Number Marking Innovations in Zapotec[1]

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Abstract

In Colonial Zapotec, only quantifiers were used to mark number on nominals (if it was marked at all), and all Zapotecan languages still allow this normal quantifier construction. In addition, there were plural forms of the pronouns. Since that time, four types of innovations have emerged. The first three include: a plural proclitic or plural demonstrative with nominals, a verbal prefix which pluralizes the subject, and floating of the plural clitic to directly follow the verb. None of those innovations appear in the southern group of Zapotecan languages. Instead, a more exotic and elaborate quantifier construction is used. The full distribution of this special number marking construction is analyzed and shown to have similar characteristics, both semantically and syntactically, to the Plural Pronoun Construction used in other languages.

1 The Basic Quantifier Construction

The oldest available grammars and vocabularies of primarily the Valley region of Zapotec (including de Cordova 1578a, 1578b and Anonymous 1823) state that there is no distinction between singular and plural nouns or adjectives. The only way to clearly state that a noun is plural is to add a quantifier, either a number or other quantifier, such as all, some, or many. I assume that Colonial Zapotec did not require the presence of a quantifier in a plural situation, since many Zapotecan languages allow an unmarked noun to refer to either a singular or plural referent.

Colonial Zapotec examples of this basic quantifier construction include those in (1).

(1) a. ***ziani pichina***
many deer
'many deer'
(de Cordova 1578a)

b. ***chóna yza***
three year
'three years'
(de Cordova 1578b:411)

To my knowledge, all Zapotec languages spoken today still utilize this basic quantifier construction. Many also allow the quantifiers to carry an aspect marker, as described in the next section.

1.1 The semantics of the aspect marking on the quantifier

The Colonial manuscripts state that the numbers standing alone indicated present time, while the addition of the completive aspect prefix indicated past time or the addition of the potential or future aspect prefix indicated future time. For example, in early Valley Zapotec, the number one is ***toobi***. To indicate past time, it is ***cotoobi*** and for future time, either ***zetoobi*** or ***huetobi*** is used (Anonymous 1823:61; similar forms are noted in de Cordova 1578a:186-187). Examples of the quantifier constructions with aspect markers taken from the 'Confessions' (Anonymous 1823:97) are given in (2).

(2) a. ***co-toobi yza***
C-one year
'last year'

b. ***co-roopa beo***
C-two month
'two months ago'

De Cordova's Zapotec dictionary (1578b) verifies that other quantifiers also distinguished between past, present and future time:

(3)

Time	Form	Gloss	Reference
present	***ti-tòbi*** or ***le-tòbi***	H-all	de Cordova 1578b:404
past	***pi-tòbi***	C-all	
future	***qui-tòbi***	F-all	
present	***ti-chij***	H-much.time	de Cordova 1578b:276
past	***pi-chij*** or ***co-chij***	C-much.time	
future	***ci-chij***	F-much.time	

At least some of the Zapotecan languages still use aspect marking on the quantifiers today, though its meaning has altered slightly. For example, in Isthmus Zapotec, the ordinal numbers for second, third, and fourth are formed by adding either the potential aspect marker for future situations or the completive aspect marker for past situations.

(4) a. ***ra gui-ropa gubidxa***
LOC P-two day
'the second day (in the future)'

b. ***ra bi-ropa gubidxa***
LOC C-two day
'the second day (in the past)'
(Pickett, Black & Marcial 1998:42-43, 2002)

The future aspect marker ***x-*** is used on all numbers to indicate another of that many:

(5) a. ***x-honna bi'cu'***
F-three dog
'another three dogs'

b. ***x-cande bere***
F-twenty chicken
'another twenty chickens'
(Pickett, Black & Marcial 1998:42, 2002)

The potential aspect marker also has another use with numbers and the quantifier meaning all in Isthmus Zapotec: it indicates that the number specified is the total group. (There is a tone change and the final vowel is laryngealized to distinguish this form from the future ordinal form illustrated in (4a).)

(6) a. ***gui-ropa' ba'du'***
P-two child
'both of those children'

b. ***gui-onna' bi'cu'***
P-three dog
'all three of those dogs'

c. ***gui-rá' ba'du'***
P-all child
'all of those children'

d. ***gui-dubi beela***
P-all meat
'all of that meat'
(Pickett, Black & Marcial 1998:43-44, 2002)

In Quiegolani Zapotec, part of the southern group, similar meanings are given to the three aspect markers.[2] The completive aspect marker ***w-*** can be used to indicate a finished period of time, as in (7a- b), or to form an ordinal number as in (7c).

(7) a. ***W-ra gyëël w-a-xee noo.***
C-all night C-go-rise 1EX
'The next day (after all night) we got up.'

b. ***W-deb iz w-ya x-mig noo lgyëz.***
C-one year C-go POS-friend 1EX town
'Last year my friend went to the village.'

[2]The Quiegolani Zapotec data in the remainder of this section are primarily from Regnier (1989).

c. ***Per chene w-ya Jose w-rup tir w-za-no Jose Juan.***
but when C-go José C-two time C-walk-take José Juan
'But when José went the second time, he took Juan.'

Likewise, the future marker ***s-*** may be used to indicate 'another' (8a- b) or 'again' (8c).

(8) a. ***Por s-teb koo zob s-te giblew ne r-naa men.***
on F-one side PR/sit F-one faucet that H-wash.hands 3RD
'On the other side sits another faucet at which they wash their hands.'

b. ***Nes s-yon iz y-tsoow men te Biblya na disa.***
inside F-three year P-make 3RD one Bible which language
'Within another three years, they will make a Bible in Zapotec.'

c. ***Xiid noo s-te x-yuu de.***
F/come 1EX F-one POS-house 2
'I will come again to your house.'

The third aspect marker that can appear on these quantifiers is the potential aspect, ***y-*** or ***gy-***. Its use indicates that the number expressed by the quantifier is that of the whole group, whereas a number by itself gives a partitive reading. For example, the use of the potential marking on the number in (9a) indicates that the three rifles were all the rifles that the thieves had. In (9b), the reading is instead that the man carried three out of a larger group of rifles that the thieves had.

(9) a. ***W-eey men gy-on x-kwiib ngbaan.***
C-take 3RD P-three POS-rifle thief
'He carried the thieves' three rifles.'

b. ***W-eey men tson x-kwiib ngbaan.***
C-take 3RD three POS-rifle thief
'He carried three of the thieves' rifles.'

Only the potential aspect marking occurs on the special quantifier constructions presented in section 3, and it has exactly the same holistic meaning as in the basic quantifier constructions illustrated here (9a). Likewise, when the special quantifier constructions occur without the potential aspect marker, the partitive meaning is conveyed (Black 1994:329-30, 2000:267-8).

1.2 Plural forms of pronouns

Both singular and plural forms for at least some of the personal pronouns are documented in the Colonial sources. The following charts give the various pronoun forms in early Valley Zapotec, taken from information in Anonymous (1823:17-18).

Free Pronouns

Person	Singular		Plural	
first	***naa***	'I / me'	***tonoo***	'we / us'
second	***luy***	'you'	***latoo***	'you (pl)'
third	***niquee***	'he / she / they / him / her / them'		

Bound Pronouns as Possessors

Person	Singular		Plural	
first	***pizaanaya***	'my sister'	***pizaananoo***	'our sister'
second	***pizaanalo***	'your sister'	***pizaanatoo***	'your sister'
third	***pizaananí***	'his / her / their sister'		

Bound Pronouns as Subjects

Person	Singular		Plural	
first	***rácáya***	'I am'	***rácatonoo***	'we are'
second	***rácálo***	'you are'	***rácatoo***	'you (pl) are'
third	***rácani***	'he / she / they are'		

Reflexive Pronouns

Person	Singular		Plural	
first	***yoobia***	'myself'	***yoobinoo***	'ourselves'
second	***yoobilo***	'yourself'	***yoobitoo***	'yourselves'
third	***yoobini***	'himself / herself / themselves'		

2 The Plural Marking Innovations

Marlett & Pickett (1986, 2001) document three additional methods of pluralization for noun phrases and third person pronouns available in the Zapotecan languages of today. Since there is no record of their existence in the Colonial documents, I label them as innovations. A particular language may have none, all, or any combination of the following characteristics:

- A plural proclitic;
- A prefix on the verb to pluralize the subject;
- Floating of the plural clitic to directly follow the verb.

The most common innovation is the plural proclitic, as illustrated by the Isthmus Zapotec data in (10). The examples in (11) verify that the plural clitic fills the same position as numbers or other quantifiers, since they may not co-occur.

(10) a. ***ca yoo***
PL house
'houses'

b. ***ca ba'du'***
PL child
'children'

c. ***ca guie'***
PL flower
'flowers'
(Pickett, Black & Marcial 1998:19, 2002)

(11) a. ***chupa yoo***
two house
'two houses'

b. ****chupa ca yoo***
two PL house
(two houses)

c. ****ca chupa yoo***
PL two house
(two houses)

d. ***stale yoo***
many house
'many houses'

e. ****stale ca yoo***
many PL house
(many houses)

f. ****ca stale yoo***
PL many house
(many houses)

This same plural proclitic is also used to pluralize both the free and dependent forms of the third person pronouns. The verbal prefix which indicates that the subject is plural is illustrated in (12) for Yatzachi Zapotec.

(12) ***Ch-əsə'ə-sed gueyə' bidao'.***
CONT-PL-study five child
'Five children are studying.'
(Butler 1988:148)

Related forms of this verbal prefix are used to pluralize a third person pronominal subject. Floating of the plural clitic from the direct object nominal phrase to a position directly following the verb is illustrated in (13) from Chichicapan Zapotec.

(13) ***G-akane'e ra'-lu'h ___ lasa'a'-lu'h.***
P-help PL-2SG relative-2SG
'You should help your relatives.'
(Marlett & Pickett 1986:252)

Some of the other Zapotecan languages allow the plural clitic from third person pronominal direct objects to move to attach to the verb.

3 The Special Quantifier Construction

None of the innovations for pluralization discussed in section 2 are attested in the southern group of Zapotecan languages, nor are there plural forms for the pronouns. Indeed, these languages seem to be the most unmarked, since they also lack any marker for reflexives or reciprocals. It is somewhat surprising, then, that when the speaker wishes to make the number explicit (instead of ambiguous), it is marked via an elaborate quantifier construction, illustrated in (14) from Quiegolani Zapotec, where the parts of the construction are highlighted.[3] The entire construction occupies the subject position in (14), since Zapotecan languages have VSO word order.

(14) ***R-oo men y-rup men Biki nisgaal.***
H-drink 3 P-two 3 Virginia soda
'She and Virginia drink soda pop.'

Since the pronouns are not specified for number, gender, or case, the third person pronoun ***men*** can mean he/she/they or him/her/them or himself/herself/themselves or his/her/their depending upon its position in the sentence. Therefore the full meaning conveyed by the construction in (14) might be expressed in English as *they, she and Virginia, just the two of them...*

The special number marking constructions are more referential than quantificational, with the quantifier specifying the number feature of the construction (as will be shown in section 3.2.1) These constructions abound in both texts and speech. In each case, a nominal phrase is followed by a quantifier (only those meaning all, one, two, three, or four), which is in turn followed by (usually) two nominal phrases, and the whole construction fills an argument position.

The basic form of these constructions is diagrammed in (15), where the subscripts indicate required coindexing.

[3] All the Zapotec examples in this section are from Quiegolani Zapotec, taken primarily from Regnier (1989) as well as from my own field work with Martín Hernández Antonio in 1991 and 1993. See Black (1994:Ch.13, 2000:Ch.12) for a more complete account of this special construction and an analysis within the Principles and Parameters framework.

(15) $\underbrace{DP_1}_{\text{Head}}$ $\underbrace{\text{(aspect-)quantifier } DP_1}_{\text{Adjunct}}$ DP_2

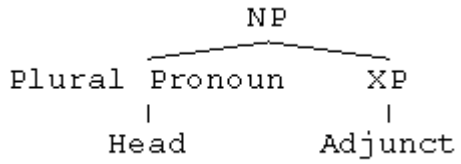
3.1 Similarities to the Plural Pronoun Construction

I claim that these constructions can be seen as exotic versions of the Plural Pronoun Construction (PPC) analyzed by Schwartz (1988). A PPC is composed of a plural pronoun followed by either a nominal phrase or a prepositional phrase, depending upon the language. The plurality of the pronoun either may or must be taken to express the number of the entire construction, rather than the number of only the pronoun itself. An example from Mokilese is given in (16).

(16) ***Kamwa Davy inla duhdu.***
2DUAL Davy go swim
'You (sg.) and Davy went swimming.'
=(Schwartz 1988:4C)

In English we might say *the two of you, you and Davy...* to convey the same information. Schwartz analyzes these constructions as complex nominal phrases which are asymmetric and single-headed, with the constituent structure diagrammed in (17).

(17)



Ladusaw (1989) gives a semantic interpretation for the PPC which requires that the referent of the adjunct be properly included in the reference of the head pronoun. This is in contrast to a regular coordination relationship, where the conjuncts must be disjoint in reference. Ladusaw's interpretation entails the properties noted by Schwartz as universals for the PPC, including the plurality of the head pronoun and the Person Hierarchy Effect. The latter says that the person feature of the head must be greater or equal to the person feature of the referent of the adjunct on a hierarchy of 1 > 2 > 3. In order for the referent of the adjunct to be properly included in the reference of the head pronoun, two things must be true. First, the number of the pronoun must be large enough to include the referent of the adjunct as well as the reference of the head, so it must be minimally dual in number. Second, the person feature of the head pronoun must also be high enough in the hierarchy to include the referent of the adjunct. For example, a second or third person pronoun head cannot include a first person adjunct in its reference. The inclusion requirement thus entails these two properties of the PPC.

Since the Person Hierarchy Effect is also a strong constraint in the southern Zapotec constructions, Ladusaw's semantic interpretation for the PPC provides a starting point for understanding them. Section 3.2 looks further at the semantics of these special number

marking constructions, then section 3.3 expands on the basic insight of a Head-Adjunct structure for their syntax.

3.2 Semantic interpretation

For the PPC, the requirement that the referent of the adjunct be included in the reference of the plural pronoun head entailed the Person Hierarchy Effect (Ladusaw 1989). In that construction, both the number feature and the person feature are determined by the head plural pronoun. Quiegolani Zapotec does not have plural pronouns, so the relevant features are found separately. We begin with the number feature.

3.2.1 The quantifier contribution

The number marking role of the quantifier in the special constructions is crucial to the correct interpretation of the construction. There is substantial evidence that the quantifier marks the number of the entire constituent. For example, while (18a) can have either of the first three readings given (with the first one being correct from the context), the last reading is impossible. In contrast, only that reading is possible if the quantifier is changed to ***y-rup*** P-two as in (18b). What is crucial to understanding this is that ***y-ra*** P-all cannot be used in contexts where there are only two participants, since ***y-rup*** provides an alternative way of expressing that. Instead, the plurality expressed by ***y-ra*** entails that there are at least three participants.

(18) a. ***Sabt w-a-xee noo, w-xa-ndxen noo y-ra x-patron noo.***
Saturday C-go-rise 1EX C-eat-breakfast 1EX P-all POS-boss 1EX
'Saturday I got up and ate breakfast with all my bosses.'
or *'Saturday we got up and ate breakfast with our boss.'*
or *'Saturday we got up and ate breakfast with all our bosses.'*
but not *(*Saturday I got up and ate breakfast with my boss.*)

b. ***Sabt w-a-xee noo, w-xa-ndxen noo y-rup x-patron noo.***
Saturday C-go-rise 1EX C-eat-breakfast 1EX P-two POS-boss 1EX
'Saturday I got up and ate breakfast with my boss.'

Though normally the distinction is made only between dual and plural, using the quantifiers meaning two and all respectively, these structures may also be found where the number marking is singular, as well as where a group of three or four is indicated. Singular marking is used to indicate that the action was done alone, as shown in (19).

(19) ***Teb tir te mër zob lo yag, r-oolbaan maa te-tee maa.***
one time one pigeon PR/sit face tree H-sing 3A one-one 3A
'One time a pigeon was sitting in a tree singing all by himself.'

(20c) shows that while the quantifiers two and all may be thought of as selecting two DP arguments (and one only one), the quantifiers three and four have three and four DP argument positions, respectively (see section 3.3.2 and Black 1994:367-370, 2000:296-299 for the analysis). It is ungrammatical to have more DPs following the quantifier than the quan-

tifier selects: ***gy-on*** P-three only selects three DP arguments, so four DPs cannot be present (20c). Further, having less arguments filled than are selected by the quantifier is highly unnatural (20d), and can only be understood to mean there were four people including Susan and myself who came if the two missing arguments are accounted for by the Redundancy Condition, (discussed in the next paragraph).

(20) a. ***Xiid noo gy-on noo Susan Dolf lee.***
PR/come 1EX P-three 1EX Susan Rodolfo also
'Susan, Rodolfo, and I came (the three of us).'

b. ***Xiid noo y-tap noo Susan Dolf Biki lee.***
PR/come 1EX P-four 1EX Susan Rodolfo Virginia also
'Susan, Rodolfo, Virginia, and I came (the four of us).'

c. ****Xiid noo gy-on noo Susan Dolf Biki lee.***
PR/come 1EX P-three 1EX Susan Rodolfo Virginia also
(Three of us came, including Susan, Rodolfo, Virginia and I.)

d. **??*Xiid noo y-tap noo Susan* (*lee*).**
PR/come 1EX P-four 1EX Susan also
(Four of us came, including Susan and I.)

There is also a simpler construction which is fully grammatical that acts like a plural (or dual, triple, etc.) pronoun would in other languages. I analyze this as a special case of the full construction which is subject to a Redundancy Condition. The Redundancy Condition says that if DP_2 (and/or DP_3 and/or DP_4 when the quantifiers meaning three and four are used) is the same pronoun as DP_1 then DP_2 is not realized phonetically, since it adds no new information. Constructions illustrating this Redundancy Condition are given in (21a) and (22a); the (b) examples show that repetition of the pronoun is ungrammatical.

(21) a. ***S-ya men y-rup men.***
PR-go 3 P-two 3
'They both were going.'

b. ****S-ya men y-rup men men.***

(22) a. ***G-u-sëë noo y-ra noo.***
P-eat-dinner 1EX P-all 1EX
'We all will eat dinner.'

b. ****G-u-sëë noo y-ra noo noo.***

This simpler construction can also be used appositively, as in (23), where the number feature of the quantifier must match the number of persons referred to in the appositive construction (bracketed), further confirming that the quantifier specifies the number of the entire structure.

(23) a. ***Xiid noo gy-on noo,* [*txup bech Dolf noo lee*].**
PR/come 1EX P-three 1EX two brother Rodolfo 1EX also
'The three of us came, Rodolfo's two brothers and I.'

b. ****Xiid noo gy-on noo,* [*Susan no txup bech Dolf noo lee*].**
PR/come 1EX P-three 1EX Susan and two brother Rodolfo 1EX also
(The three of us came, Susan, Rodolfo's two brothers and I.)

c. ***W-a men y-tap men,* [*tson bech Dolf no Susan lee*].**
C-go 3 P-four 3 three brother Rodolfo and Susan also
'They four went, Rodolfo's three brothers and Susan.'

d. ****W-a men y-tap men,* [*tson bech Dolf*].**
C-go 3 P-four 3 three brother Rodolfo
(They four went, Rodolfo's three brothers.)

3.2.2 Head type and inclusion

Unlike the PPC, the head DP_1 in these special number marking constructions is not restricted to being pronominal. It can also be filled by any referential nominal phrase, including proper names, common noun phrases, and quantified noun phrases. Some examples of each type are given in (24).

(24) a. ***W-zhoon men y-ra men x-pëëd noo.***
C-run 3 P-all 3 POS-baby 1EX
'She and my children ran away.'

b. ***W-ya maa y-rup maa x-mig mër gos.***
C-dance 3A P-two 3A POS-friend pigeon female
'He danced with the female pigeon's friend.'

c. ***W-guu Jose y-rup Jose xuz noo leen x-yuu xuz noo.***
C-sow José P-two José father 1EX inside POS-house father 1EX
'Jose and my father put it inside my father's house.'

d. ***W-nëëz mëëk ngyed y-rup ngyed konej.***
C-catch dog chicken P-two chicken rabbit
'The dog caught a chicken and a rabbit.'

e. ***Te men y-rup x-pëëk men z-a x-ten men.***
one 3 P-two POS-dog 3 PR-go POS-ranch 3
'A man and his dog were going to his ranch.'

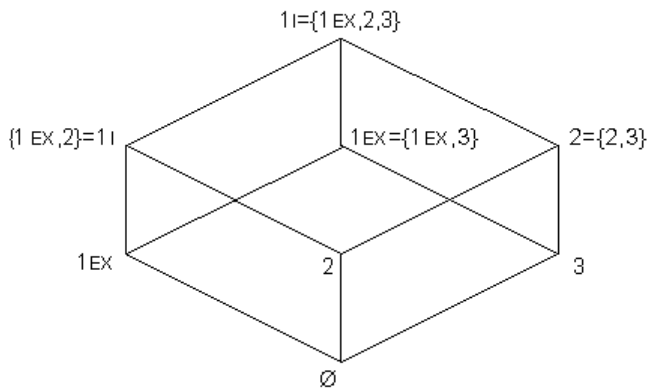
The similarities to the PPC are clear in (24a- b), the examples with pronominal heads. By superimposing the number marked by the quantifier on the head pronoun, we have the same effect as a plural pronoun. Then, the referents of the pronoun and second DP in the

adjunct can be seen as included in the reference of the 'plural pronoun' head, as shown in the readings given in (25) for (24a- b).

(25) a. *'They all, she and my children, ran away.'(=24a)*
b. *'The two animals, he and the female pigeon's friend, danced.'(=24b)*

The notion of inclusion within the reference of a pronoun can be formalized as Set-theoretic inclusion, which forms the lattice shown in (26).[4] Combining a first person exclusive pronoun and a second person pronoun yields a first person inclusive pronoun. A first person exclusive pronoun may add a third person referent and still remain first person exclusive. Likewise, a second person pronoun may add a third person referent and remain second person. Finally, the combination of a first person exclusive pronoun, a second person pronoun, and a third person pronoun requires the use of first person inclusive. First person inclusive is thus the top or upper-bound of the lattice, while the empty set is the bottom or lower-bound.

(26)



The requirement that the referent(s) of the adjunct be included in the reference of the pronoun head thus entails the Person Hierarchy Effect, due to the meaning of the person features of the pronouns. For example, since a second person pronoun refers to a group which includes the hearer but excludes the speaker, a construction with a second person pronoun as head could not have a first person adjunct. Likewise, a third person pronoun refers to a group which excludes both the speaker and the hearer, so neither a first person nor a second person adjunct is allowed. The inclusion interpretation thus accounts for the Person Hierarchy Effect without a separate stipulation that the person feature of the head must be greater or equal to the person feature of the adjunct on a scale of 1>2>3.

Once we move to non-pronominal heads, however, the inclusion interpretation seems more problematic. Giving a reading similar to those in (25) for (27a- e) yields the bizarre results shown in (27). In each of these examples, the reference of head and of the adjunct seem to be disjoint.

[4]Bill Ladusaw (p.c.) pointed out the lattice properties of pronominal systems. See Partee, ter Meulen & Wall (1990:Ch.11) for the mathematical properties of lattices.

(27) a. *??The two Josés, José and my father, put it inside my father's house.(=24c)*
b. *??The dog caught two chickens, a chicken and a rabbit.(=24d)*
c. *??Two one mans, including a man and his dog, were going to his ranch.(=24e)*

Surprisingly, in Meso-American languages the inclusion relationship may still be workable. Judith Aissen (p.c.) found that PPC-type constructions in Tzotzil which have proper names rather than plural pronouns as the head are also grammatical and receive basically the same interpretation as regular PPCs. In both Tzotzil and Zapotec, a proper name may denote not only that individual, but also his family or close associates. Following up on this reasoning, we could assume that the correct extension of Ladusaw's semantic analysis of the PPC would be that the referent(s) in the adjunct must be included in the reference of the head, with the number feature of the group being given by the quantifier. Under this analysis, proper names and common noun phrases become simply special types of third person pronouns. Then, just as the third person animate (but nonhuman) pronoun ***maa*** could not include reference to a person, John could not include reference to someone, say, in his enemy's family. This analysis might be made to work for (24c), since José and my father could be close associates, and for (24e), since a man's dog certainly belongs to him. It does not seem workable for (24d), however, since the reference of chicken does not seem in any way to include the reference of rabbit. Therefore, more needs to be said to entail the Person Hierarchy Effect for non-pronominal heads; inclusion alone is not sufficient.

3.2.3 The Person Hierarchy Effect and group reference

In addition to the case of (24d), where the inclusion relation does not hold between the reference of the head and the reference of the adjunct, there are problematic cases where inclusion does hold. Examples (28)-(29) show that the inclusion analysis does not entail the Person Hierarchy Effect for non-pronominal heads. If the person referred to by the second person pronoun is a member of Susan's family, the inclusion interpretation would predict that (28b) is grammatical, but it is not, since it violates the Person Hierarchy Effect.

(28) a. ***Ts-a de y-rup de Susan.***
P-go 2 P-two 2 Susan
'You can go with Susan.'

b. ****Ts-a Susan y-rup Susan de.***

Similarly, ***xnaa noo*** my mother should be able to head a construction which includes me, but as (29b) shows, the Person Hierarchy Effect again rules this out.

(29) a. ***Tempran r-a-xee noo y-rup noo xnaa noo.***
early H-go-rise 1EX P-two 1EX mother 1EX
'Early my mother and I would get up.'

b. ****Tempran r-a-xee xnaa noo y-rup xnaa noo noo.***

Clearly, it is the person feature of the head that is crucial. In order to ensure that the Person

Hierarchy Effect is met we need the person feature of the head to be the person feature for the entire structure. Also, the quantifier marks the number for the construction. I capture both of these properties in the semantic interpretation given in (30), where 'the mother DP' signifies the whole construction.

(30) **Proposed Semantic Interpretation**
The mother DP defines a group which has the person feature of the head DP_1 and the number feature of the quantifier. The referents of all the arguments of (i.e. DPs following) the quantifier must be included in the defined group.

This means that, as before, a first person exclusive head would require that the hearer (second person) could not be part of the group. Similarly, a first person inclusive head would require that both the speaker and the hearer be included. A second person head would mean that the speaker (first person) could not be included, and a third person head would exclude both the speaker and the hearer. For example, the makeup of the group X referred to by ***Susan y-rup Maria*** Susan P-two Mary would be calculated as follows:

Susan is included in the defined group; the person feature = third, so no first or second person referents are included.
Mary is included in the defined group; the number feature = two, so no other members of the group are allowed.

The proposed interpretation thus entails both the Person Hierarchy Effect and the number resolution for the structure. It covers both pronominal and non-pronominal heads, thus clarifying and extending Ladusaw's analysis beyond the limited domain of the PPC. However, there is one problem remaining: pronominal heads are preferred over non-pronominal heads. Thus, even when a third person pronoun is used, it cannot be in DP_2 while a non-pronominal is the head.[5] To assure that a pronominal head is always chosen over a non-pronominal head, non-pronominals need to be treated as if they have 'fourth' person feature rather than third person on an appropriately expanded lattice.

3.3 Syntactic analysis

More of the forms of the special number marking construction are illustrated in section 3.3.1, then section 3.3.2 gives the full distribution of both the contiguous and separated versions of the construction, leading to the syntactic structure I propose.

[5]Chung (1991) reports that there is a similar hierarchical ranking of pronouns over non-pronominals in Chamorro. The subject of a transitive irrealis clause is required to be equal or superior to the object on this hierarchy. If a non-pronominal subject (like the DP_1 head) is present, the object (comparable to DP_2) cannot be a pronoun.

3.3.1 Various forms of the constructions and their conditions

Section 3.2.1 introduced the Redundancy Condition, which allows for a simplified version of the construction in which $DP_{2...n}$ are not expressed when they are identical to DP_1. There are two other conditions under which the repeated DP_1 following the quantifier can be optionally omitted. These two conditions, which are part of the overall grammar of Quiegolani Zapotec (rather than being specific to these special number marking constructions), will be covered in the next two sections. Section 3.3.1.3 then demonstrates the ordering restrictions on the DPs following the quantifier. Besides giving a better understanding of the construction descriptively, these conditions combine with the fact that the quantifiers select a certain number of arguments to point to a clausal analysis of the quantifier and the DPs following it.

3.3.1.1 The Subject = Possessor of Object Condition

In addition to the examples of the full construction we have seen where all the DPs are overt, there are many examples where there is no repeated DP_1 after the quantifier. One condition allowing this repeated DP_1 to be phonetically silent is the Subject = Possessor of Object Condition, which says that DP_1 may be absent after the quantifier if it is also the possessor of DP_2. (31) shows this optionality when DP_1 and the possessor of DP_2 are a proper name and (32) gives an example where both are pronominal.[6] (33) verifies that this optionality is not possible when the possessor of DP_2 is different from DP_1.

(31) a. ***Biki z-a g-un kompanyar Gecha y-rup x-pëëd Gecha.***
Virginia PR-go P-LM accompany Lucrecia P-two POS-baby Lucrecia
'Virginia went to accompany Lucrecia$_i$ and her$_i$ baby.'

b. ***... Gecha y-rup Gecha x-pëëd Gecha.***

(32) a. ***Tempran r-a-xee noo y-rup noo xnaa noo.***
early H-go-rise 1EX P-two 1EX mother 1EX
'Early my$_i$ mother and I$_i$ would get up.'

b. ***... noo y-rup xnaa noo.***

(33) a. ***W-zhoon men y-ra men x-pëëd noo.***
C-run 3 P-all 3 POS-baby 1EX
'She and my children ran away.'

b. ****... men y-ra x-pëëd noo.***

This optionality is the same phenomenon seen in regular transitive sentences when the subject and the possessor of the object are coreferent. Some examples are given in (34),

[6]Principle C of the Binding Theory (Chomsky 1981) must be parameterized for Quiegolani Zapotec; proper names may be repeated throughout the sentence rather than changing all references after the first to pronouns. Further, there is no marking on the pronouns to indicate reflexivity (Black 1994:Ch.5, 2000:Ch.4).

where the subject position is empty in each case, indicated by the underscore. In (34a) both expressed possessors are pronominal, and in (34b) a full nominal phrase fills that position.

(34) a. ***Dxe w-dxiin __ x-ten men***
already C-arrive POS-ranch 3
'When he$_i$ arrived at his$_i$ ranch

w-kaa __ x-kix men chu yag.
C-put POS-bag 3 belly tree
he$_i$ put his$_i$ bag on a tree.'

b. ***S-ya __ ru x-yuu mër gol.***
PR-go mouth POS-house pigeon male
'The male pigeon$_i$ went to his$_i$ house.'

There is clearly a special relationship between the subject and the possessor of the object in many Zapotecan languages. In Yatzachi Zapotec, for example, all reflexive and reciprocal relationships are expressed by this type of portmanteau relationship where only the possessor of the object is overt (Butler 1976). This condition is therefore part of a general constraint in Zapotec grammar.[7] Most importantly, it gives evidence for a clausal analysis of the quantifier and following DPs, since the relationship between the DP_1 and the possessor of DP_2 is exactly the same as that between the subject and the possessor of the object in a clause.

3.3.1.2 The Non-Pronominal Head Condition

The final condition which allows the repeated DP_1 following the Quantifier to be omitted distinguishes between pronouns and non-pronominals. If DP_1 is a pronoun not meeting either the Subject = Possessor of Object Condition or the Redundancy Condition then it must be overt after the quantifier. In the case of a non-pronominal head DP_1, the repeated DP_1 may be optionally omitted. With proper names or common nouns as heads, the overt realization of the repeated DP_1 appears to be truly optional, whereas the preference is clearly not to repeat the DP_1 in constructions with more complex heads (see (40)). Since it is also possible to replace the second instance of DP_1 with a coreferent pronoun, I claim that the Non-Pronominal Head Condition is simply an instantiation of the hierarchy of DP-types (35) and the null third person pronoun (which can only have a non-pronominal antecedent), both of which are otherwise at work in Quiegolani Zapotec grammar (Black 1994:101-108, 2000:79-86).

[7]See Black (1994:341-349, 1996, 2000:276-281) for further details and a proposal towards an analysis of this phenomenon.

(35) **Hierarchy of DP-types**

quantified nominal phrases	free
possessed or modified nominal phrases	↓
proper names or common nouns	
pronouns	bound

Examples (36)-(40) illustrate this Non-Pronominal Head Condition (or Hierarchy of DP-types). When the head DP_1 is a pronoun not meeting either of the two conditions previously presented (36)-(37), DP_1 must be repeated after the quantifier, as verified by the ungramaticality of the (b) examples. In (37) the two different pronouns used indicate two groups being combined, giving a reading of we all, I with them,...

(36) a. ***R-oo men y-rup men Biki nisgaal.***
H-drink 3 P-two 3 Virginia soda
'She and Virginia drink soda pop.'

b. ****R-oo men y-rup Biki nisgaal.***

(37) a. ***N-ga w-u-gwe noo y-ra noo men.***
there C-eat-lunch 1EX P-all 1EX 3
'There we all ate lunch.'

b. ****N-ga w-u-gwe noo y-ra men.***

The repeated DP_1 may be omitted, however, when both DP positions are filled by non-pronominals. (38) illustrates this optionality when DP_1 is filled by a proper name and (39) verifies that it also holds for common nouns.

(38) a. ***Xna-ydoo x-pee Manwel n-ak Katalina y-rup Tomas.***
mother-church POS-son Manuel S-become Catherine P-two Thomas
'The godparents of Manuel's son are Catherine and Thomas.'

b. ***... Katalina y-rup Katalina Tomas.***

(39) a. ***W-nëëz mëëk ngyed y-rup ngyed konej.***
C-catch dog chicken P-two chicken rabbit
'The dog caught a chicken and a rabbit.'

b. ***W-nëëz mëëk ngyed y-rup konej.***

With more complex nominal phrases, the preference is clearly not to repeat the full DP_1 (40a), but instead to use the common noun only (40b), a coreferent pronoun (40c), or the null third person pronoun (40d) (i.e. omitting the second DP_1).

(40) a. ***??W-nëëz mëëk te ngyed win y-rup te ngyed win konej.***
C-catch dog one chicken small P-two one chicken small rabbit
'The dog caught a small chicken and a rabbit.'

b. ***W-nëëz mëëk te ngyed win y-rup ngyed konej.***

c. ***W-nëëz mëëk te ngyed$_i$ win y-rup maa$_i$ konej.***

d. ***W-nëëz mëëk te ngyed win y-rup konej.***

3.3.1.3 Ordering restrictions on the DPs following the quantifier

Coindexation of the head DP and the first DP after the quantifier (the two DP$_1$s) is required. DP$_1$ and DP$_2$ may not be in reverse order after the quantifier, as shown in (41)-(42).

(41) a. ***Nga ts-uu de y-rup de Susan.***
there P-be 2 P-two 2 Susan
'There you'll be with Susan.'

b. ****Nga ts-uu de y-rup Susan de.***

(42) a. ***Xna-ydoo x-pee Manwel n-ak Katalina y-rup Tomas.***
mother-church POS-son Manuel S-become Catherine P-two Thomas
'The godparents of Manuel's son are Catherine and Thomas.'

b. ****... Katalina y-rup Tomas Katalina.***

c. ***... Katalina$_i$ y-rup men$_i$ Tomas.***

The unattested examples above where the first DP following the quantifier is not coindexed with the head DP$_1$ are simply uninterpretable. The reason for this restriction ties in with the need for assuring correct semantic construal of the adjunct,[8] especially in the separated version of the structure, presented in the next section.

3.3.2 Distribution and syntactic structure

This section presents the full distribution of the special number marking constructions. Section 3.3.2.1 shows that the construction as a whole fills all the normal DP positions. This distribution, coupled with the fact that the whole construction can be focused as a unit, argues for its constituency as a DP. Section 3.3.2.2 then presents the proposed internal structure. Data for the separated version is given in section 3.3.2.3, and section 3.3.2.4 shows that the distribution of the separated version can be easily accounted for via Extraposition and/or Focusing movement.

[8]Informally, the correct construal is assured by requiring that a quantifier phrase may only adjoin at D-structure to a D' which is coindexed with the external argument of the quantifier.

3.3.2.1 The contiguous version

These constructions are found in subject position in the vast majority of cases, as in almost all of the examples seen so far. The examples in (43) show that the structure can also be focused.

(43) a. ***Laa xnaa noo y-rup xuz noo r-laa-w.***
FM mother 1EX P-two father 1EX H-do-3I
'My mother and my father did it.'

b. ***Noze noo y-ra noo s-ya den.***
only 1EX P-all 1EX PR-go ranch
'Just the rest of us go to the ranch.'

These structures can also be the object of a regular declarative sentence.

(44) a. ***W-nëëz mëëk ngyed y-rup ngyed konej.***
C-catch dog chicken P-two chicken rabbit
'The dog caught a chicken and a rabbit.'

b. ***W-nache meedx men y-ra men.***
C-frighten lion 3 P-all 3
'The lion frightened everyone.'

(45) gives various examples where the special number marking construction is acting as the object of a preposition.

(45) a. ***R-e Jasint lo Rafayel y-rup Lawer: ...***
H-say Jacinto face Ralph P-two Larry
'Jacinto said to Ralph and Larry ...'

b. ***R-e Jasint lo men y-rup men Biki: ...***
H-say Jacinto face 3 P-two 3 Virginia
'Jacinto said to her and Virginia ...'

c. ***W-gwed Benit mëlbyuu lo men y-ra men.***
C-give Benito fish face 3 P-all 3
'Benit gave fish to all of them.'

d. ***W-eey Danyel gyët por noo y-ra noo men.***
C-take Daniel tortillas for 1EX P-all 1EX 3
'Daniel took tortillas for all of us.'

Finally, the contiguous structure can be a possessor, as shown in (46).

(46) ***W-dxiin men led-ne ts-oo men x-kiich Gecha y-rup Karmita.***
C-arrive 3 body-that P-extract 3 POS-paper Lucrecia P-two Carmita
'They arrived at the place where they get Lucrecia's and Carmita's visas.'

The distribution of the contiguous version of the construction leads to the conclusion that the head, at least, is a DP, since it may fill all the normal DP positions. The fact that the whole construction can be focused (43) argues for its constituency as a DP. An alternative account which assumes that the quantifier clause is actually embedded under the main verb, rather than being a DP adjunct, cannot account for this focusing.

3.3.2.2 Proposed syntactic structure

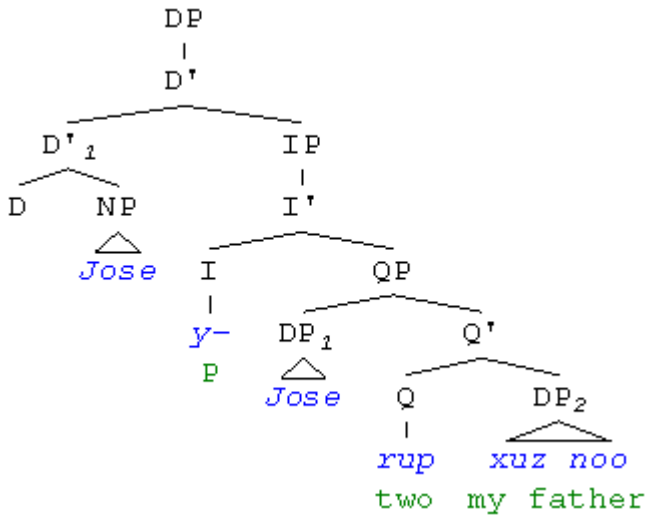
We have established so far that the quantifier and following DPs form an adjunct clause and that the head DP_1 and this adjunct clause together comprise a single constituent. The questions remaining are where the quantifier clause attaches within the DP and what the internal structure of the quantifier clause is. Instead of positing that the adjunct attaches to the head DP itself (as assumed by Schwartz 1988 for the PPC), I propose that the adjunct clause attaches within the DP, most likely adjoined to D', in the same position as relative clauses do.[9] As for the internal structure of the adjunct, I assume that it is an IP which is headed by the Potential marker on the quantifier, just as normal clauses are headed by the aspect marking in I_0. This quantifier head has its specifiers on the left and undergoes movement to I_0, just as verbs do to account for the VSO word order. In addition, the quantifier subcategorizes for a certain number and type of arguments, again as verbs do. Therefore, the quantifiers meaning two and all are like transitive verbs, whereas the quantifier meaning one is like an intransitive verb in its subcategorization requirements, and the quantifiers meaning three and four take that number of arguments, respectively. I further assume that the first argument after the quantifier is the external argument (or subject) in each case, which accords with the ordering restrictions among the DPs and the Subject = Possessor of Object Condition.

The D-structure (before movement of the quantifier) that I propose for the special number marking construction in (47) is given in (48). This whole structure would then occupy the subject position (left specifier of VP) in the sentence. It could also undergo Focusing movement as a constituent to adjoin to IP.

(47) ***W-a Jose y-rup Jose xuz noo.***
C-go José P-two José father 1EX
'Jose went together with my father.'

[9] This base-generated adjunction within DP has the advantage of not violating Chomsky's (1986) prohibition against adjunction to arguments even when it is applied to base generated structures.

(48) D-structure for (47)



3.3.2.3 The separated version

In addition to the contiguous structure we have been considering (as in (49a)), there is a completely synonymous version where only the head DP_1 is in subject position and the adjunct portion appears at the end (49b).

(49) a. ***R-oo men y-rup men Biki nisgaal.***
H-drink 3 P-two 3 Virginia soda
'She and Virginia drink soda pop.'

b. ***R-oo men nisgaal y-rup men Biki.***
H-drink 3 soda P-two 3 Virginia
'She and Virginia drink soda pop.'

The separated construction is identical to the contiguous construction, both in its interpretation, the restrictions on the optionality of the DPs, and the fact that the Person Hierarchy Effect is a strict requirement. Examples of these separated constructions are given in (50)-(53).

There are numerous examples where the head is in the subject position, immediately following the verb, but the quantifier phrase comes after the direct object or locative phrase, as shown in (50).

(50) a. ***W-tsoow Rafayel te mezh y-rup Rafayel Lawer.***
C-make Ralph one table P-two Ralph Larry
'Ralph and Larry made a table.'

b. ***R-ya xuz noo den y-ra xnaa noo, r-boo me gyezh.***
H-go father 1EX rancho P-all mother 1EX H-extract 3F cheese
'My father and mother go to the ranch, and she makes cheese.'

c. ***W-a noo wii lo gyëël y-ra noo men.***
C-go 1EX see face lake P-all 1EX 3
'We all went to see the lake.'

Example (51) shows that the separated construction may also have its head in the subject position of a deeply embedded clause, with the adjunct following the object.

(51) ***Dxe-bel r-laan de ts-a de g-e noo lo men***
already-if H-want 2 P-go 2 P-say 1EX face 3
'If you want to go, I will tell him

xiid men g-u de diiz y-rup de men.
F/come 3 P-chat 2 word P-two 2 3
to come, so that you can talk with him.'

There are also many cases where only the head is in focus position and the adjunct is clause final, as illustrated in (52).

(52) a. ***Te men z-a x-ten y-rup x-pëëk men.***
one 3 PR-go POS-ranch P-two POS-dog 3
'A man$_i$ was going to his$_i$ ranch with his$_i$ dog.'

b. ***Le Jose w-zhoon y-rup x-unaa Jose.***
FM José C-run P-two POS-woman José
'José$_i$ ran away with his$_i$ wife.'

c. ***Le zux noo w-guu bni y-ra mee bzaan noo.***
FM father 1EX C-sow seed P-all boy sibling.opp.sex 1EX
'My father planted seed with all my brothers.'

(53) gives an example of the separated construction where the head is in object position. In this case a locative phrase intervenes between the head and the adjunct.

(53) ***Lex w-a-ron men noo x-yuu x-mig men y-rup x-pëëd noo.***
later C-go-leave 3 1EX POS-house POS-friend 3 p-two POS-baby 1EX
'Then they took me and my baby to their friend's house.'

3.3.2.4 Derivational account for separated version

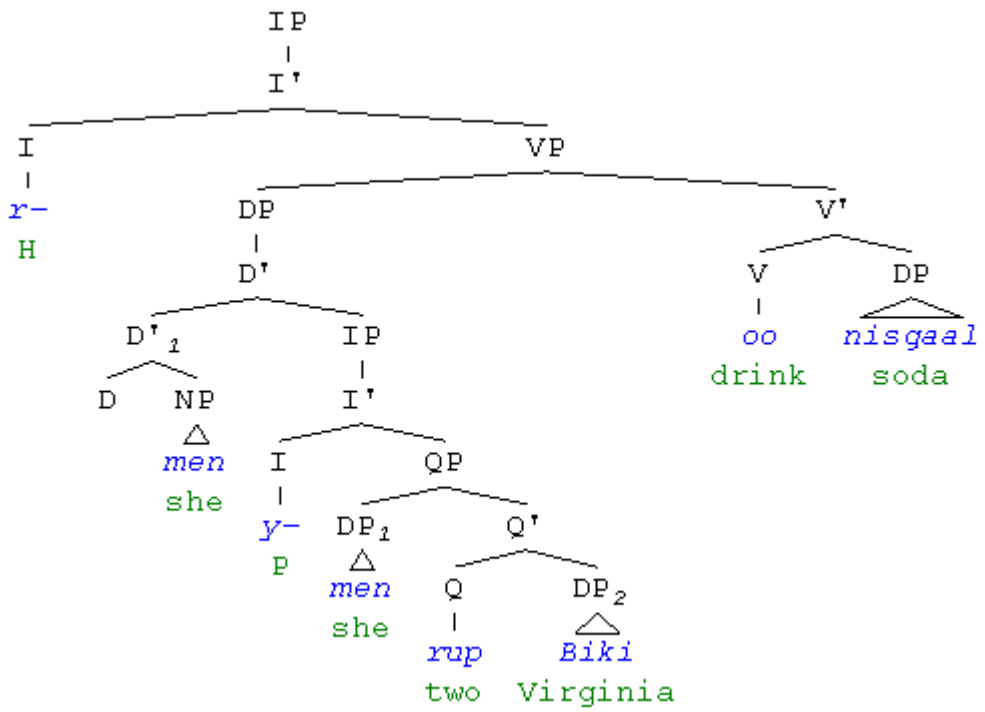
All of these variations in the position of the head and the adjunct in the separated construction can be accounted for straightforwardly with a derivational syntax. The D-structure for the separated construction can be the same as proposed for the contiguous structure. The only movements necessary are Extraposition from DP of the adjunct quantifier clause (relative clauses may also undergo this movement) and the independently needed fronting for focus. The derivational analysis provides a natural account for the fact that the Person Hierarchy Effect and other properties of the construction hold for the separated structure as well as for the contiguous structure.

The contiguous structure in (54a) and separated structure (54b) (repeated from earlier) both begin with the same D-structure (shown in (55)), thus accounting naturally for their synonymy.

(54) a. ***R-oo men y-rup men Biki nisgaal. (=49a)***
H-drink 3 P-two 3 Virginia soda
'She and Virginia drink soda pop.'

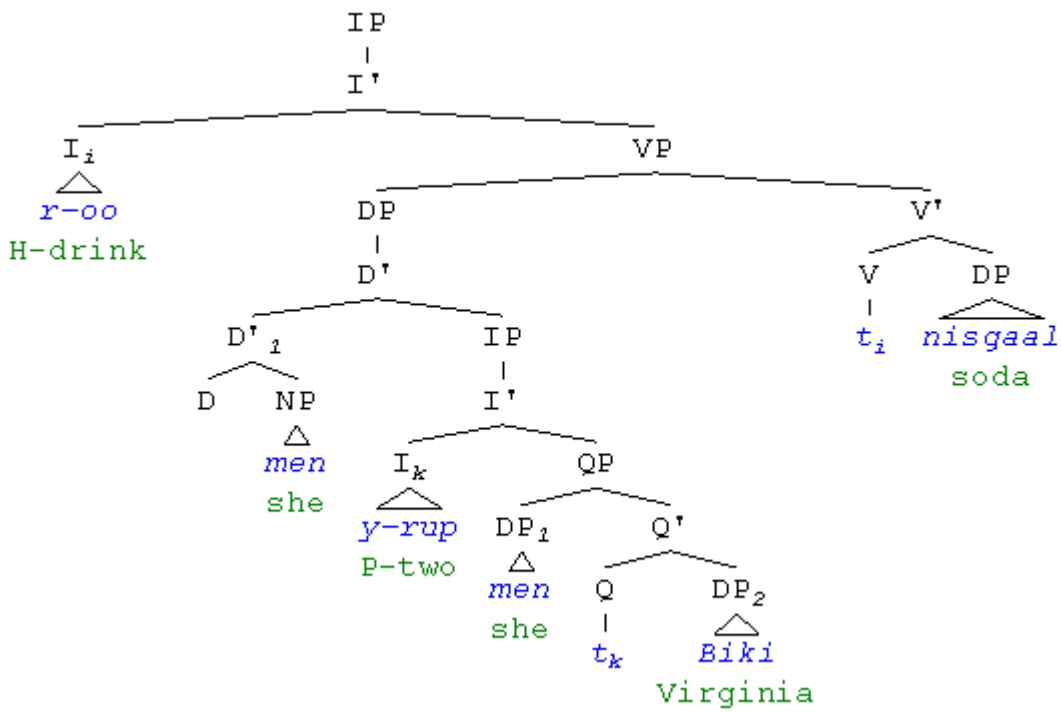
b. ***R-oo men nisgaal y-rup men Biki. (=49b)***
H-drink 3 soda P-two 3 Virginia
'She and Virginia drink soda pop.'

(55) D-structure for (54a- b)



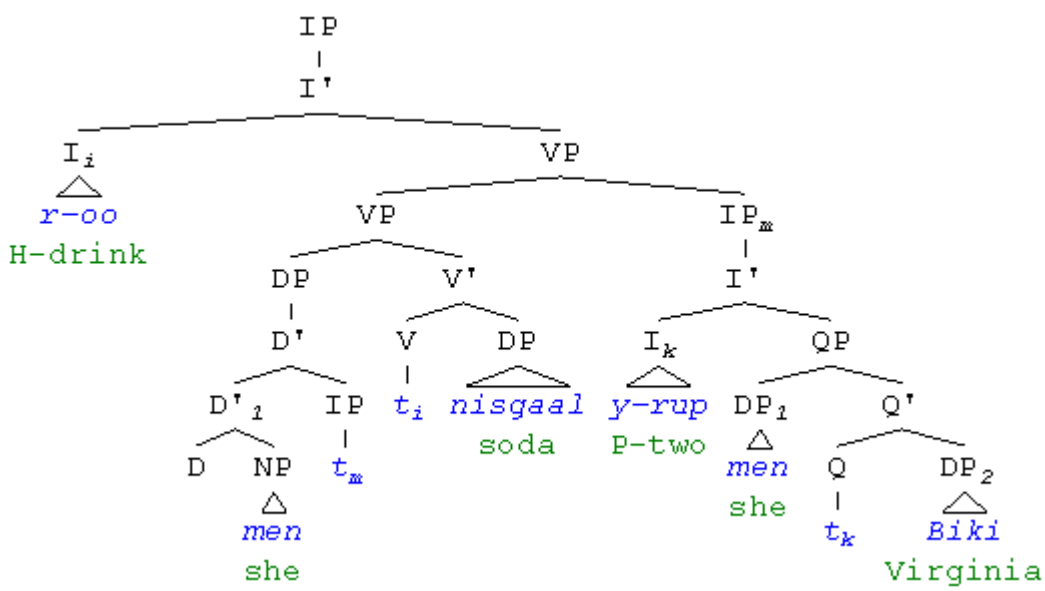
All that is necessary to obtain the S-structure for (54a) is for V_0 to move to I_0 in the main clause and for Q_0 to move to I_0 in the adjunct, as shown in (56).

(56) S-structure for (49a)



Both of these same head movements also take place in (54b). In addition, the IP adjunct undergoes Extraposition from DP movement to obtain the S-structure. Similar Extraposition from DP will also account for the cases where the head is in object position and the adjunct is clause final, as in (53).

(57) S-structure for (49b)



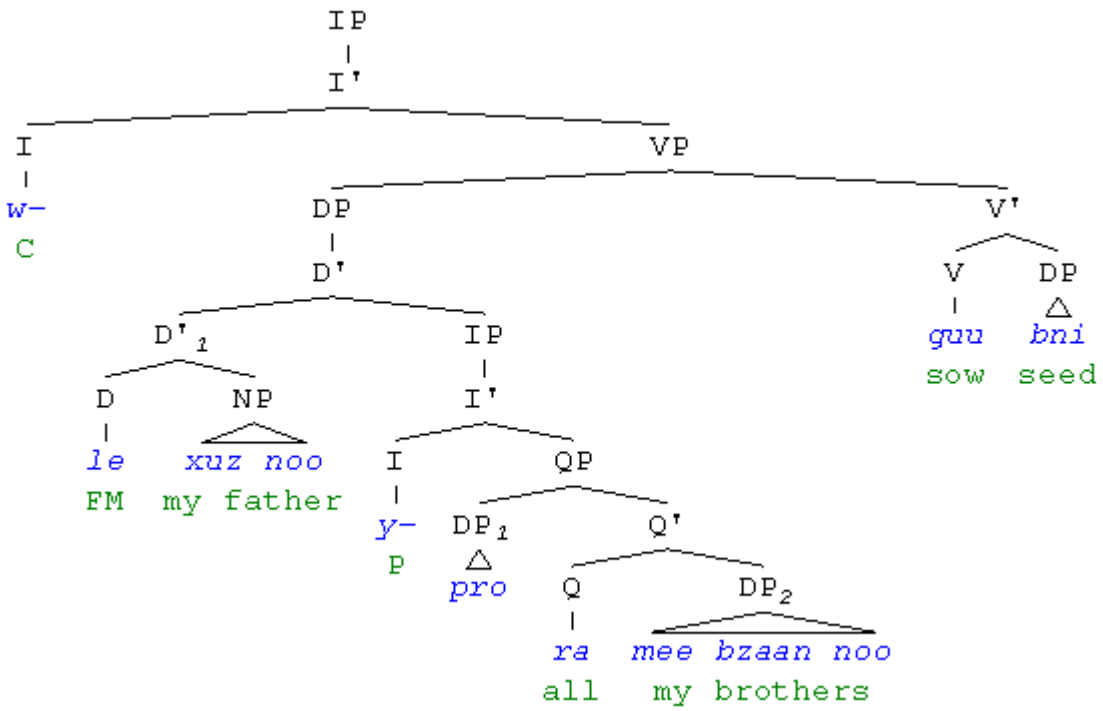
We still need an account for the separated structures where the head is in focus position, such as (58b). Again, the separated structure can be compared with the contiguous structure, which has been focused as a constituent (58a).

(58) a. ***Le zux noo y-ra mee bzaan noo w-guu bni.***
FM father 1EX P-all boy sibling.opp.sex 1EX C-sow seed
'My father planted seed with all my brothers.'

b. ***Le zux noo w-guu bni y-ra mee bzaan noo.***
FM father 1EX C-sow seed P-all boy sibling.opp.sex 1EX
'My father planted seed with all my brothers.'

Both of the examples in (58) begin with the D-structure shown in (59).

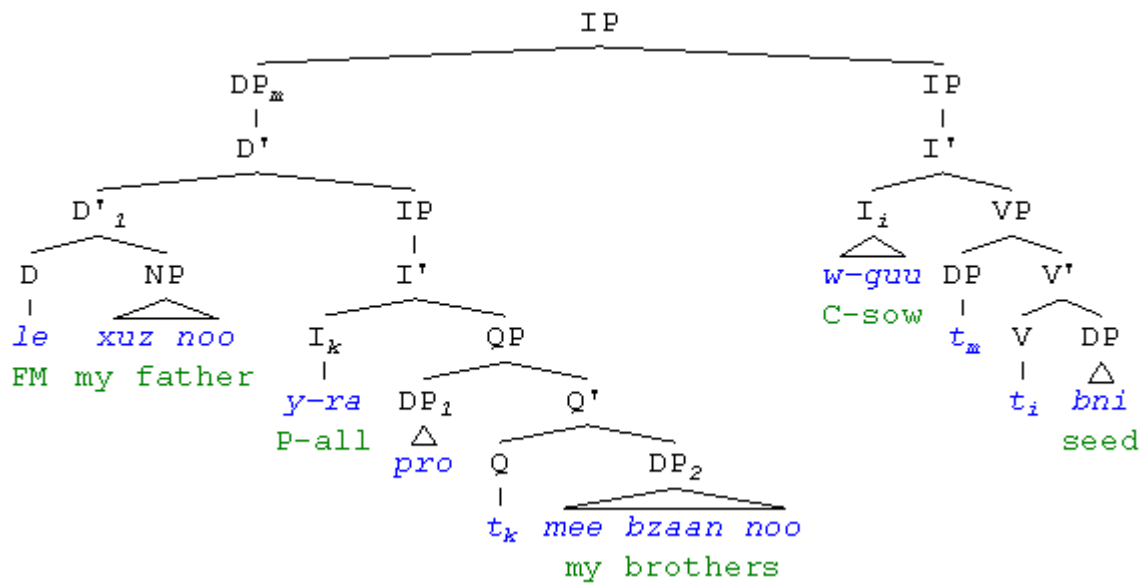
(59) D-structure for (58a- b)



In (58a), the focusing operation moves the entire subject DP to adjoin to IP,[10] with the other head movements also occurring as before.

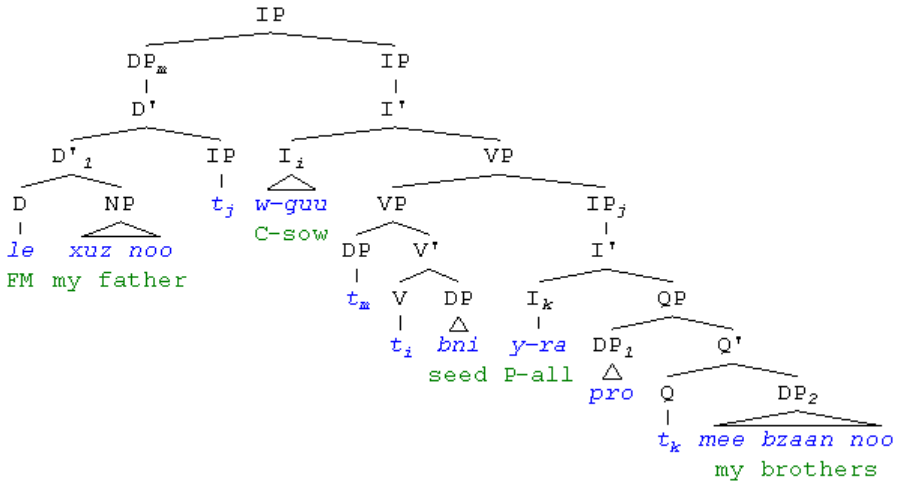
[10]This is a somewhat simplified account of focus movement. See Black (1994, 2000) for the exact position for constituents fronted by focusing.

(60) S-structure for (58a)



To obtain the S-structure for (59b) instead, we must first apply Extraposition from DP to the adjunct clause, and then focus the head, which is all that remains overtly in the subject DP.[11]

(61) S-structure for (58b)



In combination, the syntactic and semantic analyses given for the special number marking constructions thus account for all the properties and requirements of both the contiguous and separated structures.

[11] This separation involving Extraposition from DP and then focusing is also found with relative clauses.

4 Conclusion

The Zapotecan documents from Colonial times verify the presence of plural pronouns and quantifier constructions which include aspect marking. There is no evidence of a plural marker, either as a nominal proclitic or a verbal affix. Based upon the chart in Marlett & Pickett (1986, 2001), the Colonial documents are from areas expected to have at least the plural proclitic, so we can conclude that these plural markers are more recent innovations, probably influenced by Spanish.

The evidence is less clear with respect to the special number marking constructions, since they are only found in the southern group, and these languages were not included among the languages documented in Colonial times. We therefore do not know how far back the special number marking constructions were attested, but there is clear evidence of aspect marking on the quantifier in the regular quantified nominal phrases. Further, these special constructions cannot be innovations from Spanish. Similar semantic constructions with similar syntactic distributions are found in the more normal versions of the Plural Pronoun Construction found in Tzotzil (Aissen 1989) and in Nochixtlán Sur Mixtec (McKendry p.c.).

A. Abbreviations

Pronouns

1EX	=	first person exclusive
1I	=	first person inclusive
2	=	second person
2DUAL	=	second person dual
2SG	=	second person singular
3A	=	third person animate
3D	=	third person deity/baby
3F	=	third person feminine
3I	=	third person inanimate
3M	=	third person masculine
3R	=	third person respectful
3	=	third person general

Aspect or Mood Markers

C	=	completive
CONT	=	continuative
F	=	future
H	=	habitual
IMP	=	imperative
P	=	potential
PR	=	progressive
S	=	stative
U	=	unreal

Miscellaneous

ASSOC	=	verbal suffix used to relate two events
FM	=	focus marker
LM	=	loan marker
LOC	=	locative
PL	=	plural
POS	=	possessive prefix used on alienably possessed nouns

B. Quiegolani Zapotec Orthography

The practical orthography used in the examples from Quiegolani Zapotec is shown in the following charts according to its place of articulation. For clarification, the phonetic symbol is given in parenthesis when it is different from the orthographic symbol.

B.1 Consonant Chart

	Bilabial	Alveolar	Palato-Alveolar	Retro-flexed	Velar	Palatalized Velar	Labialized Velar
Stops	***p***	***t***			***k***	***ky*** (***kʲ***)	***kw*** (***kʷ***)
		d			***g***	***gy*** (***gʲ***)	***gw*** (***gʷ***)
Affricates		***ts*** (t͡s)	***ch*** (t͡ʃ)	***tx*** (t͡ʂ)			
			dx (ʒ)				
Fricatives		***s***		***x*** (ʂ)			
		z		***zh*** (ʒ)			
Nasals	***m***	***n***					
Laterals		***l***					
Approximants	***b*** (***β***)		***y***	***r***			***w***

In addition to the consonants listed in the chart, ***f*** and ***j*** (***h***) are used in Spanish loan words.

B.2 Vowel Chart

	Front	Back Unrounded	Back Rounded
High	***i***		***u***
Mid	***e***		***o***
Low	***ë*** (***æ***)	***a***	

Each vowel can also occur in a laryngealized (or glottalized) form, written as /VV/ in the orthography since there are no vowel clusters.

References

Aissen, Judith. 1989. Comitative Agreement in Tzotzil. *SRC Working Papers* 89-102:1-20.

Anonymous. 1823. *Gramática de la Lengua Zapoteca*. *Edición preparada por Antonio Peñafiel 1981*. México: Editorial Innovación, S.A.

Black, Cheryl A. 1994. *Quiegolani Zapotec Syntax*. Ph.D. dissertation. (Santa Cruz, CA). University of California at Santa Cruz.

Black, Cheryl A. 1996. A backwards binding construction in Zapotec. *Workpapers of the Summer Institute of Linguistics, University of North Dakota Session* 40:75-87.

Black, Cheryl A. 2000. *Quiegolani Zapotec syntax: A principles and parameters account*. *Publications in Linguistics 136*. Dallas, TX: SIL International and the University of Texas at Arlington.

Butler, Inez M. 1976. Reflexive constructions of Yatzachi Zapotec. *International Journal of American Linguistics* 42:331-337.

Butler, Inez M. 1988. *Gramática Zapoteca: Zapoteco de Yatzachi El Bajo*. *Serie Gramática de Linguas Indígenas de México*. México D.F.: Instituto Lingüístico de Verano.

Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.

Chomsky, Noam. 1986. *Barriers*. Cambridge: MIT Press.

Chung, Sandra. 1991. Functional heads and proper government in Chamorro. In J.McCloskey, eds. *The Syntax of Verb-Initial Languages*. Lingua 85:85-134. Amsterdam: Elsevier Science Publishers B.V.

de Cordova, Juan. 1578a. *Arte del Idioma Zapoteco*. *Edición facsimilar 1886*. México: Imprenta del Gobierno en la Escuela de Artes.

de Cordova, Juan. 1578b. *Vocabulario Castellano - Zapoteco*. *Edición facsimilar 1942*. México: Instituto Nacional de Antropologia e Historia.

Ladusaw, William A. 1989. Group reference and the plural pronoun construction. *SRC Working Papers* 89-02:1-20.

Marlett, Stephen A. and Velma B. Pickett. 1986. Pluralization in Zapotec languages. In Mary C. Marino and Luis A. Pérez, eds.*Proceedings of the 1985 meeting of the Linguistic Association of Canada and the United States*, 246-255. Lake Bluff, IL: Linguistic Association of Canada and the United States.

Marlett, Stephen A. and Velma B. Pickett. 2001. Pluralization in Zapotec languages. Mexico Branch: Summer Institute of Linguistics. (http://www.sil.org/mexico/zapoteca/G025a-ZapotecPlurals.htm).

Partee, Barbara H., Alice ter Meulen, and Robert E. Wall. 1990. *Mathematical Methods in Linguistics*. Dordrecht: Kluwer.

Pickett, Velma B., Cheryl Black, and Vicente Marcial Cerqueda. 1998. *Gramática Popular del Zapoteco del Istmo*. Juchitán, Oaxaca, México: Centro de Investigación y Desarrollo Binnizá A.C. y Instituto Lingüístico de Verano A.C.

Pickett, Velma B., Cheryl Black, and Vicente Marcial Cerqueda. 2002. Gramática Popular del Zapoteco del Istmo. Mexico Branch: Summer Institute of Linguistics. (http://www.sil.org/mexico/zapoteca/istmo/G023a-GramaticaZapIstmo-ZAI.htm).

Regnier, Randy. 1989. Collection of unpublished Quiegolani Zapotec glossed texts. Summer Institute of Linguistics, Mexico Branch Manuscript.

Schwartz, Linda. 1988. Asymmetric feature distribution in pronominal ‘coordinations’. In M. Barlow and J. Greenberg, eds. *Agreement in Natural Language: Approaches, Theories, Descriptions*. 237-249. Stanford: CSLI.