

## POSSESSIVES IN CLASSICAL NAHUATL

On superficial examination, one finds a rather wide array of possessive constructions in Classical Nahuatl. The differences among these various constructions are not radical; certain elements are present in some constructions that are absent in others, and there are differences in word order. Still, the variations must be accounted for, and the question arises whether the alternate constructions must be given as a list or whether the differences among them result from general rules of Aztec syntax. The purpose of this paper is to show that the latter alternative is correct; to show that the variations are not a matter of idiosyncrasy but of principle.

The Data

The possessive constructions under consideration all involve one of the seven possessive prefixes listed below:<sup>1</sup>

no 'my'	to 'our'
mo 'your(sg.)'	amo 'your(pl.)'
i 'his, her, its'	i/in 'their'
te 'one's'	

These prefixes are directly attached to the noun designating the possessed element, as in examples 1-7.<sup>2</sup>

- (1) no-ta 'my father' (M23)
- (2) mo-ta 'your father' (M23)
- (3) i-ta 'his father' (M23)
- (4) to-ta 'our father' (M23)
- (5) amo-ta 'your father' (M23)
- (6) in-ta 'their father' (M23)
- (7) te-ta 'one's father' (M23, C1)

In 1-7, the possessor noun phrase is pronominal. When the possessor noun phrase is fully specified, it co-occurs with the possessive prefix, as in 8.

- (8) i-tahuan Tepoztecatl 'Tepoztecatl's  
fathers' (G193)

Thus the presence of a possessive prefix on the possessed noun will be constant throughout the paradigm under consideration.

The third person plural possessive prefix, illustrated in 6, is in. This possessive in must be distinguished from at least two other Aztec morphemes having the same form. One in is a general purpose article. It is somewhat analogous to English the, except that it is evidently not inherently definite.

- (9) in tepecuacuilca 'the people of Tepequacuilco'  
(C187)

- (10) in teteo 'the gods' (G131)

- (11) in in-tlacual yehuatl in tonacayotl

ART/their/food/it/(was)/ART/fruit of the land

'Their food was the fruit of the land.' (C178)

- (12) auh amo onnezticatca in ce tlatatl

and/not/came forth/ART/one/man

'And not a single man came forth.' (G131)

The non-definite character of the article in is apparent in 12.

The other particle in relevant here is a proximal demonstrative; it contrasts with the distal demonstrative on. Either demonstrative can combine with the article in to form a word that can be glossed as 'this' or 'that'.

- (13) in-in patli 'this medicine' (C162)

- (14) in-in tocatl 'this name' (C171)

(15) in-in tlatoani 'this ruler' (C172)

(16) in-on yolcatl 'that beast' (G197)<sup>3</sup>

The possessive in can always be distinguished from the other two because it occurs only as a prefix on a noun (or post-position). However, it may not always be possible to tell the article in and the demonstrative in apart.

At least ten superficially different types of possessive expressions are to be found in the classical texts.<sup>4</sup> Examples follow:

Type IA

(17) in i-nacayo 'her body' (C94)

(18) in in-nezca 'their traces, traces of them'  
(C167)

(19) in in-tlacual 'their food' (C178)

(20) in te-ta 'one's father' (C1)

(21) in mo-macehual 'your servants' (G152)

Type IB

(1-7)

(22) mo-toca 'your fame' (G152)

(23) to-metz 'our thigh' (C125)

(24) to-tzon 'our hair' (C137)

Type IIA

(25) in acocotli i-neloayo 'acocotli root, root  
of the acocotli (sp.  
grass)' (C161)

(26) in tonatiuh i-tzacual 'pyramid of the sun'  
(C192)

(27) in cihuatl i-yomio 'women's bones' (G138)

(28) in teumetl i-necuyo 'sap of the century plant'  
(G143)

Type IIB

- (29) diablo i-ixiptla 'the devil's image' (C182)
- (30) Quetzalcoatl i-pilhua 'Quetzalcoatl's sons'  
(C188)
- (31) chicalotl i-memeyallo 'milk of the chicalotl  
(sp. grass)' (C143)
- (32) teococoliztli i-namic 'remedy for the "divine  
sickness"' (C157)

Type IIIA

- (33) in i-neloayo nopalli 'nopal root' (C161)
- (34) in i-tlacual cuauhtli 'the eagle's food' (G183)
- (35) in i-chan Quetzalcoatl 'Quetzalcoatl's house'  
(G141)
- (36) in i-tlatol Motecuzoma 'Motecuzoma's speech'  
(G156)
- (37) in i-ixiptla diablo 'the devil's image' (G170)

Type IIIB

- (8) i-tahuan Tepoztecatl 'Tepoztecatl's fathers'  
(G193)
- (38) i-tzacual tonatiuh 'pyramid of the sun' (G132)
- (39) i-tzacual metztli 'pyramid of the moon' (G132)

Type IVA

- (40) in oquichtli in i-yomio 'men's bones' (G138)
- (41) in Nanahuatzin in i-acxoyauh 'Nanahuatzin's  
reed, branch'  
(G132)
- (42) in tiacahua in in-nacoch 'the brave men's ear  
plugs' (C177)

Type IVB

- (43) Cuextecat1 in in-tlatocauh 'the ruler of the  
Huasteca' (C193)<sup>5</sup>

Type VA

- (44) in i-pepech in tlatoani 'the ruler's bed'  
(C173)
- (45) in i-mazahuan in teteo 'the gods' deer (=the  
Spaniards' horses)'  
(G170)
- (46) in i-tlal in Mexicat1 'the Mexican's lands'  
(G165)
- (47) in i-nechichiuh in cihua 'the women's dress'  
(G153)
- (48) in in-tenteuh in tlatoque 'the rulers' lip  
plugs' (C177)

Type VB

- (49) i-xolouh in Cuauhtemoctzin 'Cuauhtemoctzin's  
page' (G159)
- (50) in-necauhcayhuan in Tolteca 'remnant of the  
Toltecs' (C187)

Note that the A examples differ from the corresponding B examples in that the former begin with the article or demonstrative in, while the latter do not. Type I differs from types II-V in that it contains no trace of the possessor noun phrase other than the possessive prefix itself. In type II and type IV, the possessor noun precedes the possessed noun, while it follows the possessed noun in types III and V. Finally, types IV and V differ from types II and III by the presence of the article or demonstrative in between the possessor noun and the possessed noun.

That Aztec possessives fall into a limited number of recurring type-classes suggests that the differences among them are systematic and not a matter of random variation. This is further suggested by the fact that not all possible combinations of elements occur. The following variations of 40 would presumably be ungrammatical:

- \*(51) in-in oquichtli i-yomio 'men's bones'

- \*(52) oquichtli in-in i-yomio 'men's bones'
- \*(53) oquichtli i-yomio in-in "
- \*(54) oquichtli i-yomio in "
- \*(55) oquichtli in i-yomio in "
- \*(56) in oquichtli i-yomio in "

Since in-in is a possible sequence, and since (as we will see) in can occur as the last element of a noun phrase, there is no easy way to account for the non-occurrence of 51-56 in terms of surface constraints on word order. When types I-V are viewed as the output of general syntactic rules, on the other hand, the non-occurrence of 51-56 is easily accounted for.

### The Analysis

Except for types IB-IIIB, all the possessive constructions under consideration involve at least one occurrence of in. By surface examination alone, it is impossible to determine whether a given occurrence of in represents the article in or the demonstrative. Moreover, even if this information were available, one would still not know whether the elements in question modified the possessor noun or the possessed noun.<sup>6</sup> Consider 44, for example.

- (44) in i-pepech in tlatoani 'the ruler's bed'  
(C173)

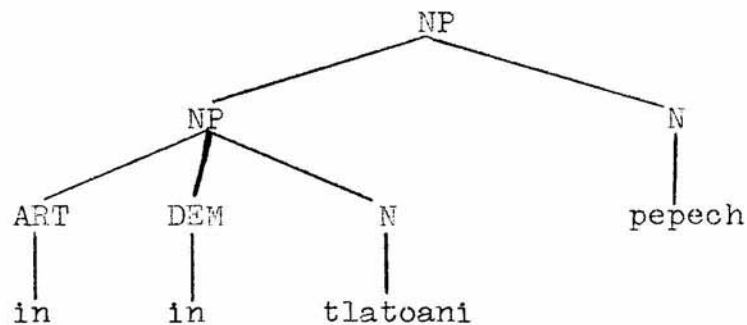
The proper gloss for 44 could conceivably be any of the following: 'the bed of the ruler', 'this bed of the ruler', 'the bed of this ruler', 'this bed of this ruler'. The glosses accompanying the classical texts are not accurate enough to distinguish among them, and it is difficult to deduce anything with certainty from the context. Consequently, this analysis will involve a certain measure of indeterminacy.

Nevertheless, evidence can be found that bears on the treatment of in in possessive constructions; this evidence is forthcoming when surface patterns are viewed as the result of general syntactic rules that apply to abstract underlying structures. We claim that the initial in to be found in the A examples is in all cases the article in (ART). The in which occurs between the possessor noun and the possessed noun in types IV and V is claimed to be the demonstrative in (DEM). Finally, both the article and the demonstrative are claimed to

modify in all cases the possessor noun, never the possessed head noun. These claims are not offered as irrefutable conclusions; they are offered rather as a strong and interesting hypothesis for which a certain amount of evidence is available. This evidence will be presented in the following sections.

Let us assume that a simple noun phrase consists, in underlying structure, of an obligatory article, an optional demonstrative, and the head noun: ART (DEM) N. Having no evidence concerning the internal constituent structure of noun phrases, we will take all three elements to be directly dominated by NP. Let us further assume that a possessor NP is substituted for the ART (DEM) of the head noun that it modifies. The underlying phrase-marker of <sup>44</sup>, after this substitution, would thus be something like PM1.<sup>7</sup>

(44) in i-pepech in tlatoani 'this ruler's bed'  
(C173)



PM1

This substitution of the possessor NP for the ART (DEM) of the head noun accounts for the fact that at most two occurrences of in (exclusive of the possessive prefix in) are possible in a possessive expression; if both the head noun and the possessor noun were allowed to take ART and DEM freely, and if there were no substitution of the type just described, we would expect as many as four occurrences of in.

PM1 is the prototype of the underlying structures that are posited for all ten classes of possessive expressions. Thus far the only argument in its favor (besides the fact that it correctly limits to two the number of occurrences of in in a possessive expression) is a vague argument of plausibility; <sup>44</sup> is certainly a noun phrase, pepech is unquestionably the head noun, and PM1 is not unreasonable a priori as a way of putting the pieces together. Six transformations will



now be introduced that derive the ten surface classes of possessives from underlying structures like PM1. We will see in the next section that these rules are independently motivated almost in their entirety. Additional evidence for the adoption of underlying structures analogous to PM1 will be presented in the final section.

It was noted earlier that the A forms differ from the B forms only in that the former contain the article in while the latter do not. Since we have assumed that ART is obligatory in the underlying structure, we must postulate some rule that optionally deletes it:

Article Deletion

X, ART, Y  
 1 2 3      =====> 1, Ø, 3

Applying, for example, to the structure underlying 20, Article Deletion derives the structure underlying 7.

(20) in te-ta 'one's father' (C1)

(7) te-ta                      "                      (M23, C1)

There is no evidence for considering Article Deletion to be ordered before or after any of the other transformations to be discussed.

The five remaining rules break down into two classes; the first three rules provide for the introduction of the possessive prefix on the head noun, while the last two account for the alternate word orders characteristic of types II-V.

In an expression such as 44 (in i-pepech in tlatoani), the possessive prefix (i) is a pronominal copy of the possessor noun (tlatoani). Introducing this pronominal copy involves three steps: the possessor NP must be reduplicated as a pronoun; this pronoun must be attached as a prefix on the head noun; and the prefix must be marked as a genitive (so that it is spelled phonologically as the possessive form of the pronoun, not, say, as the independent form). We will find reason to give three separate rules, one for each step. These rules will be called Reduplication, Pronoun Attachment, and Genitive Marking.

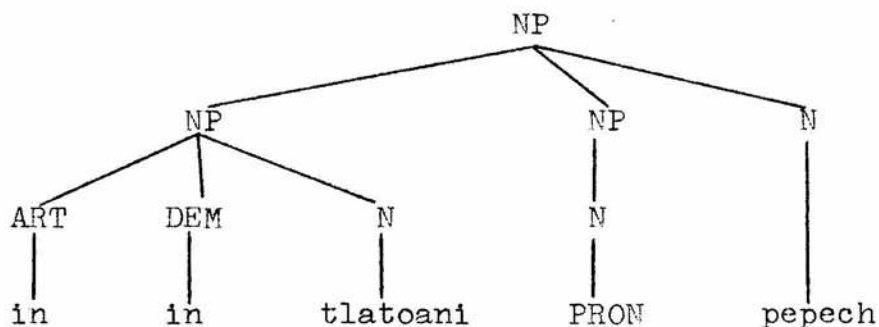
Reduplication derives a pronoun copy of a noun phrase, adjoining this copy directly to the right of the original NP.



Reduplication

$$\begin{array}{ccc} X, & NP, & Y \\ 1 & 2 & 3 \end{array} \implies 1, 2 + \begin{bmatrix} 2 \\ \text{PRON} \end{bmatrix}, 3$$

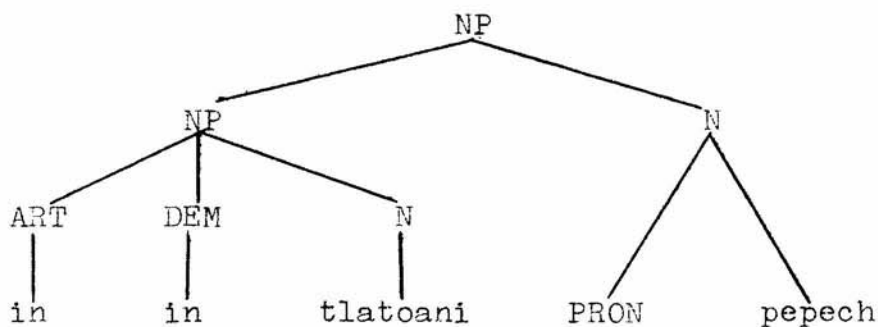
Applying to PM1, for instance, Reduplication derives the intermediate structure PM2.



PM2

Reduplication should probably be restricted so that it may not apply to pro forms (i.e. to personal pronouns or to an unspecified noun phrase such as 'one'). It will be considered obligatory in possessive constructions when it is applicable.

The reduplicated pronoun appears in surface structure as a prefix on the head noun; PM2 must be transformed to something approximating PM3.



PM3

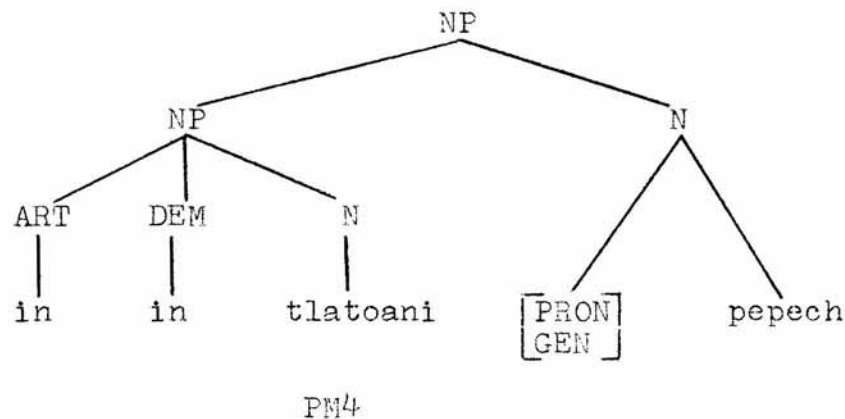
This is accomplished by the obligatory Pronoun Attachment rule.

Pronoun Attachment

X, PRON, N, Y  
 1 2 3 4  $\implies 1, \emptyset, 2 \cdot 3, 4$

Pronoun Attachment adjoins a pronoun as the left daughter of an immediately following noun. This rule is intrinsically ordered after Reduplication.

Genitive Marking must apply to the head noun in structures like PM3 and mark the pronominal prefix as a genitive, yielding structures like PM4.



It is an obligatory rule that marks as a genitive any pronoun that is dominated by N but is not exhaustive of this noun constituent.

Genitive Marking

X,  $\begin{bmatrix} \text{PRON, not } \emptyset \\ N \end{bmatrix}$ , Y  
 1 2 3 4  $\implies 1, \begin{bmatrix} 2 \\ \text{GEN} \end{bmatrix}, 3, 4$

For our purposes it is irrelevant whether Genitive Marking simply inserts a feature that causes the pronoun prefix to be spelled in the appropriate way by the phonological component or whether Genitive Marking is interpreted as consisting of the phonological spelling rules themselves (these being sensitive to syntactic structure). Genitive Marking is in either case intrinsically ordered after Pronoun Attachment.

The final two rules account for the various word order options characteristic of types II-V. Consider first examples 25 and 33, which represent types II and III respectively.

(25) in acocotli i-neloayo 'acocotli root' (C161)

(33) in i-neloayo nopalli 'nopal root' (C161)

It is apparent that some rule is needed that optionally permutes the possessor noun with the following head noun marked with the possessive prefix. The need for such a rule is also shown by comparing representatives of types IV and V, 42 and 48 respectively.

(42) in tiacahua in in-nacoch 'the brave men's ear plugs' (C177)

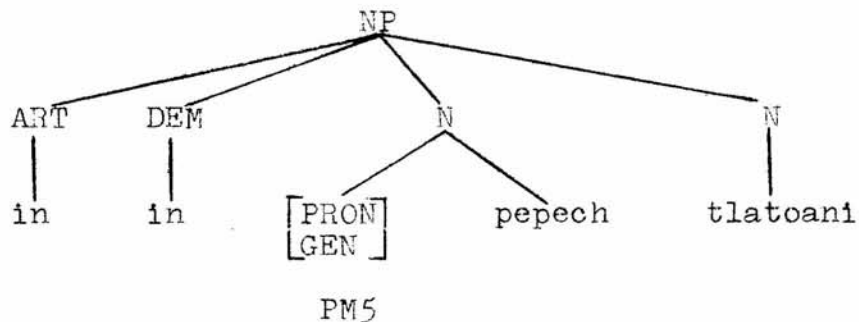
(48) in in-tenteuh in tlatoque 'the rulers' lip plugs' (C177)

We adopt Pronoun Inversion as the required optional rule:

Pronoun Inversion

$$\begin{array}{ccccccc} X, & N, & \left[ \begin{array}{c} N \\ \text{PRON} + Y \\ 3 \end{array} \right], & Z & \implies & 1, 3+2, \emptyset, 4 \\ 1 & 2 & & 4 & & \end{array}$$

Pronoun Inversion applies to a noun the first element of which is pronominal and adjoins it to the left of an immediately preceding noun. It derives PM5 from PM4.



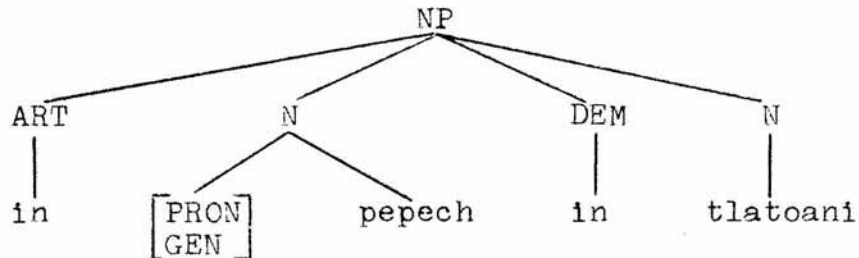
Observe that incorporating the possessed noun into the possessor NP entails the loss of the higher NP-node. Pronoun Inversion must follow Pronoun Attachment, though it need not follow Genitive Marking.<sup>8</sup>

The remaining rule is Demonstrative Postposing, which adjoins DEM to the right of an immediately following noun.

Demonstrative Postposing

$$\begin{array}{ccccccc} X, & DEM, & N, & Y & \implies & 1, \emptyset, 3+2, 4 \\ 1 & 2 & 3 & 4 & & \end{array}$$

From PM5, this rule derives PM6, the surface structure of 44(in i-pepech in tlatoani).



PM6

Note that the noun with which DEM is permuted may be the possessed head noun, as in 44 and 48, or it may be the possessor noun, as in 42; either may be the adjacent noun when Demonstrative Postposing applies, depending solely on whether or not Pronoun Inversion has applied previously. If it has, expressions of type V result; if not, expressions of type IV are the outcome. Demonstrative Postposing must be obligatory in possessives (since no possessives begin with in-in, evidently), and it must follow Pronoun Inversion if the latter is to be stated as simply as possible.

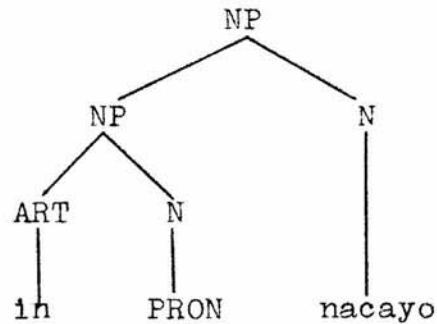
This completes the exposition of the proposed analysis of Aztec possessives; it will be shown in the following sections that the analysis is very strongly motivated. Article Deletion accounts for the difference between the A examples and the B examples. Reduplication, Pronoun Attachment, and Genitive Marking provide for the introduction of the possessive prefix. Finally, Pronoun Inversion and Demonstrative Postposing account for the various word order options.

We conclude this section by giving a sample derivation for each of the ten classes. Note that Reduplication does not apply to type I expressions (expressions involving a pronominal possessor NP), since this was restricted so as not to apply to pro forms. However, Pronoun Attachment and Genitive Marking do apply, giving exactly the required results.

#### Type IA

(17) in i-nacayo 'her body' (C94)

Underlying Structure:



Pronoun Attachment: in PRON+nacayo

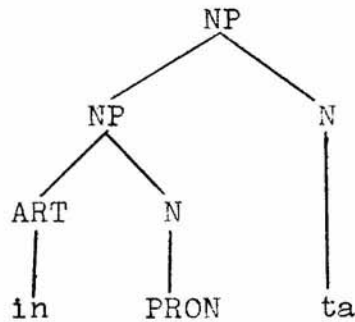
Genitive Marking: in [PRON, GEN]+nacayo

Phonology: in 1-nacayo

Type IB

(3) 1-ta 'his father' (M23)

Underlying Structure:



Article Deletion: PRON ta

Pronoun Attachment: PRON+ta

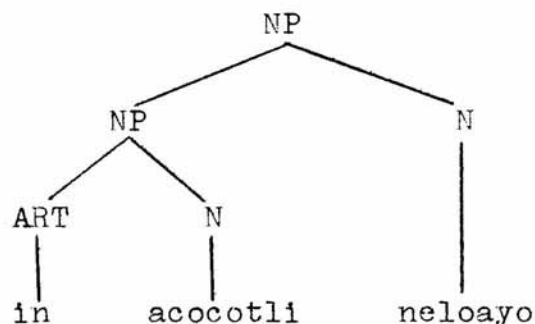
Genitive Marking: [PRON, GEN]+ta

Phonology: i-ta

Type IIA

(25) in acocotli i-neloayo 'acocotli root' (C161)

Underlying Structure:



Reduplication: in acocotli PRON neloayo

Pronoun Attachment: in acocotli PRON+neloayo

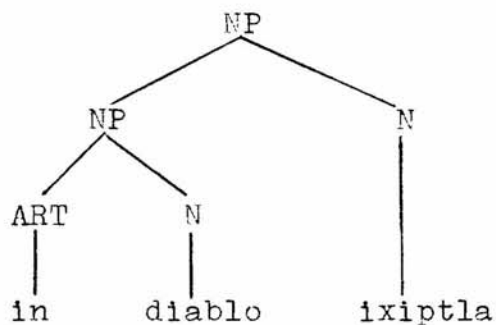
Genitive Marking: in acocotli [PRON, GEN] +  
neloayo

Phonology: in acocotli i-neloayo

#### Type IIB

(29) diablo i-ixiptla 'the devil's image' (C182)

Underlying Structure:



Article Deletion: diablo ixiptla

Reduplication: diablo PRON ixiptla

Pronoun Attachment: diablo PRON+ixiptla

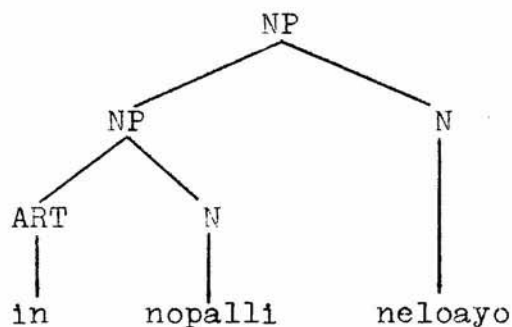
Genitive Marking: diablo [PRON, GEN] +ixiptla

Phonology: diablo i-ixiptla

Type IIIA

(33) in i-neloayo nopalli 'nopal root' (Cl61)

Underlying Structure:



Reduplication: in nopalli PRON neloayo

Pronoun Attachment: in nopalli PRON+neloayo

Genitive Marking: in nopalli [PRON, GEN]+  
neloayo

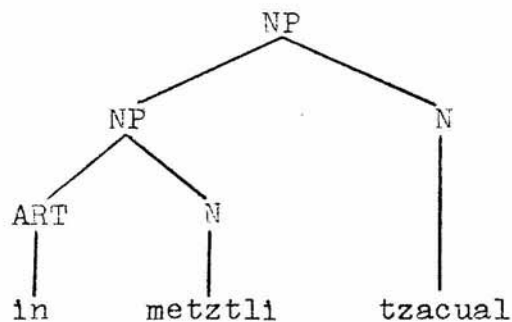
Pronoun Inversion: in [PRON, GEN]+neloayo  
nopalli

Phonology: in i-neloayo nopalli

Type IIIB

(39) i-tzacual metztli 'pyramid of the moon'  
(Gl32)

Underlying Structure:





Article Deletion: metztli tzacual

Reduplication: metztli PRON tzacual

Pronoun Attachment: metztli PRON+tzacual

Genitive Marking: metztli [PRON, GEN]+tzacual

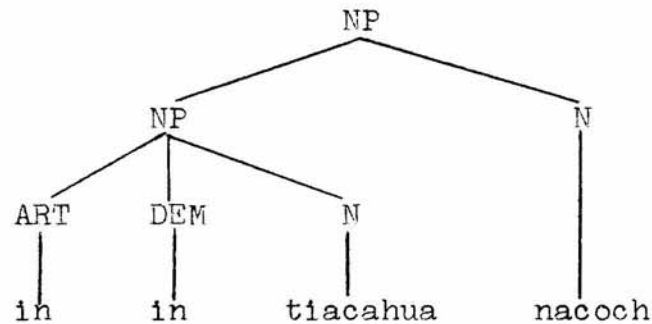
Pronoun Inversion: [PRON, GEN]+tzacual metztli

Phonology: i-tzacual metztli

Type IVA

(42) in tiacahua in in-nacoch 'the brave men's  
ear plugs' (C177)

Underlying Structure:



Reduplication: in in tiacahua PRON nacoch

Pronoun Attachment: in in tiacahua PRON+nacoch

Genitive Marking: in in tiacahua [PRON, GEN]+  
nacoch

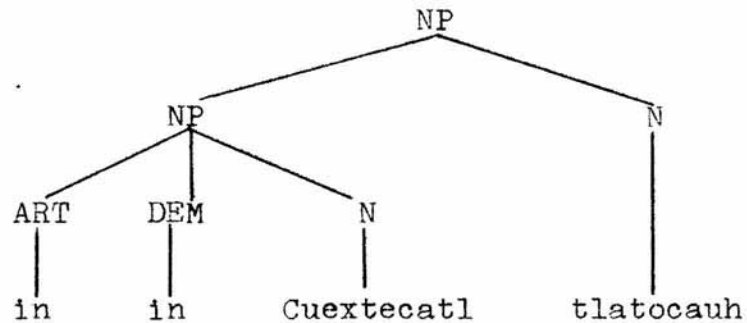
Demonstrative Postposing: in tiacahua in [PRON,  
GEN]+nacoch

Phonology: in tiacahua in in-nacoch

Type IVB

(43) Cuextecat1 in in-tlatocauh 'the ruler of the  
Huasteca' (C193)

Underlying Structure:



Article Deletion: in Cuextecat1 tlatocauh

Reduplication: in Cuextecat1 PRON tlatocauh

Pronoun Attachment: in Cuextecat1 PRON+  
tlatocauh

Genitive Marking: in Cuextecat1 [PRON, GEN] +  
tlatocauh

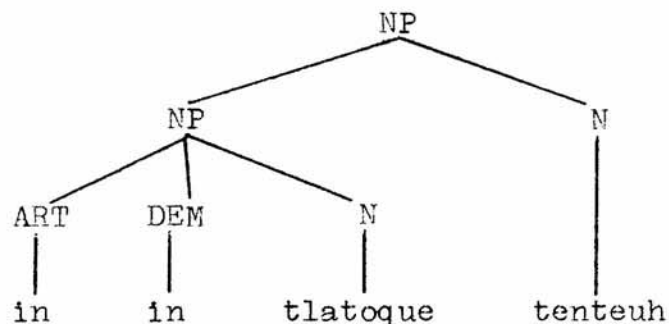
Demonstrative Postposing: Cuextecat1 in [PRON,  
GEN] +tlatocauh

Phonology: Cuextecat1 in in-tlatocauh

#### Type VA

(48) in in-tenteuh in tlatoque 'the rulers' lip  
plugs' (C177)

Underlying Structure:



Reduplication: in in tlatoque PRON tenteuh

Pronoun Attachment: in in tlatoque PRON+tenteuh

Genitive Marking: in in tlatoque [PRON, GEN] +  
tenteuh

Pronoun Inversion: in in [PRON, GEN]+tenteuh  
tlatoque

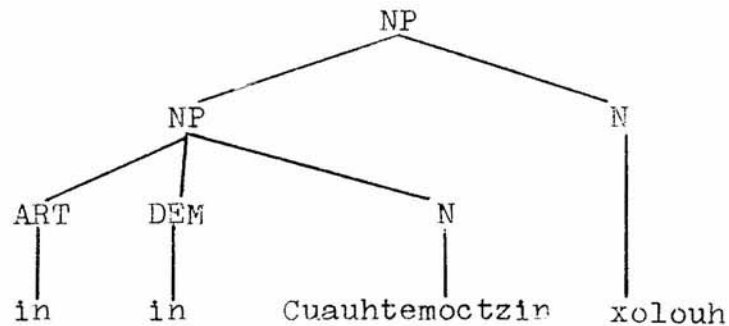
Demonstrative Postposing: in [PRON, GEN]+  
tenteuh in tlatoque

Phonology: in in-tenteuh in tlatoque

Type VB

(49) i-xolouh in Cuauhtemoctzin 'Cuauhtemoctzin's  
page' (G159)

Underlying Structure:



Article Deletion: in Cuauhtemoctzin xolouh

Reduplication: in Cuauhtemoctzin PRON xolouh

Pronoun Attachment: in Cuauhtemoctzin PRON+  
xolouh

Genitive Marking: in Cuauhtemoctzin [PRON, GEN]  
+xolouh

Pronoun Inversion: in [PRON, GEN]+xolouh  
Cuauhtemoctzin

Demonstrative Postposing: [PRON, GEN]+xolouh  
in Cuauhtemoctzin

Phonology: i-xolouh in Cuauhtemoctzin

Motivation of the Rules

We have proposed uniform underlying structures for all ten types of Aztec possessives, and six transformational rules that derive the various surface structures from them. The evidence in favor of this analysis will now be presented. It will be shown that five of the required transformations are needed in a grammar of Aztec on independent grounds, and that there is a possibility that the sixth rule may have independent justification as well. Arguments will then be advanced to justify the proposed underlying structures.

Article Deletion was introduced to account for the apparently free alternation between possessives with initial in and possessives without it.

- (20) in te-ta 'one's father' (C1)
- (7) te-ta " (M23, C1)
- (26) in tonatiuh i-tzacual 'pyramid of the sun'  
(C192)
- (38) i-tzacual tonatiuh " (G132)
- (37) in i-ixiptla diablo 'the devil's image' (G170)
- (29) diablo i-ixiptla " (C182)

This alternation is to be expected, however, since ART can optionally be elided in other constructions as well:

- (57) in tolteca 'the Toltecs' (G146)
- (58) tolteca " (G147)
- (59) in cualli machtli 'the good nephew' (C4)
- (60) cualli culli 'the good grandfather' (C4)
- (61) in mintontli 'the great-great-grandfather'  
(C5)
- (62) achtontli 'the great-grandfather' (C5)
- (63) in yehuantin 'they' (G186)
- (64) yehuantin " (G163)
- (65) in Nanahuatzin 'Nanahuatzin' (G133)

## (66) Nanahuatzin 'Nanahuatzin' (G131)

Consequently, Article Deletion or its equivalent would have to be included in a grammar of Classical Nahuatl even if possessives were not considered. The difference between the A examples and the B examples is simply a special case of a much more general phenomenon of Aztec syntax.

Notice that it is irrelevant for our purposes whether ART is obligatorily introduced as the first element of all noun phrases and later deleted by an optional rule, or whether ART is just optionally inserted (with no deletion rule).<sup>9</sup> What is important is that the alternation between noun phrases with ART and those without it is a general phenomenon, not an idiosyncratic property of possessives. This remains true whether the optional rule accounting for the alternation deletes ART or inserts it.

Reduplication was postulated as the first of three rules serving to introduce the possessive prefix on the possessed noun. Its effect is to insert after a non-pronominal NP a pronominal copy of that NP. To justify this rule on independent grounds, one must show three things: that it is needed to handle other syntactic constructions of Aztec; that it is restricted to non-pronominal noun phrases in these other constructions; and that the copying rule per se must be distinguished from Pronoun Attachment and Genitive Marking.

All three points follow from the existence of sentences like 11, 67-69, and the lack of any sentences like 70-71.

(11) in in-tlacual yehuatl in tonacayotl

ART/their/food/it/(was)/ART/fruit of the land

'Their food was the fruit of the land.' (C178)

(67) in i-pepech in tlatoani yehuatl in tecuanehuatl

ART/his/bed/DEM/ruler/it/(was)/ART/wild animal  
skins

'This ruler's bed was of wild animal skins.'  
(C173)

(68) in-in Taras yehuatl in nahuatlitol-pan mitoa

ART/DEM/Taras/he/ART/Nahuatl/in/is called/

Michoacatl

Michoacatl

'This Taras is called Michoacatl in Nahuatl.'  
(C189)

(69) in Tolteca yehuantin cenca huel tlayacana

ART/Toltecs/they/very/well/took the lead

'The Toltecs took the very lead.' (C194)

\*(70) yehuatl yehuatl in tonacayotl

it/it/(was)/ART/fruit of the land

'It was the fruit of the land.'

\*(71) yehuantin yehuantin cenca huel tlayacana

they/they/very/well/took the lead

'They took the very lead.'

The pronouns yehuatl and yehuantin in 11, 67-69 are reduplications of the immediately preceding noun phrases. The lack of any sentences like 70-71 indicates that this reduplication is limited to non-pronominal noun phrases. Finally, since 11, 67-69 contain free, non-genitive pronouns, Pronoun Attachment and Genitive Marking cannot be considered part of the Reduplication rule itself.

Further evidence for the existence of a Reduplication rule is provided by postpositional phrases. A postpositional phrase consists of a noun phrase followed by a postposition. At the surface level, the postposition is attached as a suffix on the last word of the preceding NP. Here are some typical examples:

(72) in nahuatlatol-pan

ART/Nahuatl/in

'in Nahuatl' (C189)

(73) a-pan

water/in

'in the water' (M79)

(74) in tle-co

ART/fire/in

'in the fire' (G132, 133)

(75) lienzo-tica

bandage/with

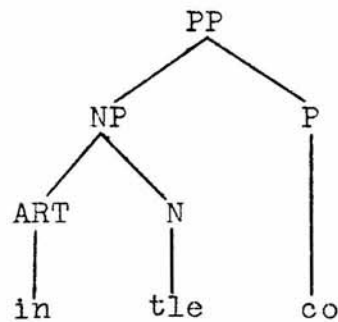
'with a bandage' (C161)

(76) ilhuica-c

sky/in

'in the sky' (M76)

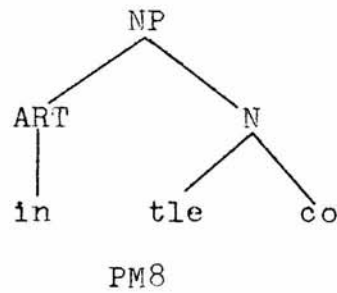
We will assume that postpositions are located outside the object noun phrase in underlying structure; 74, for instance, would have an underlying structure something like PM7.



PM7

A rule that we will haplologically call Postpositioning attaches the postposition as a suffix on the preceding noun, yielding surface structures like PM8.





Now consider examples 77-81:

(77) in atl i-itic

ART/water/it/into

'into the water' (C170)

(78) huehuenton i-pan mocuep

old man/it/into/he changed

'He changed into an old man.' (G141)

(79) i-pan motepolizo in Quetzalcoat1

him/on/he bled his penis/ART/Quetzalcoat1

'He bled his penis on Quetzalcoat1.' (G138)

(80) in-pan tequiyauh in Tolteca

them/on/it rained rocks/ART/Toltecs

'Rocks rained on the Toltecs.' (G147)

(81) in teumet1 i-necuyo i-c tlachiuht1

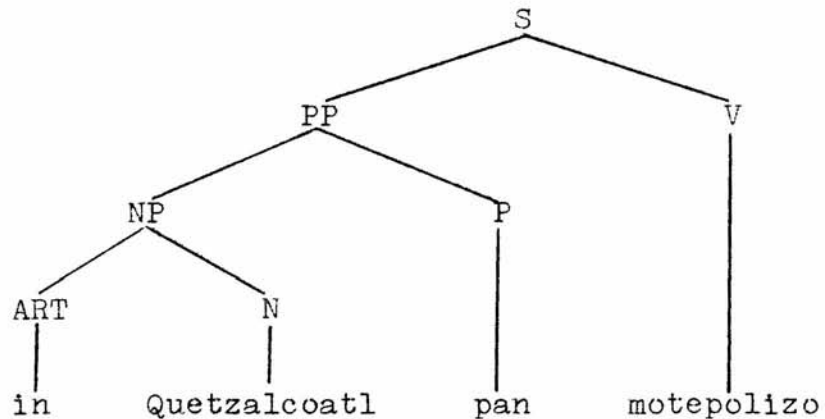
ART/century plant/its/sap/it/with/something  
made

'product of the sap of the century plant' (G143)

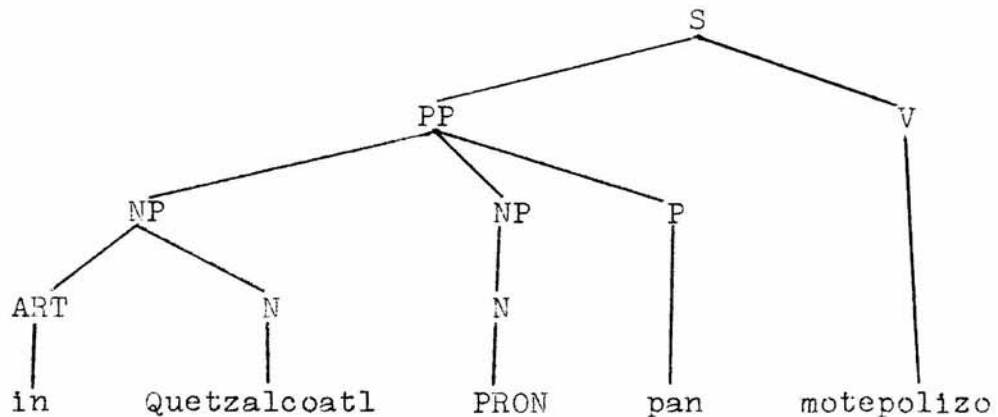
In each of the above expressions, a pronoun copy of the postpositional object has been introduced to bear the postposition; the pronoun is in all cases manifested as a genitive. In 77, i is a copy of in atl, and huehuenton has been reduplicated as i in 78. Examples 79 and 80 are analogous, but the situation has been complicated by a permutation; i in 79 is a copy of in Quetzalcoat1, the underlying object of pan, and in is a

copy of in Tolteca in 80. 81 is the nominalization of an underlying expression that could be glossed 'make something with the sap of the century plant'. The noun phrase in teumetl i-necuyo 'the sap of the century plant' functions as the object of the postposition c 'with'. This complex NP has been reduplicated as the pronominal form i, to which the postposition has been attached.

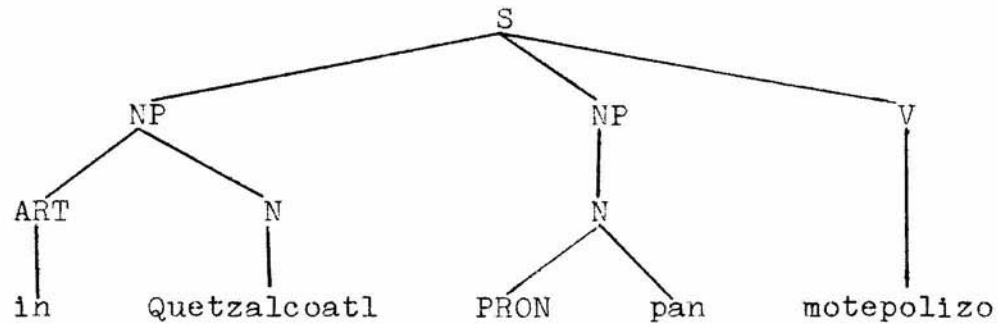
Given underlying structures such as PM7, as well as the rules of Reduplication, Postpositioning, and Genitive Marking, expressions like 77-81 are generated automatically; no special statements are required. For a concrete example, let us take 79, whose underlying structure is sketched in PM9.<sup>10</sup>



Reduplication derives PM10 from PM9.



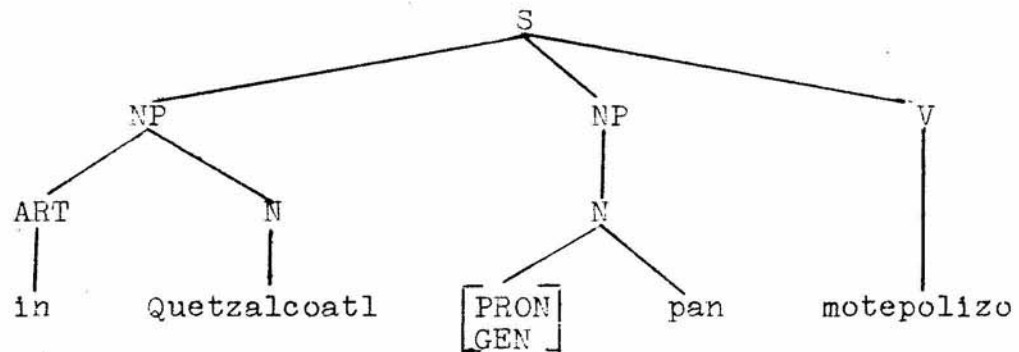
At this point Postpositioning applies. But the noun that directly precedes pan is not Quetzalcoatl, the underlying postpositional object, but rather the reduplicated pronoun; consequently pan is attached to the latter, yielding PM11.



PM11

Notice that once the postposition is suffixed to the preceding element, there is no longer any reason to assume the existence of the node PP; hence this node is deleted and the two noun phrases are treated as separate, independent constituents in PM11.

Once Postpositioning has applied, the conditions for Genitive Marking are met. As this rule was formulated, it marks as a genitive any pronoun that is dominated by N but is not exhaustive of N, and this is true in PM11. PM11 is thus obligatorily transformed to PM12.



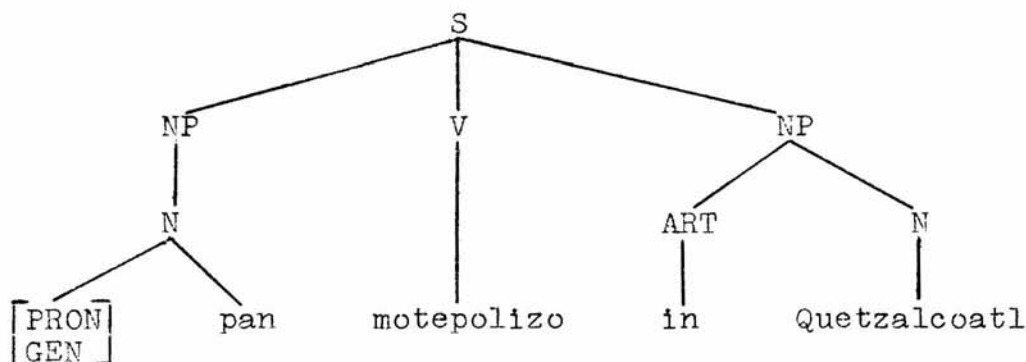
PM12

This is exactly the desired result, since a pronoun always shows up in its possessive or genitive form when attached to a postposition.

Finally, since in Quetzalcoatl and i-pan are free noun phrases in PM12, they are eligible to undergo permutation rules. In particular, there is a syntactic rule of Aztec which allows a noun phrase that precedes the verb to be placed after the verb; pairs of sentences like 82-83 demonstrate the need for such a rule:

- (82) otli quitotocatinemi  
 road/she goes following  
 'She goes along the road.' (C94)
- (83) quinamaca picietl  
 he sells/tobacco  
 'He sells tobacco.' (C94)

The direct object precedes the verb in 82 but follows it in 83. Applying to PM12, the permutation rule derives PM13, the surface structure of 79.



PM13

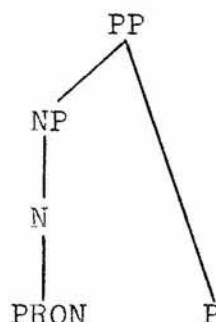
Thus we see that postpositional expressions such as 77-81 provide motivation both for Reduplication and for Genitive Marking. We also see that there are grounds for separating Pronoun Attachment and Genitive Marking into two rules, since the latter but not the former applies in 77-81.<sup>11</sup> The case is further strengthened by the existence of expressions like 84-85, and the apparent lack of expressions like 86-87, with both a free pronoun and a possessive pronoun.

- (84) no-ca 'from me' (M77)
- (85) mo-pan 'for you' (M79)

\*(86) nehuatl no-ca 'from me'

\*(87) tehuatl mo-pan 'for you'

The underlying structure of 84-85 is PM14.



PM14

Reduplication does not apply to pronouns, which accounts for the ungrammaticalness of 86-87. Postpositioning and Genitive Marking apply obligatorily, however, producing 84-85.

Thus far it has been shown that three of the six rules formulated to derive possessive constructions are strongly motivated on independent grounds: Article Deletion, Reduplication, and Genitive Marking. We will see shortly that Pronoun Inversion and Demonstrative Postposing are also strongly motivated. The only rule without strong independent justification is Pronoun Attachment.

First let us observe that Pronoun Attachment has a certain amount of motivation of a negative sort; since Reduplication does not itself attach the pronoun to the following noun, and since Genitive Marking presupposes such an attachment, Pronoun Attachment is necessary in order for our analysis to exploit the generality of these two rules. It is also conceivable that our distinction between Pronoun Attachment and Postpositioning is an artificial one. The two rules are similar in that they both combine a noun and the following element into a single word. Superficially, the conditions on the two rules differ; Pronoun Attachment operates on the sequence PRON+N, while Postpositioning operates on the sequence N+P (regardless of whether the first element is a pronoun). Historically, however, a number of the Aztec postpositions are nouns, and there are even certain synchronic similarities between postpositions and nouns (both take the possessive form of a pronominal prefix, for instance). Although we will not claim that Pronoun Attachment and Postpositioning can or

should be combined in a single rule,<sup>12</sup> the possibility is a suggestive one worth exploring.

Let us now focus our attention on Pronoun Inversion, which optionally permutes two nouns, the second of which begins with a pronominal element, when the two are adjacent. It turns out that Pronoun Inversion is a very general rule, not at all a special rule limited to possessives. 88-94 are some representative examples:

- (88) in yehuantin Tolteca  
       ART/they/Toltecs  
       'the Toltecs' (C167)
- (89) in yehuatl Titlacahuan  
       ART/he/Titlacahuan  
       'Titlacahuan' (G141)
- (90) in yehuantin ozomatin  
       ART/they/monkeys  
       'the monkeys' (G184)
- (91) in ompa Tullan-Tlapalan  
       ART/there/Tullan-Tlapalan  
       '(to) Tullan-Tlapalan' (G142)
- (92) in ompa Teotihuacan  
       ART/there/Teotihuacan  
       '(in) Teotihuacan' (G131)
- (93) in oncan tlecuil-co  
       ART/there/hearth/in  
       'in the hearth' (G132)
- (94) i-ca tetl  
       it/with/rock  
       'with the rock' (M77)

Initially somewhat puzzling,<sup>13</sup> expressions such as these are easily explained given our proposed analysis. The pronouns (yehuantin, yehuatl, ompa, oncan, i) are not, as they superficially appear to be, the head nouns of 88-94. Rather, the following fully-specified nouns are the head nouns, and the pronouns are copies of these derived by Reduplication. 88-94 are just like the noun phrases of 69 and 78 except that Pronoun Inversion has applied as well as Reduplication.

(69) in Tolteca yehuantin cenca huel tlayacana

ART/Toltecs/they/very/well/took the lead

'The Toltecs took the very lead.' (C194)

(78) huehuenton i-pan mocuep

old man/it/into/he changed

'He changed into an old man.' (G141)

The derivation of 88 will illustrate the proposed treatment of expressions 88-90:

Underlying Structure: in Tolteca

Reduplication: in Tolteca PRON

Pronoun Inversion: in PRON Tolteca

Phonology: in yehuantin Tolteca

For 91-93, the details are not so obvious, since the syntax of ompa and oncan raises a number of interesting questions that have not yet been resolved. Nevertheless, it is clear that 91-93 can be handled quite reasonably in the framework that has been established. Here is the derivation of 93:

Underlying Structure: in tlecuil co

Reduplication: in tlecuil co PRON

Postpositioning: in tlecuil+co PRON

Pronoun Inversion: in PRON tlecuil+co

Phonology: in oncan tlecuil-co

It is assumed that ompa and oncan are locative pronominal forms that substitute for an entire postpositional phrase.<sup>14</sup>



Note that tlecuilco constitutes a noun after Postpositioning, so that Pronoun Inversion can permute oncan with it. The derivation of 94 is straightforward:

Underlying Structure: in tetl ca  
 Article Deletion: tetl ca  
 Reduplication: tetl PRON ca  
 Postpositioning: tetl PRON+ca  
 Genitive Marking: tetl [PRON, GEN]+ca  
 Pronoun Inversion: [PRON, GEN]+ca tetl  
 Phonology: i-ca tetl

The last rule to consider is Demonstrative Postposing, which permutes DEM with a following noun. As 95-96 show, this rule is needed in a grammar of Aztec independently of any consideration of possessives:

- (95) in patli in  
 ART/medicine/DEM  
 'this medicine' (G142)
- (96) teuctl on  
 prince/DEM  
 'that prince' (G152)

Demonstrative Postposing derives expressions such as 95-96 from underlying structures exactly analogous to 13 and 16:

- (13) in-in patli 'this medicine' (C162)
- (16) in-on yolcatl 'that beast' (G197)

Examples involving Reduplication provide further motivation for Demonstrative Postposing:

- (97) in yehuantin in Tolteca  
 ART/they/DEM/Toltecs  
 'these Toltecs' (C168)

- (98) in yehuatl in tlacateculotl  
 ART/he/DEM/magician  
 'this magician' (G145)
- (99) in i-pan in parrapho  
 ART/it/in/DEM/paragraph  
 'in this paragraph' (C165)
- (100) i-campa in tepetl  
 it/behind/DEM/mountain range  
 'behind this mountain range' (M76)
- (101) i-pan in Quetzalcoatl  
 him/to/DEM/Quetzalcoatl  
 'to Quetzalcoatl' (G142)
- (102) in in-pan in Tolteca  
 ART/them/over/DEM/Toltecs  
 'over these Toltecs' (G147)

99 is a particularly clear example, since the context makes it impossible to interpret the second occurrence of in as anything but a demonstrative. The phrase begins the first sentence of a section of text, and this first sentence tells what the text is about; the only reasonable gloss is 'in this paragraph'. Here is the derivation of 99:

Underlying Structure: in in parrapho pan

Reduplication: in in parrapho PRON pan

Postpositioning: in in parrapho PRON+pan

Genitive Marking: in in parrapho [PRON, GEN] +  
 pan

Pronoun Inversion: in in [PRON, GEN] +pan  
 parrapho

Demonstrative Postposing: in [PRON, GEN] +pan  
 in parrapho

Phonology: in i-pan in parrapho

Finally, we note that the proposed analysis accounts for Garibay's observation (G35) that the sequence PRON + in has demonstrative force. 103-105 exemplify this demonstrative construction:

(103) yehuatl in ticitl

he/DEM/doctor

'this doctor' (G154)

(104) yehuatl in Mexicatl

he/DEM/Mexican

'this Mexican' (G166)

(105) yehuatl in Tonatiuh

he/DEM/Tonatiuh

'this Tonatiuh' (G169)

It should be apparent that expressions such as these result automatically from perfectly ordinary underlying structures containing DEM given the strongly motivated transformational rules we have established. This is illustrated by the derivation of 105:

Underlying Structure: in in Tonatiuh

Article Deletion: in Tonatiuh

Reduplication: in Tonatiuh PRON

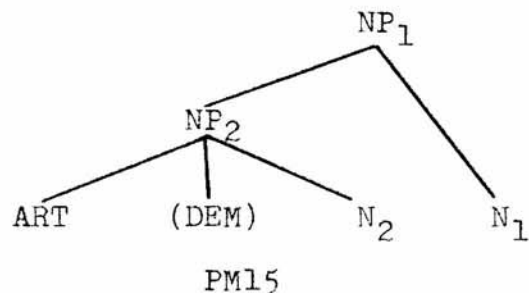
Pronoun Inversion: in PRON Tonatiuh

Demonstrative Postposing: PRON in Tonatiuh

Phonology: yehuatl in Tonatiuh

#### Motivation of the Underlying Structures

We have put forth the hypothesis that all ten types of possessive constructions under consideration derive from underlying structures of the form PM15, in which NP<sub>2</sub> is the possessor noun phrase and N<sub>1</sub> is the possessed or head noun.



In the preceding section, it was shown that assuming such underlying structures enables one to derive all ten classes of possessives by rules that are strongly motivated on independent grounds. Now we turn to a more direct discussion of the motivation for these underlying structures.

Certain aspects of PM15 hardly call for justification. There is no real doubt, for instance, that the possessor NP and the possessed noun combine to form a constituent (labeled  $NP_1$ ). Notice in this regard that the entire possessive expression can function as a unit in the permutation rule that places a noun phrase after the verb or adjective of a sentence:

- (106) *huel cualli in i-nechichiuh in cihua*  
 very/good/ART/their/dress/DEM/women  
 'The dress of these women was very good.'  
 (G153)

Likewise there is no real doubt that  $N_1$ , the possessed noun, is the head noun of these expressions.

Two things remain to be discussed: the claim that  $NP_2$ , the possessor noun phrase, precedes the head noun  $N_1$  in the underlying structure, and the treatment of *in*. Given only pairs of expressions like 25 and 33, either  $NP_2$  or  $N_1$  could reasonably be said to precede the other in underlying structure.

- (25) *in acocotli i-neloayo* 'acocotli root' (C161)  
 (33) *in i-neloayo nopalli* 'nopal root' (C161)

However, it is necessary to postulate the rule of Pronoun Inversion in order to derive phrases such as 94:

- (94) *i-ca tetl*  
 it/with/rock  
 'with the rock' (M77)

Pronoun Inversion can derive expressions like 33 from those like 25, but no independently needed rule has been established that would have the opposite effect. In order to capture the obvious generalization, therefore, structures like 25 must be more basic than structures like 33. This means that NP<sub>2</sub> must precede N<sub>1</sub> in underlying structure.

As was noted earlier, the treatment of in is the most problematic aspect of the analysis; it is quite possible that PM15 is wrong in this respect, or at least wrong for certain possessive expressions. Nevertheless, there is some motivation for treating the two particles in that can occur in possessives as ART and DEM modifying N<sub>2</sub>, the possessor noun.

One advantage of this analysis is that it correctly predicts that at most two occurrences of in are possible in possessives, not as many as four. This is accounted for by the assumption that the possessor NP (NP<sub>2</sub>) substitutes for the ART (DEM) that modifies the head noun (N<sub>1</sub>); this in turn entails that any occurrence of in which shows up on the surface in possessive expressions must belong to NP<sub>2</sub>.

Another advantage is that the proposed analysis leads to the fullest possible utilization of independently motivated transformations. With PM15 as the structure underlying all ten possessive types, the in that occurs between the possessor and possessed nouns in types IV and V is in all cases the demonstrative in, its positioning being the result of Demonstrative Postposing. If the medial occurrence of in were treated as ART rather than as DEM, one would in effect be claiming that it is only coincidental that these constructions could also be derived by Demonstrative Postposing from structures like PM15. In fact, some special, ad hoc restriction would have to be invoked to prevent possessives of types IV and V from being derived from expected underlying structures by Demonstrative Postposing.

Another argument is that the proposed analysis, but not any obvious alternative, claims the greatest possible parallelism between possessives and postpositional phrases.<sup>15</sup> Consider 99 once again:

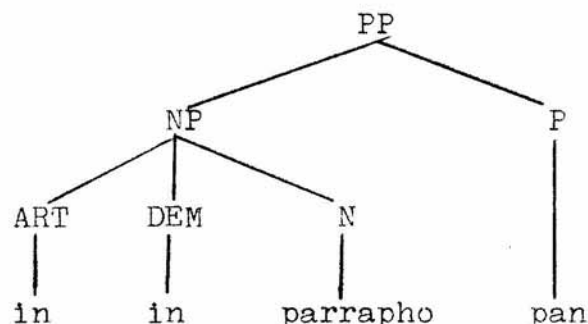
(99) in i-pan in parrapho

ART/it/in/DEM/paragraph

'in this paragraph' (Cl65)

The only plausible analysis for 99 treats the first in as ART and the second as DEM, both modifying parrapho; PM16 is

the underlying structure.



PM16

Both for semantic reasons and because postpositions (even if they derive historically from nouns) do not take ART or DEM, the two occurrences of in in postpositional phrases like 99 must be interpreted as ART+DEM modifying the object noun, parrapho. Observe now that PM15 and PM16 are exactly analogous; the only difference is that the former has the nodes NP and N corresponding to PP and P in the latter. To the extent that parallelism with postpositional phrases is a relevant consideration, therefore, PM15 is motivated as the underlying structure of possessives.

The fourth and perhaps strongest argument in favor of PM15 concerns possessives with pronouns as the possessor noun. Expressions with pronominal possessors differ from other possessives in that they permit at most one occurrence of in, not two; moreover, in is never postposed. Thus, while expressions like 17 and 22 abound, there seem to be no corresponding expressions like 107 or 108.

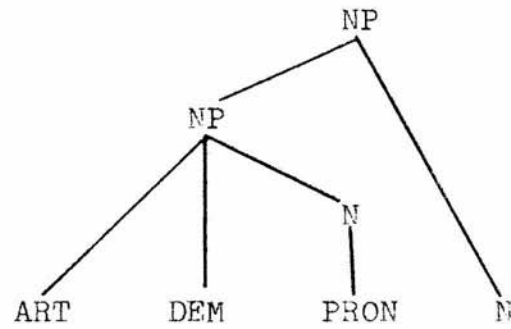
(17) in i-nacayo 'her body' (C94)

(22) mo-toca 'your fame' (G152)

\*(107) in i-nacayo in

\*(108) mo-toca in

There would be no reason to expect this if in were claimed to modify the head noun instead of the possessor noun. With the proposed analysis, on the other hand, this fact is predictable. 107-108 would have to derive from an underlying structure like PM17 (assuming that PM15 underlies all possessives).



PM17

But underlying structures such as PM17 could never arise, since Aztec pronouns do not take demonstratives. Expressions like 109-110 seem not to occur and are apparently ungrammatical:

\*(109) in-in yehuatl 'this she'

\*(110) in-in tehuatl 'this you'

Since both pronouns and demonstratives are deictic in character, it is to be expected that they would be mutually exclusive.



### Footnotes

1. Examples are given in the orthography (somewhat regularized) of the classical texts rather than in a phonetic or phonological transcription. All examples are taken from one of the following sources: Fray Alonso de Molina, Arte de la Lengua Mexicana y Castellana (Mexico, 1571), facsimile edition (Madrid, 1945); Angel María Garibay K., Llave del Nahuatl (Mexico, 1961); Charles E. Dibble and Arthur J. O. Anderson, Florentine Codex, Book 10--The People (Santa Fe, New Mexico, 1961). Garibay's Llave del Nahuatl contains a large selection of classical texts, from which the utilized examples are taken, and the Florentine Codex is an edition of Fray Bernardino de Sahagún's monumental work Historia de las Cosas de la Nueva España. M, G, and C identify examples from Molina's Arte, Garibay's Llave, and the Florentine Codex, respectively. Each of these designations is accompanied by the page number of the example.

2. Hyphens will be used to indicate morpheme boundaries that are relevant to the discussion. No attempt is made to mark all morpheme boundaries, however.

3. Though the demonstrative on definitely existed in Classical Nahuatl, it occurs only rarely attached to in to form in-on in the classical texts (in-on is cited in M22, but not in an example); in-in is preferred with overwhelming frequency. (Consequently, the possessive constructions given below that are said to contain demonstratives show in to the exclusion of on.) Example 16 is taken from one of the modern dialects. The same is true of 8, which, however, is exactly parallel to some examples given below from the classical texts.

4. This analysis is not exhaustive of the syntactic phenomena of Aztec that could reasonably be said to involve possessives. However, the great majority of possessive expressions containing one of the seven possessive prefixes fall into one of the ten classes that are discussed.

5. 43 is the only example of type IVB that is at hand, and it is somewhat problematic. The full expression is Cuextecat1 in in-tlatocauh centlamantin tlaca, glossed 'the ruler of a group of Huasteca'. Regardless of the validity of this particular example, possessives of type IVB were almost certainly possible in Classical Nahuatl. This follows on the basis of analogy from the other nine types under consideration, and also from the system of rules, strongly motivated on independent grounds, that account for the other possessive constructions. It should be noted that possessive expressions with a

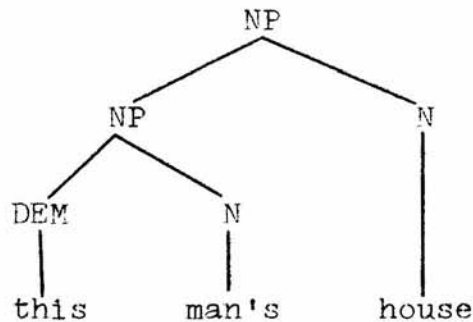


non-pronominal possessor do not occur terribly frequently in the texts, nor do those without initial in; thus the paucity of examples of type IVB is not very surprising.

6. Examples with proper nouns do not clarify the matter, since proper nouns can take both the article in and the demonstrative in, e.g. in Nanahuatzin 'Nanahuatzin' (G132), in-in Taras 'this Taras' (C189). The article in can also precede an independent pronoun, e.g. in yehuantin 'they' (G186).

7. This underlying structure is the result of some transformational derivation, not the deep structure of the nominal; indeed, it must be fairly close to the surface structure. The various possessive examples listed earlier very likely have a number of different transformational derivations, but they all seem to behave alike at the level of structure with which we are concerned.

Notice, incidently, how similar PM1 is to the surface structure of possessives in English. This man's house, for instance, has a surface structure very much like the following:



There is good reason to believe that this man's house derives from the more abstract structure the house of this man's via a rule that substitutes the possessor NP, this man's for the definite article modifying the head noun. The substitution rule posited for Aztec is of course directly analogous.

8. There must be some restrictions on Pronoun Inversion and Pronoun Attachment; they could not apply between a subject and object NP, for instance.

9. Treating ART as an element that is automatically inserted at the beginning of all noun phrases seems like a reasonable (though by no means necessary) choice, since ART occurs so frequently and since it apparently has no meaning (recall examples 9-12, which show that ART is neither inherently definite nor inherently indefinite). The demonstrative in

cannot be handled in this manner, however, although it too is optional in possessives. The fact that it has semantic content (in contrasts with on) is sufficient to show this.

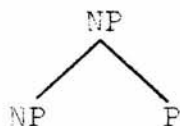
10. We are of course concerned here, not with the most abstract underlying structure that one could with some justification postulate for 79, but rather with one that lies fairly close to surface structure. PM9 is no doubt derived from a deep structure containing both a subject and an object NP, though neither shows up on the surface (except for the reflexive prefix mo on the verb).

11. The pronoun and the postposition combine in 77-81, but this must be attributed to Postpositioning (which is independently needed for phrases like 72-76). Notice that the pronoun-postposition combination must be dominated by P (so that Genitive Marking can apply to the pronoun). Now, the pronoun, but not the postposition, is dominated by N in the underlying structure. Thus it must be the case that the postposition is adjoined to the pronoun, and not vice versa. (But cf. footnote 12.)

12. In such an analysis, the N+P combinations in examples 72-76 might be treated as compounds. Furthermore, collapsing Pronoun Attachment and Postpositioning would remove the main motivation for treating Genitive Marking as a separate rule.

13. At first glance, 88-94 might appear to be appositive expressions, but there are reasons to doubt that this is the case. An appositive analysis might work for 88-90, but such an analysis seems less plausible for 91-93, and it is implausible for 94. Moreover, ART occurs with the pronoun in this construction in the overwhelming majority of cases. Now with the appositive analysis, which treats the pronoun as the head noun, this is rather surprising, since ART occurs only very rarely with a free pronoun in other constructions. With the analysis proposed in the text, on the other hand, the frequent occurrence of ART is expected.

14. Reduplication (which, as formulated, applies only to noun phrases) can have the effect of reduplicating certain postpositional phrases if these are attributed the following tree structure:



An analogous structure has been suggested, with some motivation, for prepositional phrases.

15. This is especially desirable given the close historical connection between postpositions and nouns.