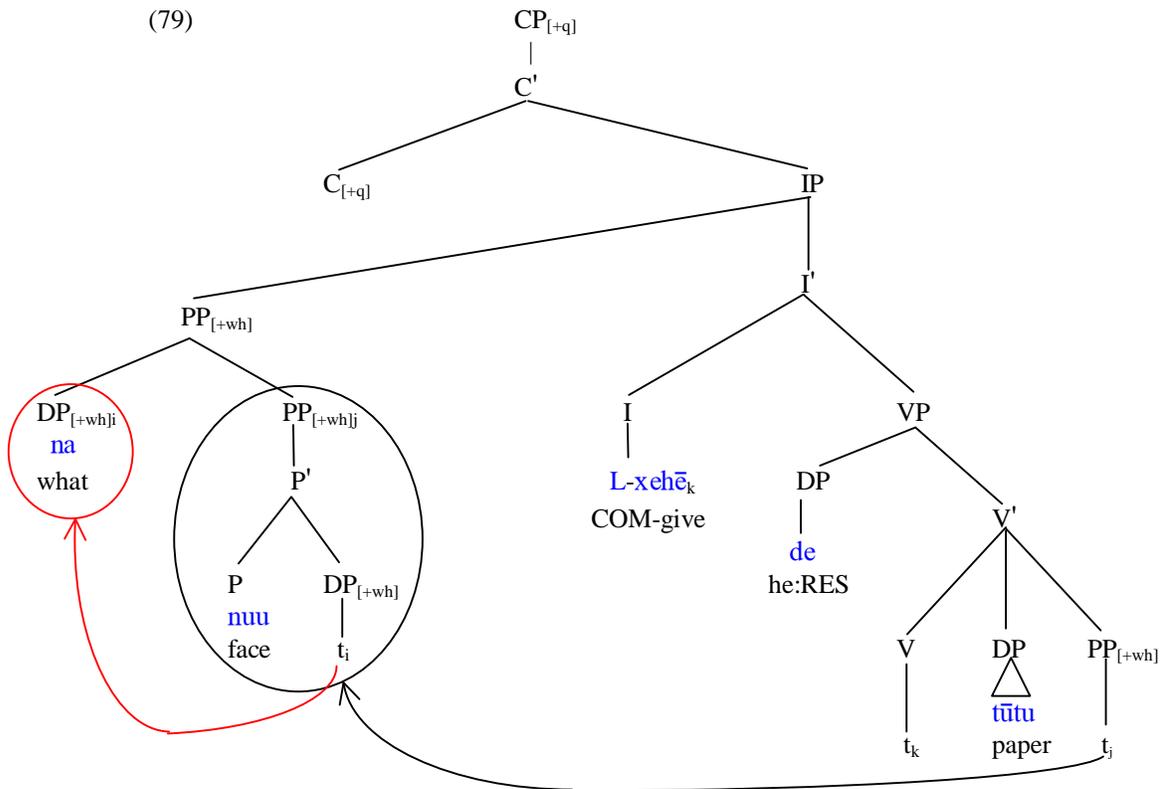
(77) \*ní tee xehe tātá de shi:kó nuni  
 which man foot father his:RES CON:sell corn  
*(Which man, for the sake of his father, sells corn?)*

Example (78) shows that a focused phrase may occur in a yes/no question. It is clear that the position of the focus phrase is below  $CP_{[+q]}$ .

(78) á xehe tātá de shi:kó de nuni (Alexander 1988:182)  
 INT foot father his:RES CON:sell he:RES corn  
*Does he sell corn FOR THE SAKE OF HIS FATHER?*

Therefore, I propose that Wh-phrases and focus phrases both occupy the specifier of IP position. I choose the adjunction option for the secondary movement, since the movement to specifier of CP requires an extraction that is not allowed from its original position, as shown by the fact that pied-piping is required.

Tree (79) gives the tree for example (67) with a fronted prepositional phrase.



<sup>17</sup> Examples (76) and (77) are from correspondence with Ruth Mary Alexander, December 1999.



## 6. Conclusion

I have shown that the VSO surface order of Ocotepc Mixtec can be analyzed in such a way that it falls within the constraints and universals of Government and Binding Theory. I have done this by positing an SVO D-structure with the subject internal to the VP, then raising the verb to the Infl position.

I have then illustrated how Mixtec Yes/No questions are formed, and analyzed the word order in content questions as arising from required movement of the Wh-phrase.

The analysis of Pied-Piping with Inversion accounts for the unique word order required when the Wh phrase is a PP: the whole PP<sub>[+wh]</sub> must front, then the DP<sub>[+wh]</sub> object fronts again. Similar fronting with inversion occurs in interrogative possessive phrases. Due to differences in word order and phrase structure between Tzotzil and Mixtec, I was not able to directly utilize Aissen's (1998) analysis of movement to the specifier of the functional projection. Instead, I propose that the secondary movement adjoins the minimal Wh-phrase to the pied-piped phrase, which occupies the specifier of IP position directly below C<sub>[+q]</sub> (similar to Black's (1994) analysis of Zapotec).

Though this proposal provides a structural account for the inversion, an explanation for what motivates the inversion across language families throughout Meso-America is still lacking.

## References

- Aissen, Judith 1996. Pied-Piping abstract agreement and functional projections in Tzotzil. *Natural Language and Linguistic Theory* 14:447-491.
- Alexander, Ruth Mary. 1988. A syntactic sketch in Ocotepc Mixtec. In Bradley and Hollenbach 1988, 153-304.
- Black, Cheryl A. 1994. *Quiégolani Zapotec syntax*, Ph. D. Dissertation. University of California, Santa Cruz.
- Bradley, C. Henry and Barbara E. Hollenbach, eds. 1988. *Studies in the syntax of Mixtecan languages*, Volume 1. Dallas: Summer Institute of Linguistics and The University of Texas at Arlington.
- Bradley, C. Henry and Barbara E. Hollenbach, eds. 1990. *Studies in the syntax of Mixtecan languages*, Volume 2. Dallas: Summer Institute of Linguistics and The University of Texas at Arlington.
- Broadwell, George Aaron. 1999. Focus alignment and optimal order in Zapotec. Paper presented at the Chicago Linguistic Society meeting.
- Chomsky, Noam. 1981. *Lectures on government and binding*. Foris: Dordrecht.
- \_\_\_\_\_. 1982. Some concepts and consequences of the theory of Government and Binding. Cambridge, Mass.: MIT Press.
- \_\_\_\_\_. 1986. *Barriers*. Cambridge, Massachusetts: MIT Press.
- Chung, Sandra. 1983. The ECP and government in Chamorro. *Natural Language and Linguistic Theory* 1:207-244.
- Koopman, Hilda and Dominique Sportiche. 1991. On the position of subjects. In James McCloskey, ed., *The syntax of verb-initial languages*. *Lingua* special edition, 211-258.
- McCloskey, James. 1991. Clause structure, ellipsis and proper government in Irish. In James McCloskey, ed., *The syntax of verb-initial languages*. *Lingua* special edition, 259-302.
- Rizzi, Luigi and Ian Roberts. 1989. Complex inversions in French. *Probus* 1.1:1-30.

- Shields, Jäna K. 1988. A syntactic sketch in Ocotepc Mixtec. In Bradley and Hollenbach 1988, 307-449.
- Small, Priscilla C. 1990. A syntactic sketch in Coatzopan Mixtec. In Bradley and Hollenbach 1988, 263-479.
- Smith Stark, Thomas C. 1988. 'Pied-Piping' con inversión en preguntas parciales. ms.
- Woolford, Ellen. 1991. VP-internal subjects in VSO and nonconfigurational languages. *Linguistic Inquiry* 22:503-540.

*Roy Eberhardt*  
*PO Box 8987*  
*Catalina AZ 85738-0987*  
*Roy\_Eberhardt@sil.org*